

INVESTIGATING FACTORS THAT NEGATIVELY INFLUENCE LEAN IMPLEMENTATION IN THE EASTERN CAPE AUTOMOTIVE INDUSTRY

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PORT ELIZABETH

Declaration

I, Sibó Camagu, hereby declare that:

- the work in this dissertation is my own original work;
- all sources used or referred to have been documented and recognised;
- this dissertation has not been previously submitted in full or partial fulfillment of the requirements for an equivalent or higher qualification at any other recognised education institution; and
- I hereby give consent for my treatise, if accepted, to be available for photocopying and for interlibrary loan, and for the title summary to be made available to outside organisations.

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Abstract

In this intensely competitive environment of the global economy, the survival of even the most established manufacturers depends on their ability to continuously improve quality whilst reducing costs. The resulting productivity of producing more with less is the only key to market leadership and sustainable competitive advantage. Changing production methods from mass-production to Lean Manufacturing has become the essential practise for successful manufacturers (Rogers and Sim, 2009).

The purpose of this study is to investigate what factors negate the adoption and implementation of Lean Manufacturing as a means to gain competitive advantage. The focus was on companies that have participated in the AIDC Tirisano cluster programme. The study investigated what effect Organisational Culture, Leadership Behaviours, Employee Involvement and Strategy Integration have on Lean Manufacturing adoption and implementation.

This study applied the mixed methodologies of qualitative and quantitative approaches using methodological triangulation. A cross sectional analytical survey approach in a descriptive case study was undertaken.

The findings from the questions and the interviews from the respondents who participated in the survey indicated that the practices in some companies enable the successful adoption and implementation of Lean Manufacturing whilst in some others the practices will negatively affect the adoption and implementation.

The study concludes by stating that South African automotive component manufacturers are under immense pressure to improve quality and reduce costs. Initiatives like Lean Manufacturing should be undertaken in order to bring about these improvements. But this improvement comes about by changing the current way of doing things. Companies need to undertake a total approach when implementing Lean as part of the business strategy and

this must be driven by management as leaders and a team culture that involves all employees needs to be present.

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Chapter 1

Introduction, problem statement and overview of the study

1.1. Introduction

Over the last decade globalisation has resulted in a highly competitive business environment. The turbulent market conditions in the twenty-first century have heightened the need for more competitive enterprise strategies (Baramichai, Marangos & Zimmers, 2007). In this intensely competitive environment of the global economy, the survival of even the most established manufacturers depends on their ability to continuously improve quality whilst reducing costs. The resulting productivity of producing more with less is the only key to market leadership and sustainable competitive advantage. Changing production methods from mass-production to Lean Manufacturing has become the essential practice for successful manufacturers (Rogers & Sim, 2009).

Lean Manufacturing has its origin in the philosophy of achieving improvements in most economical ways, with special focus on reducing and eliminating waste. The concept has its origins in the Japanese manufacturing shop floor and was promoted through the success of Toyota Motor Corporation (KollbergDahlgaards & Brehmer, 2007; Dahlgaard & Dahlgaard-Park, 2006).

South Africa's automotive industry is a global manufacturer and exporter of vehicles and components. The sector is one of the largest employers after the mining sector (Naamsa, 2008). The government has identified the automotive industry as a key sector in the South African economy, both to create jobs and ensure employability and to bolster the South African economy (AIDC, 2008).

The effects of globalisation in South Africa's automotive industry demands manufacturer's strategic thinking and strong leadership at the helm. The

continuous pressure on the South African automotive industry to conform and maintain international standards of Quality, Cost and Delivery has resulted from the fact that many manufacturers have secured export contracts in recent years. Customers have set stricter measures of compliance in regard to quality standards and cost reduction targets (AIDC, 2008).

The Automotive Industry Development Centre (AIDC) is a government-supported service provider that has been commissioned by the Department of Trade and Industry (DTI) to provide best practice solutions in facilitating government and industry strategic initiatives and implementing related projects. The AIDC's mandate is to grow the South African automotive industry's global competitiveness (Naamsa, 2008).

The AIDC Tirisano Programme is based on Lean Manufacturing principles and was developed in response to the need in industry to become globally competitive. The programme is funded by the DTI, the Eastern Cape Development Corporation (ECDC) and is implemented by the AIDC as a competitiveness improvement intervention in the automotive sector.

Bhasin and Burcher (2004) state that only ten per cent of UK organisations have accomplished successful lean implementation.

The purpose of this study is to investigate what factors negate the adoption and implementation of Lean Manufacturing as a means to gain competitive advantage. The focus is on companies that have participated in the AIDC Tirisano cluster programme.

1.2. Problem statement

In the current economic slowdown, the automotive industry, which relies on both local and international sales, has been badly hit by significantly reduced motor vehicles sales (Naamsa, 2008). The most pressing need for automotive

manufacturers is to reduce costs, increase efficiency and provide better service to customers. Manufacturers are becoming more concerned with creating leaner supply chains, as well as aligning their supply chain strategies with their business strategies, in the light of the global economic slowdown. Managers need to focus on eliminating any waste in their supply chains and reducing costs to gain competitive advantage (Naamsa, 2008).

Looking at the stipulated challenges facing the South African automotive industry, the researcher has come up with the following problem statement:

The main focus of this study is to investigate what factors negatively affect the adoption of effective and sustainable Lean Transformation in companies that participated in the AIDC Tirisano cluster programme in the Eastern Cape automotive component manufacturers.

1.3. Research objectives

1.3.1. Primary objectives

The primary objective of this study is to investigate what factors negatively affect the adoption and implementation of Lean Manufacturing as a transformation tool, negating the achievement of expected results and outcomes to increase competitive advantage. The study will attempt to establish what effect Organisational Culture, Leadership Behaviours, Employee Involvement and Strategy Integration have on Lean Manufacturing adoption and implementation.

1.3.2. Secondary objectives

In order to find a suitable solution for the above-mentioned problem, the following secondary objectives have been identified:

- I. Investigate what influence on and relationship to the adoption and implementation of Lean Manufacturing Organisational Culture has.
- II. Investigate what influence on and relationship to the adoption and implementation of Lean Manufacturing Leadership Behaviours has.
- III. Investigate what influence on and relationship to the adoption and implementation of Lean Manufacturing Employee Involvement has.
- IV. Investigate what influence on and relationship to the adoption and implementation of Lean Manufacturing Strategy Integration has.

1.4. Hypotheses

The following hypotheses have been formulated, based on the research objectives:

Ho₁ = Organisation Culture has no relationship to and influence on the adoption and implementation of Lean Manufacturing.

Ho₂ = Leadership Behaviours have no relationship to and influence on the adoption and implementation of Lean Manufacturing.

Ho₃ = Employee Involvement has no relationship to and influence on the adoption and implementation of Lean Manufacturing.

Ho₄ = Strategy Integration has no relationship to and influence on the adoption and implementation of Lean Manufacturing.

The above stated hypotheses relationships has been depicted graphically in figure 1 below:

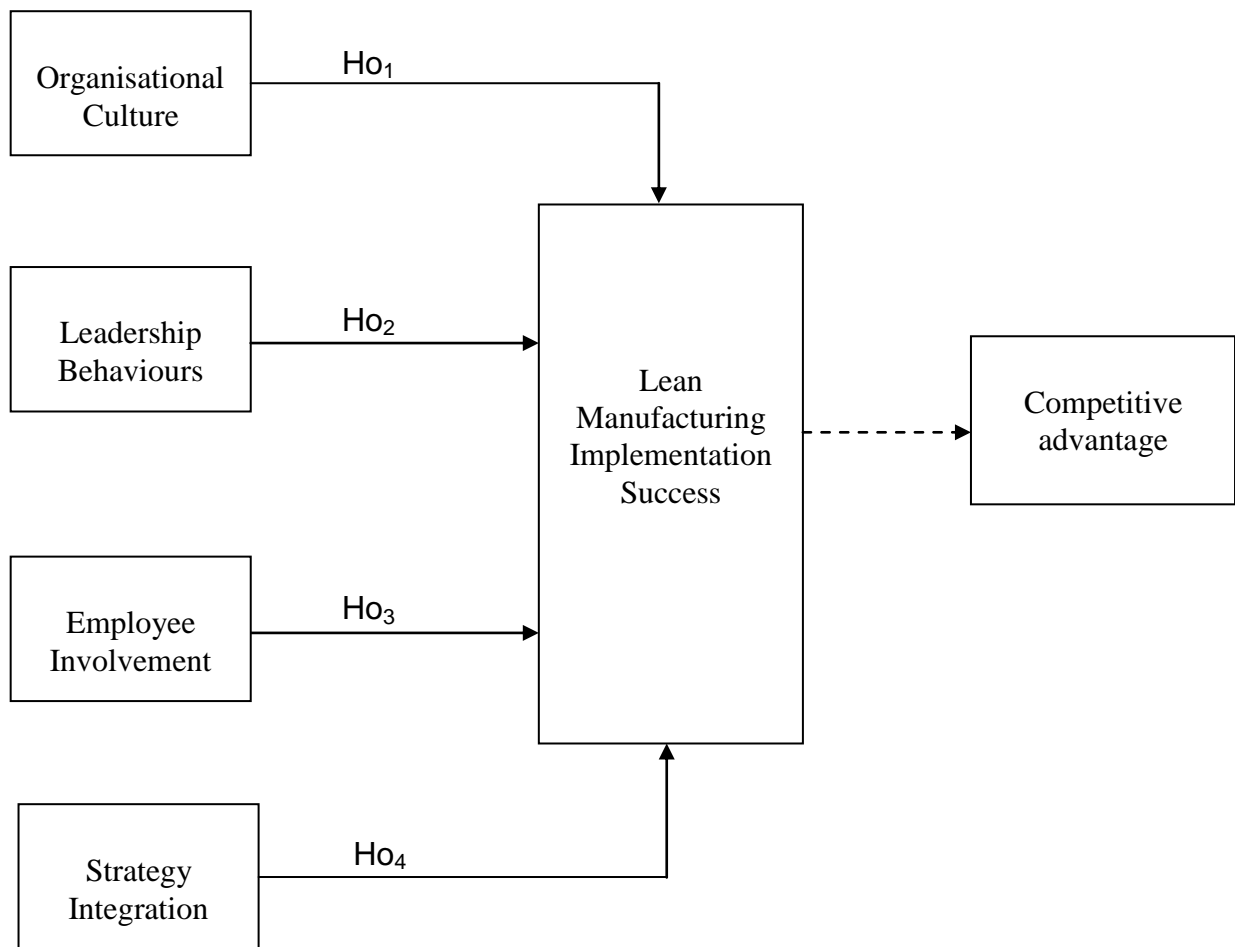


Figure 1: Hypotheses model (source: researcher own composition)

1.5. Research design objectives

To meet the stated objectives, the research will be designed as follows:

- i. There will be a literature review on the variables under investigation.
- ii. A survey will be conducted through face-to-face interviews using a questionnaire. The questionnaire will be developed from Lean Manufacturing best-practices, derived from the literature review study and will be used to assess and appraise the organisations.

- iii. The questionnaire will be piloted with thirty participants in three randomly chosen organisations, in order to test the validity and reliability of the scales of measure used.
- iv. The data will be collected using the stratified random sampling method and descriptive and inferential statistics methods will be used as a means of analysing the data to the hypotheses.
- v. The data will be captured into the Microsoft Excel computer program and will be analysed using the SPSS computer program and
- vi. Findings from the literature review and the empirical study will be integrated to derive major factors that affect the adoption and implementation of Lean Manufacturing and recommendations will be made to enhance the adoption of Lean Manufacturing as a transformation tool to increase competitive advantage.

1.6. Research methodology

Methodology refers to the overall approach of the research process, from the theoretical underpinnings to the collection and analysis of the data (Collis & Hussey, 2003).

1.6.1. Research paradigm

A paradigm is a frame of reference that underlies theories. A theory seeks to explain, paradigms provide ways of looking. Paradigms do not explain anything: however, they provide logical frameworks within which theories are created (Babbie, 2007). There are two main research paradigms labelled positivists and phenomenological which are also termed quantitative paradigms and qualitative paradigms respectively (Collis & Hussey).

“A positivists or quantitative paradigm seeks the facts with little regard to the subjective state of the individual, therefore logical reasoning is applied to the research so that precision, objectivity and rigour replace hunches, experiences and intuition as the means of investigating research problems” (Collis & Hussey, 2003). Babbie (2007) “describes the quantitative paradigm as the numerical representation and statistical manipulation of observations for the purpose of describing and explaining the facts that those observations reflect”.

A phenomenological or qualitative paradigm is concerned with understanding human perceptions and perspectives from the researcher’s own frame of reference (Collis & Hussey, 2003). Qualitative research believes that the researcher’s ability to interpret and make sense of what he or she sees is critical for an understanding of any social phenomenon (Leedy, 2001). The research methods used in this paradigm are an arrangement of interpretative techniques which seek to describe, translate and come to terms with the meaning, not the frequency of the occurring factors (Collis & Hussey, 2003).

It is also possible and appropriate to adopt both paradigms in the same study. This means that a study can have an entirely positivistic approach and have phenomenological aspects within it. The mixture of both approaches in the methods of collecting and analysing data allows for a broader and complimentary view of the research problem (Collis & Hussey, 2003). The use of different research approaches, methods and techniques in the same study is defined as triangulation. This approach can overcome potential bias and sterility and leads to greater validity and reliability than a single method approach, according to Collis and Hussey (2003).

This study will follow the mixture of the positivistic and quantitative paradigm using triangulation, as this study is trying to determine and measure the relationships between Organisational Culture, Leadership Behaviours, Employee Involvement and Strategy Integration as the independent variables and Lean Manufacturing implementation as the dependant variable as stated in the hypothesised relationship model.

1.6.2. The sample

When research is conducted to investigate a research hypothesis or a research question, data is collected from the objects of the enquiry in order to solve the problem concerned. A research problem has a bearing on some or other population (Welman & Kruger, 2003). A population is any precisely defined collection of items which is under consideration (Collis & Hussey, 2003). The size of a population can make it impractical to involve all the members of the population in a research project: consequently researchers rely on data obtained from a sample (Welman & Kruger, 2003). A sample is a subset of a population and should represent the main interest of the study (Collis & Hussey, 2003) The sample should have the exact properties in the same proportions as the population from which it was drawn, but in smaller numbers (Welman & Kruger, 2003). The sample should be carefully chosen so that, through it, the researcher is able to see all the characteristics of the total population in the same relationship that they would be seen were the researcher, in fact, to impact the total population (Leedy & Ormrod, 2001).

This study will use the stratified random sampling method, as the sample frame contains middle management and supervisors. Stratified random sampling is used when the population is composed of various clearly recognisable, non-overlapping sub-populations that differ from one another mutually in terms of the variables in question (Welman & Kruger, 2003).

The total sample consists of thirty participants, segmented as follows: four managers and six supervisors in three randomly chosen organisations that have participated in the AIDC Tirisano Cluster Programme.

The organisation will be taken as the unit of analysis.

Confidentiality to all the respondents will be guaranteed. The researcher will also work closely with the Human Resources Department and Senior Management to ensure that all the unethical issues are dealt with before the study commences.

1.6.3. The measuring tool

A self-constructed measuring tool will be used to measure the variables listed below. The tool is based on a literature review of the variables from the sources listed below.

- Organisational culture
- Leadership
- Employee Involvement
- Strategy integration

The study uses classification questions, open and closed questions anchored on a 5-point Likert scale, rated “strongly disagree” to “strongly agree”. The Likert scale method is chosen because it is easier to compile and can be used for multi-dimensional attitudes which is not possible with other attitude scales (Welman & Kruger, 2003). The reliability coefficient and Cronbach-alpha will be used to test the reliability and validity of the measurement tool.

The proposed measuring tool is depicted in Annexure: A

1.6.4. Data analysis

The data will be collected by means of a questionnaire, captured into the Microsoft Excel software program and analysed using SPSS computer software program. The SPSS computer software program will be used to test the reliability coefficient of the measurement instrument, the construct validity of measurement instrument and to analyse the data using descriptive and inferential statistics to make inferences about the population from the samples drawn from the population.

1.7. Delimitation of the research

Delimiting the research makes it manageable from a research point of view. The delimitations of this research comprise the following;

1.7.1. Companies investigated

The research will focus on component manufacturers supplying motor vehicle manufacturers which have participated in the AIDC Tirisano Cluster Programme.

1.7.2. Geographical demarcation

The study will be limited to the city of Port Elizabeth, South Africa.

1.8. Assumptions

It is assumed that the implementation of Lean Manufacturing eliminates waste, which leads to cost reduction that result in an improved competitive advantage.

It is assumed that the AIDC Tirisano Cluster Programme is derived from Lean Manufacturing principles and best practices.

It is assumed that Lean Manufacturing principles are universal and can be implemented in any type of company.

1.9. Previous research

Bhashin and Burder (2008) in their study to examine the underlying reasons surrounding low rates of successful initiatives, state that Lean Manufacturing must be viewed as a philosophy rather than as a process. They say Lean

Manufacturing implementation is not easy and that organisational culture has been blamed for numerous implementation failures. Therefore it is essential for the right organisational culture to exist amongst the organisation's employees in order to enjoy the full benefits of Lean Manufacturing.

According to Hines, Howley and Rich (2004) the implementation of lean is entirely tool-focused and neglects the human aspect which is core to the Lean Manufacturing approach. They state that Lean Manufacturing should be regarded as more than a set of tools and techniques and the human dimensions of motivation, empowerment and respect for people are very important and key to the long-term sustainability of a Lean Manufacturing implementation programme. They go on to say that a lack of discussion of strategic level thinking in Lean Manufacturing implementation programmes as opposed to discussion on how to apply a series of different tools and techniques has led to a lack of sustainability of many Lean Manufacturing transformation programmes.

In their research to determine critical factors that constitute a successful implementation of Lean Manufacturing within SME's Achanga, Shehab and Nelder (2006) identified several critical factors. Leadership, Management, Organisational Culture and Skills and Expertise are classified as the most pertinent issues critical for the successful adoption of Lean Manufacturing.

Successful enterprises maintain their competitiveness not only by developing attractive products or services, but they also employ a unique culture to manage their corporate business or manufacturing operation in addition to utilising precise strategies and executive power to achieve their goals. This is true if the methodology has been introduced to the manufacturing environment and has been embedded into the company culture (Su & Yang, 2006).

Corporate initiatives like Lean Manufacturing should be properly planned prior to implementation and management involvement and commitment are the most essential prerequisites in aiding any of the desired productivity

improvement initiatives (Achanga, Shehab, Roy & Nelder, 2006). Many companies in their attempts to rapidly adopt world class management practices tend to devote little or no attention to how such practices impact on their strategic objectives (Carpinetti, Gerolamo & Dorta, 2000).

Waste in Lean Manufacturing is described as actions that do not add value to a product and can be eliminated (Emiliani, 1998). Emiliani (1998) goes on to state that the concept of waste has not yet been effectively extended to the self-defeating behaviours of individuals and groups of people in the workplace. Whilst Lean Manufacturing is concerned with reducing waste at all levels, it is about changing corporate culture (Bhasin & Burcher, 2004). Dahlgard and Dahlgard-Park (2006) state that when implementing Lean Manufacturing there seems to be too much focus on training people in tools and techniques and at the same time too little focus on understanding the human factor, i.e. how to build up a company culture characterised by commitment for continuous improvement and everybody's participation.

It is important to note that Lean Manufacturing can be achieved through time and that it is not possible to use it as a panacea to solve short-term competitive problems. It is best viewed strategically as a formidable weapon in increasing competitive advantage (Forrester & Soriano-Meier, 2002).

1.10. Research gaps

The long term viability of local OEMs is largely dependent on local suppliers that can supply the desired technology, quality and cost. It is imperative that South African suppliers acquire and invest in the latest technology to support new projects and model introductions. In addition, local suppliers need to improve competitiveness to ensure that local OEMs can compete with their respective international counterparts.

In South Africa, even though there is no empirical evidence, many companies in the automotive component manufacturing sector that have implemented Lean Manufacturing and have participated in the AIDC's Tirisano programme tend to fall back on the old way of doing things, resulting in management not realising the intended goals and objectives.

The study investigates what factors negatively affect Lean Manufacturing adoption and implementation.

1.11. Definition of key concepts

Competitive Advantage – when an organisation implements a strategy that its competitors are unable to duplicate or find too costly to imitate (Ireland, Hoskisson & Hitt, 2007).

Employee Involvement – a process designed to empower members of an organisation to make decisions and to solve problems appropriate to their level in the organisation (Sun, Hui, Tam & Frick, 2000).

Globalisation – the shift towards a more integrated and interdependent world economy (Hill, 2009).

Leadership – the process of influencing others to understand and agree about what needs to be done effectively and the process of facilitating individual and collective efforts to accomplish shared objectives (Yukl, 2006).

Lean Manufacturing – the concept of manufacturing more with less by eliminating waste (Dirgo, 2006). Bhasin and Bucker (2006) describe lean as a philosophy that when implemented, reduces the time from customer order to delivery by eliminating sources of waste in the production flow.

Organisational Culture – the set of ideologies, symbols and core values that are shared throughout the organisation and that influence how the organisation conducts its business (Ireland et al, 2007).

Strategy – an integrated and coordinated set of commitments and actions designed to exploit core competencies and gain competitive advantage (Ireland et al 2007).

Supply Chain – a chain that links each element of the supply process from raw materials to the end user and treating all organisations in the value-chain as a unified virtual business entity. This philosophy focuses on how organisations utilise their suppliers, processes, technology and capability in the coordination of the manufacturing, logistics, materials, distribution and transportation functions to enhance competitive advantage (Tan, Lyman & Wisner, 2002).

Waste – anything that add costs but not value (Drew, McCallum & Roggenhofer, 2004).

1.12. Outline of the study

Chapter 1 provides an introduction to the research project. It outlines the scope of the study, the problem statement, the objectives, hypotheses and the research methodology,

Chapter 2 discusses the concept of Lean Manufacturing.

Chapter 3 reviews the literature on theories of Organisational Culture, Leadership, Employee Involvement and Strategy Integration.

Chapter 4 describes how the research has been conducted. The research paradigm, the instrument of data collection and the measurement technique will be presented.

Chapter 5 presents the findings and results of the empirical study.

Chapter 6 is an analysis and interpretation of the empirical study results, and

Chapter 7 provides a conclusion and recommendations derived from the study.

1.12.1. Proposed plan of research

Chapter 1 Research proposal	April 2009
Questionnaire design	May 2009
Testing of questionnaire	June 2009
Chapter 2 The concept of lean manufacturing	July 2009
Chapter 3 Literature review	August 2009
Conducting survey and interviews	September 2009
Chapter 4 Research methodology	September 2009
Chapter 5 Analysis and interpreting the empirical results	August 2006
Chapter 6 Analysis and interpretation of study results	October 2009
Chapter 7 Conclusion and recommendations	November 2009
Language editing and technical presentation	November 2009
Submit proposal	December 2009

Table 1: Proposed plan of research (source: researcher own construction)

1.13. Conclusion

In this chapter, the main problem and sub-problems have been defined. The delimitations of the research study and key concepts used in the study have been discussed in order to introduce the topic under investigation.

In the next chapter the Lean Manufacturing concept will be discussed.

Chapter 2

The concept of Lean Manufacturing

2.1 Introduction

In the previous chapter an outline of the research paper was given and the main problem and sub-problems that need to be solved were also stated.

In this section the researcher will explain the concept of Lean Manufacturing, its history, principles, linkages to organisation culture, leadership, employee involvement, strategy integration, benefits and inhibiting factors for its adoption and implementation.

2.2 Definition of Lean Manufacturing

“Since its inception, the concept of Lean Manufacturing has gained widespread attention, both in the literature and in practice. It is probably fair to say that it has become a dominant strategy for organising production systems” (Pettersen, 2009:129).

Womack, Jones & Roos (1990) define Lean Manufacturing as Lean because it uses less of everything compared to mass production. Lean Manufacturing is said to use half the human effort, half the manufacturing space, half the investment in tools, half the inventory on site, reduces defects and produces a greater variety of products. Taj (2005) defines Lean Manufacturing as “manufacturing without waste”. Taj (2005) goes on to state that waste is anything other than minimum amount of equipment, materials, parts, and working time that are absolutely essential to produce a particular part. Lean Manufacturing is often referred to as a cost-reduction mechanism (Achanga, Shehab, Roy and Nelder, 2006). Naslund (2008) notes that Lean

Manufacturing strives to make organisations more competitive by increasing efficiency, decreasing costs incurred due to elimination of non-value adding steps and inefficiencies in the processes, as well as reducing cycle times and increasing profit for the organisation.

“Lean Manufacturing is not confined to the activities that take place in the manufacturing function of a company: rather it relates to activities ranging from product development, procurement and manufacturing over to distribution” (Karlsson & Åhlström, 1996).

2.3 History of Lean Manufacturing

The Lean Manufacturing philosophy has its origins in achieving improvements in the most economical ways with special focus on eliminating waste. In the 1950s the concept of waste championed by Taiichi Ohno’s production philosophy became one of the most important concepts in quality improvement activities. This new phenomenon was widely known as the Toyota Production System until it was termed Lean Manufacturing by Womack et al in the 1990s (Dahlggaard & Dahlggaard-Park, 2006).

According to Womack, Jones, and Roos (1990) after World War 1 Henry Ford of Ford Motor Company and Alfred Sloan of General Motors moved world manufacturing from craft production led by European firms into the age of mass production. Henry Ford standardised automobile parts and assembly techniques so that low-skilled workers and specialised machines could make cheap cars for the masses.

They describe how mass production provided cheaper cars than craft production, but resulted in an explosion of indirect labour, production planning, engineering and management. Through the leadership of Eiji Toyoda and Taiichi Ohno a small company set its sights on manufacturing cars for Japan, but it could not afford the enormous investment in single

purpose machines that seemed to be required. Nor could it afford the inventory or large amount of indirect labour that seemed necessary for mass production. So it invented a better way to do things, using very low inventory and moving decision-making to production workers. Now this small company has grown into a large company, known as the Toyota Motor Corporation (Womack, Jones, Roos, 1990).

The changes in Toyota came in 1949 after the attendance of a statistical quality control course and a visit to the Ford plant in the USA by Eiji Toyoda (Dahlgaard & Dahlgaard-Park, 2006). Eiji Toyoda undertook a three-month study of the Ford Rough Plant in Detroit, studying how cars were produced in the world's largest and most efficient plant. During his stay at Ford, Eiji realised that improvements could be made to the production system back in Japan and he concluded with Taiichi Ohno (who also visited Detroit) that mass production would never work in Japan (Womack et al, 1990).

“They realised that there was too much waste in the USA. They wasted manpower, efforts, materials, time and space. From these observations they realised that Toyota was too poor to have these kinds of wastes and they could not afford to copy and implement what they saw at Ford” (Womack et al, 2006).

We know today that the Toyota Production System became so competitive that Toyota and other Japan manufacturers, who started using the system, increased their market share all over the world. It was the first time that people were involved with continuous improvement and the foundation for the system was leadership and empowerment through education and training (Dahlgaard & Dahlgaard-Park, 2006).

2.4 The implementation of Lean Manufacturing

Achanga et al (2006) suggest that the implementation of Lean Manufacturing, like any other productivity improvement initiative, is believed to harbour

enormous difficulties. They highlight the difficulties and controversies in implementing one of the many lean manufacturing techniques known as just-in-time. They state that the problem may further be compounded by a lack of standardised mechanism of analysis and measure of value-adding capabilities within organisations, such as the lean concept. Bhasin and Burcher (2006) argue that it takes three years to become competent in applying such tools as set-up reduction, standard work or cellular manufacturing and five years to instil a firm belief in all the tools.

According to Achanga et al (2006) successful corporate initiatives like Lean Manufacturing should be properly planned prior to implementation and that Lean Manufacturing cannot work with isolated tools.

Karlsson and Åhlström (1996) state that the determinants of a Lean production system are the actions taken, the principles implemented and the changes made to the organisation to achieve the desired performance.

Sim and Rogers (2009) state that the effective implementation of Lean Manufacturing involves cultural changes, a high degree of training and education of employees, from upper management to the shop floor. The system features include employee training, empowerment and management commitment.

According to Womack et al (1990) Lean Manufacturing has the following features:

- Lean is a dynamic process of change driven by a systematic set of principles and best practices aimed at continuously improving;
- Lean refers to the total enterprise, from the shop floor to the executive suite, and from the supplier to customer value chain;
- Lean requires rooting out everything that is non-value-added; and
- Becoming Lean is a complex business and there is no single thing that will make an organisation Lean.

According to Karlson and Ahlstrom (1996), “The important point to note, however, is that Lean should be seen as a direction, rather than as a state to be reached after a certain time”. They argue that moreover, all the determinants might not point in the right direction all the time; “there could be instances where they can send mixed signals”.

Bhasin and Burcher (2006) debate that Lean Manufacturing “. . . is a philosophy that, when implemented, reduces the time from customer order to delivery by eliminating sources of waste in the production flow”. Equally, Karlson and Ahlstrom (1996) believe that a total philosophy is needed.

Womack and Jones (1996) explained that Lean Manufacturing is much more than a technique; it is a way of thinking, and a whole system approach that creates a culture in which everyone in the organisation continuously improves operations.

Bhasin and Burcher (2006) are unequivocal in promoting a total approach, they state that Lean manufacturing cannot work with isolated tools. Securing the full benefits of Lean manufacturing requires the need to concentrate on the whole value chain and not piecemeal. They go on to claim “. . . that Lean Manufacturing is a system approach. Each approach builds on the previous one, anchoring the systems as a whole: introducing a scattering of lean tools that are not properly used simply bewilders the workforce”.

The transformation process to a lean production system requires a lot of effort, participation of all levels in the hierarchy, and the introduction of new principles, not only in the shop-floor level, but also in the company culture and organisational structure. For the above reasons, transition can be a slow, incremental, complex and stressful process that may also involve a great degree of uncertainty as there are no clear guidelines for the transition; rather the process differs substantially from case to case (Papadopoulou and Ozbayrak 2005).

Mr Taiichi Ohno, former Executive Vice President of Toyota Motor Corporation who is largely credited with creating Toyota' management system, had this to say about managers that adopt only selected Lean principles and practices (Emiliani & Stec, 2005:383):

“Companies make a big mistake in implementing the Toyota production system thinking that it is just a production method. The Toyota production method won't work unless it is used as an overall management system. The Toyota production system is not something that can be used only on the production floors. The belief that it is only a production method is fundamentally wrong . . . those who decide to implement the Toyota production system must be fully committed. If you try to adopt only the “good parts”, you'll fail”.

2.5 Principles of Lean Manufacturing

Womack and Jones (1996) met many managers who had drowned in techniques as they tried to implement isolated bits of Lean Manufacturing without understanding the whole. They concluded that Lean Manufacturing can be described in five principles. These principles are echoed by Naslund (2008). The principles are described as follows:

1. Value – defining value and all of the value-added features in a given process as defined by the customer
2. Value stream – the chronological flow of all the value-adding activities required to bring a specific product through the internal value chain
3. Flow – making the value-creating steps flow without interruption and removing or minimising any non-value-adding activities
4. Pull – using a pull schedule allowing the customer to “pull” the product or service through the process, similar to JIT manufacturing
5. Perfection – making improvements a continuous effort by revisiting the steps again in a continuous loop.

The steps mentioned above need to be repeated to ensure that the process is as improved as it can be. The authors go on to state that by clearly understanding these principles and then trying them all together, managers can make full use of Lean Manufacturing techniques and maintain a steady course.

Poppendieck (2002) argues that Lean thinking looks at the value chain and asks how things can be structured so that the enterprise does nothing but add value, and does that as rapidly as possible. All the intermediate steps, all the intermediate time and all the intermediate people are eliminated. All that is left are the time, the people and the activities that add value for the customer.

Papadopoulou and Ozbayrak (2005) stress that leanness should not be viewed in the narrow sense of a set of tools, techniques and practices, but rather as a holistic approach that transcends the boundaries of the shop-floor thus affecting, apart from the production itself, almost all the operational aspects, as well as the entire organisation and management of the company.

The intent of these processes and tools is to simplify work and the workplace, improve quality, reduce lead-time and focus people on performing only those activities that create value. Importantly, they also help people realise their full potential and actualise innate desires to make positive contributions to the workplace (Emiliani & Stec, 2005).

It is evident from the statements made above that companies that re-think the value chain and find ways to provide what their customers value with significantly fewer resources than their competitors can develop an unassailable competitive advantage.

2.6 Lean Manufacturing technical requirements

“The determination of the components of Lean Manufacturing is certainly not an easy task. Different sources provide a different overall picture of Lean

Manufacturing and there appears to be no consensus in the way that different researchers and authors view the philosophy. Some attempts have been made to provide a clearer picture of the Lean Manufacturing implementation issue. But generally, the findings are mixed and conflicting” (Papadopoulou & Ozbayrak, 2005).

In this paper we shall discuss Lean Manufacturing technical requirements as documented by Bhasin and Burcher (2006) who state that rather than embracing one or two isolated tools it is suggested that companies practise most, if not all, of the following;

- *Continuous improvement/kaizen* – the continual pursuit of improvements in quality, cost and delivery.
- *Cellular manufacturing* – it is vital to group closely all the facilities required to make a product (or related group of products), in order to reduce transport, waiting and process time.
- *Kanban* – a kanban system needs to be in place.
- *Single piece flow* – where products precede, one complete product at a time through various operations in design, order taking and production, without interruptions, backflows or scrap.
- *Process mapping* – a detailed mapping of the order fulfilment process.
- *Single minute exchange of dies (SMED)* – in order to reduce the lead-time and improve flows it is necessary to eliminate delays in change-over times on machines.
- *Step change/kaikaku* – to make radical improvements of an activity to eliminate waste.
- *Supplier development* – to actively develop links with suppliers and work closely with them for mutual benefit

- *Supplier base reduction* – to reduce the number of suppliers an organisation engages with.
- *Five S and visual management* – to reduce the clutter and inefficiency of any typical production and office environment.
- *Total productive maintenance (TPM)* – this is aimed at improving the reliability, consistency and capacity of machines through maintenance regimes.
- *Value and the seven wastes* – the notion of value should never be ignored and essentially is the capability provided to the customer at the right time at an appropriate price, as defined in each case by the customer.

“Lean is said to be constantly changing and being enhanced with a broad range of tools; however, not all of the proposed Lean enablers are necessarily vital for each implementation case. Therefore, it is quite understandable that the selection of the Lean tools to be utilised in a certain application is rather context-specific“(Papadopoulou & Ozbayrak, 2005).

2.7 Lean Manufacturing and employee involvement

Hines, Holweg & Rich (2004) state that Lean should be regarded as more than a set of mechanistic hard tools and techniques: the human dimensions of motivation, empowerment and respect for people are very important. They argue that these elements are key to the long-term sustainability of any Lean programme, regardless of the industry sector.

Lean Manufacturing makes the best use of the skills of the workforce by giving workers more than one task, integrating direct and indirect work, and encouraging continuous improvement activities. As a result, Lean production is able to manufacture a larger variety of products, at lower costs and higher

quality, with less of every input, compared to traditional mass production, according to Comm and Mathaisel (2000).

2.8 Lean Manufacturing and strategy integration

It is argued that until quite recently there has been an almost complete lack of discussion on strategic level thinking in Lean programmes as opposed to discussions on how to apply a series of different tools and techniques. This gap has led to a lack of sustainability of many Lean transformation programmes. In particular, the use of policy deployment and other strategy formation and deployment tools is of central importance (Hines, Holweg & Rich 2004).

It is important to bear in mind that Lean Manufacturing can only be achieved through time and that it is not possible to use it as a panacea to solve short term competitive problems, according to Soriano-Meier and Forrester (2002). They state that Lean Manufacturing is best viewed strategically as a formidable weapon in increasingly competitive markets.

In order to implement organisational strategy successfully, managers must have a clear idea of several diverse issues. These issues are:

- how much change is necessary within an organisation when it implements a new strategy;
- how best to deal with organisational culture in order to ensure that a strategy will indeed be implemented smoothly;
- how strategy implementation and various types of organisational structures are related;
- what different implementation approaches a manager can follow; and
- what skills are necessary in managers who hope to implement organisational strategy successfully (Comm and Mathaisel, 2000).

2.9 Lean Manufacturing and organisation culture

Change issues associated with Lean are not dependent upon management techniques or skills but may be attributed to the fundamental, all-encompassing culture of the organisation and the operating climate that culture instils in its employees. The acceptance and the recognition of the organisational culture construct within Lean Manufacturing, especially as a primary condition for its successful implementation (Mauil, Brown and Cliffe, 2001)

Bhasin and Burcher (2006) argue that whilst Lean is concerned with reducing waste at all levels, it is also about changing organisational culture. In this case there is a need to:

- make decisions at the lowest level assessed by the number of organisation levels;
- communicate a clear vision; an indication of what the organisation believes it will look like once the transformation is complete;
- ensure that there is a strategy of change whereby the organisation communicates how the goals will be achieved;
- assign responsibilities within the whole organisation whereby it is also evident who is championing the programme;
- nurture a learning environment for which performance measures such as training hours/employee can provide an approximate barometer; and
- promote Lean leadership at all levels.

2.10 Lean Manufacturing and leadership

According to Emiliani and Stec (2005) Lean is a management system designed to be responsive to the needs of humans in business and deliver better outcomes for key stakeholders such as employees, suppliers, customers, investors and communities. It is rooted in two key principles: continuous improvement and respect for people. The continuous improvement principle embodies the tools and methods used to improve productivity. The respect for people principle embodies leadership behaviours and business practices that must be consistent with efforts to eliminate waste and create value for end-use customers.

Achanga et al (2006) argue that management involvement and commitment are perhaps the most essential prerequisites in aiding any of the desired productivity improvement initiatives, such as Lean Manufacturing. They go on to state that, in order to concisely implement the concept of Lean Manufacturing successfully, the recipient companies should harbour strong leadership traits capable of exhibiting excellent project management styles. In essence, these qualities would facilitate the integration of all infrastructures within an organisation, since strong leadership and management permeate a vision and strategy for generating, while permitting a flexible organisational structure. Good leadership ultimately fosters effective skills and knowledge enhancement amongst its workforce. These supportive elements benefit the company intending to implement the lean concept by the provision of resource availability, willingness to learn and acquiring new ideas and technologies for its corporate competitiveness. Organisations would then be able to implement the concept of Lean Manufacturing successfully.

For these reasons, Emiliani and Stec (2005) stress that it is important to ensure that senior managers have an accurate understanding of how to implement a Lean transformation. While it is tempting to rush into applying Lean principles and practices and obtain quick results, principally in operations senior managers must not forget to think deeply about the intent of

Lean and related nuances in order to avoid poor outcomes or unintended consequences.

Though many variables may affect the success of a Lean Manufacturing implementation, commitment by top management is vital. Management that fails to embrace the implementation may intentionally or unintentionally sabotage the effort. Top management should not only demonstrate commitment and leadership, it must also work to create interest in the implementation and communicate the change to everyone within the organisation. Management must be visibly connected to the project and participate in the Lean Manufacturing events. A lack of investment by upper management in the Lean Manufacturing implementation may also affect the success of the implementation in less visible ways. If employees feel that the executive team does not respect their efforts, discouragement may take hold and the Lean Manufacturing effort will fail. Though it is often desirable to drive change from the factory floor, it is important that a transition to Lean Manufacturing be driven by the executive management team (Worley and Doolen, 2006).

2.11 Benefits of Lean Manufacturing

Bhasin and Burcher (2006) contend that the need to reduce costs and shorten lead-times in order to grow profits ranks the highest amongst the benefits of implementing Lean Manufacturing. They argue that the true benefit of Lean is the overall strengthening of the system and that if applied properly, the Lean methods will make any shortcomings in the system appear quickly and the shortcomings could have deep impacts.

There are many reasons to introduce lean techniques in an organisation, as it may contribute to costs optimisation thus resulting in competitive advantages (Andersson, Eriksson and Torstensson, 2006). They argue that companies that had adopted lean manufacturing have seen operational improvements

(reduction of lead time, increase in productivity, reduction in work-in-process inventory, etc.), administrative improvements (reduction in order processing errors, streamlining of customer service functions so that customers are no longer placed on hold, etc.) and strategic improvements (reduced costs, etc.). Senior managers become interested in adopting Lean principles and practices because it results in many benefits, including higher quality products and services, increased market share, margin expansion, revenue growth, higher productivity, better customer focus, faster response to changing market conditions and higher asset efficiency. Importantly, a key focus of Lean is time and how time is used, with the intention of improving responsiveness to customers and ensuring that associates' lives are not being wasted while at work doing unnecessary things (Emiliani & Stec, 2005).

2.12 Inhibitors of Lean Manufacturing

Lean Manufacturing has been widely adopted as the production system that can give an organisation the competitive edge by cutting costs through the elimination of waste. The question that lingers is whether the success stories should not be more plentiful, given the length of time that people have been learning and applying Lean principles and practices.

Emiliani and Stec (2005) argue that most senior managers currently understand and practice Lean as a set of tools which are simply add-ons to a conventional batch and queue business practices and also view Lean as a way to reduce labour costs, typically through layoffs. Thus, the term "Lean" has for many workers become synonymous with bad outcomes such as layoffs. Further, senior managers implementing Lean principles and practices typically fall prey to an abundance of misunderstandings and misconceptions about Lean and usually misapply some or all aspects which impede Lean transformation efforts. They go on to claim that organisations have high levels of awareness of Lean but most senior managers lack detailed knowledge of Lean principles and practices, and they do not recognise it as a management

system. As a result, most senior managers overstate their companies' Lean capabilities and progress. This is consistent with their limited understanding of Lean, the common tendency to mix Lean and non-Lean business practices and metrics and a lack of direct participation in continuous improvement activities.

Hines, Holweg and Rich (2004) share the same sentiments: sparked by the superior performance achieved by Lean producers over the performance of traditional mass production system designs, western manufacturers emulated the shop-floor techniques, the structural parts of lean, but often found it difficult to introduce the organisational culture and mind-set. So many early Lean efforts showed localised impact only, and fell short of their intended impact on the overall system's performance.

Emiliani and Stec (2005) indicate that there are many obstacles, and that most companies have great difficulty implementing Lean principles and practices. They identify the following common errors that organisations make when implementing Lean:

- *Management system* – Senior managers typically understand Lean as a “manufacturing thing”, and not as a comprehensive management system. Thus, the application of Lean principles and practices is limited to only a portion of the company's activities such as operations. The rationale for doing so is faulty since there is waste in every business process.
- *Leadership behaviours* – These remain deeply rooted in batch and queue thinking, which greatly conflicts with efforts to implement Lean principles and practices. In other words, senior managers often exhibit wasteful behaviours, while at the same time telling workers to eliminate waste. People notice this inconsistency, and silently question senior management's commitment to Lean.

- *Leadership participation* – All senior managers say they support Lean, but in reality most believe they should be doing other things, or claim they are too busy to get involved with continuous improvement activities, either as team leaders or as team members. The lack of personal participation in improvement activities sends the message that Lean implementation is the job of lower-level workers, and that senior managers do not have to get involved. As a result, senior managers miss important opportunities to deepen their understanding of Lean principles and practices. It is another source of inconsistency that results in questions about senior management’s commitment to Lean.
- *Layoffs* – The result of productivity improvement is often unemployment. This action undercuts the desire of the remaining people to participate in future improvement activities. Not surprisingly, the pace of improvement is greatly slowed. This is also the major reason why companies experience “backsliding to the old ways of working”. Layoffs due to productivity improvement are inconsistent with Lean because they violate the “respect for people” principle.
- *Strategy integration* – In most cases, Lean activities do not directly link to corporate strategy and goals. *Kaizen* is often applied haphazardly: fantastic improvements are achieved in activities that only provide “local” benefits, not system wide gains or benefits to its end-use customers.
- *Time horizon* – It is common today among senior managers of publicly owned businesses to be focused on the short term. While most senior managers say they care a lot about the future of the company, they instead support business practices, metrics and behaviours that actually reduce competitiveness over time. Lean transformation requires management to focus on the long term without losing sight of important short- and mid-term goals.
- *Focus* – Senior managers of many publicly owned businesses are obsessively focused on shareholders, and usually make decisions that

come at the expense of other stakeholders such as employees, suppliers or local communities. It is impossible to achieve a Lean transformation with shareholders as the singular focus. Instead, managers must balance the interests of key stakeholders which in turn yields better results for shareholders. Successful Lean transformations have a proper focus on end-use customers, which are the primary source of cash flow that investors care most about.

- *Supply Chain* – It is difficult for suppliers to practice Lean effectively if their customers do not. Applying Lean throughout a supply chain requires the sponsorship and participation of large buying organisations that correctly apply Lean principles and practices to their own internal activities. Most companies practise variations of Lean that contain many flaws, thus making the “train-the-trainer” approach to implementing Lean in supply chains ineffective.

In general, most people practising Lean today possess a coarse understanding of Lean (i.e. tool-based), rather than fine or detailed understanding of Lean principles and practices Emiliani and Stec (2005).

2.13 Conclusion

In this chapter the Lean Manufacturing concept has been defined. The history and implementation process were discussed and the linkages between Lean Manufacturing and organisational culture, leadership, employee involvement and strategy integration were reviewed. The chapter also discussed what benefits companies achieve by implementing Lean Manufacturing and factors that inhibit the adoption and implementation of Lean Manufacturing.

In the next chapter a literature review of the variables under investigation, organisational culture, leadership, employee involvement and strategy integration will be conducted.

Chapter 3

Literature review

3.1 Introduction

In the previous chapter the concept of Lean Manufacturing was discussed. Lean Manufacturing history, principles, linkages to organisation culture, leadership, employee involvement, strategy integration, benefits and inhibiting factors for its adoption and implementation were also discussed.

This chapter will deal with the variables under review. The researcher will review literature on Strategy Alignment, Leadership, Organisational Culture and Employee Involvement.

3.2 Strategy Alignment

Increased globalisation, continuous advances in information technology and evolving global business networks force managers to deal with operations in a more strategic manner (Rytter, Boer & Koch, 2007). Ward, McCreery and Anand (2007) state that this calls for the manufacturing function to have a proactive role in the pursuit of business strategy, pointing out that linkages between manufacturing operations and business strategy are manifested by structural and infrastructural investment decisions related to manufacturing.

The regular emergence of initiatives such as just-in-time, flexible manufacturing, lean manufacturing, mass customisation and supply chain management provides evidence of the growing recognition of manufacturing's strategic role. However, limited successes from adopting such programmes are attributed to the continuing dearth of a strategic outlook for manufacturing. In order to get maximum benefit from such initiatives, it is critical for

companies to link their manufacturing decisions with coherent business strategies (McCreery&Anand2007).

Ahmed, Montagno and Firenze (1996) conclude by stating that determining which strategies are the most important in terms of impact on the outcomes of the organisation is difficult.

3.2.1 Definition of Strategy Alignment

Feurer and Chaharbaghi (1997) and Tan and Platts (2005) define strategy as the determination of the basic goals and the objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals. O'Regan and Ghobadian (2002) state that strategy encompasses the following elements: "focusing on long term direction of the organisation, matching the activities of the organisation to the environment in order to minimise the threats and maximising opportunities as well as matching the organisation's activities to the resources available".

Sarmiento, Knowles and Byrne (2008) define strategic consensus as the shared understanding of strategic priorities among managers at the top, middle and operating levels of the organisation. They argue that the less dispersed top management objectives are and the more agreement there is among senior managers as to which objectives have priority, the more successful the organisation will be in attaining them. Enhanced performance can result from improved coordination and cooperation within an organisation. Such improved cooperation and organisation emanates from a higher strategic consensus.

"The strategic effectiveness of a firm depends on the existence of fit, which is the compatibility of structures and processes, both within the firm and with the environment in which it operates" (McCreery & Anand 2007). This notion is supported by Feuerer and Chaharbaghi (1997) who state that strategy alignment is regarded as finding a match between organisation resources,

capabilities and opportunities within the competitive environment, derived from the development and deployment of rare, inimitable and non-substitutable resources. Sarmiento, Knowles and Byrne (2008) debate that a sustainable and successful strategy centres on strategic compromises and trade-offs. Once the strategic plan has been developed, it is important to keep the structural and infrastructural resources aligned to that plan. They further explain that the greater the fit, coherence, alignment and agreement, amongst the company's resources that support its strategy, the better its performance will be. Voss (2005) argues that a central focus of manufacturing strategy was competing through manufacturing by aligning manufacturing capabilities with market requirements.

Lowson (2002) notes that the strategy of an organisation revolves around a pattern of decisions and that these decisions involved are concerned less with day-to-day tactical activities but more with the whole transformation system. These decisions also embrace changes in the wider competitive environment in which the organisation is embedded and reflect both the core capabilities and competencies of the company and how it uses resources and technologies to provide sustainable competitive advantage.

Thus, the formulation of a manufacturing strategy attempts at giving a strategic rather than purely tactical role to the manufacturing function by identifying the manufacturing criteria by which the manufacturing function can better contribute in the achievement of the business objectives and developing manufacturing policies to ensure that critical manufacturing decisions support the chosen criteria (Carpinetti, Gerolamo & Dorta, 2000).

3.2.2 Strategy formulation

Tan and Platts (2005) argue that effective strategy formulation requires the effective setting of objectives, the identification and evaluation of alternative actions and the implementation of the selected choice. O'Regan and Ghobadian (2002) state that a formal strategic plan implies a deliberate

means to include factors and techniques in a systematic way to achieve specified tasks.

Hunt and Xavier (2003:58) identify the following fundamental characteristics of strategy:

- Takes a long term view;
- Includes defining, vision, mission, objectives and goals;
- Provides the basis for selection between options (e.g. course of actions, allocation of resources);
- Requires the consideration of both internal and external environments; and
- Involves the participation of the entire organisation.

Carpinetti, Gerolamo and Dorta (2000:341) propose the following framework for strategy formulation and revision which comprises five iterative steps, as follows:

- (1) Define corporate objectives;
- (2) Define marketing strategies to meet these objectives;
- (3) Assess how different products win orders against competitors;
- (4) Establish the most appropriate mode to manufacture this set of products (process choice); and
- (5) Provide the manufacturing infrastructure required to support production.

Kenny (2006) states that the strategic planning process has become synonymous with responsible and accountable management and comprises systematic, formalised approaches to strategy formulation.

3.2.3 Strategy implementation

The deployment or implementation of strategy is the translation of strategy into action (Saunders, Mann & Smith, 2007). O'Regan and Ghobadian (2002) argue that deployment can have a significant influence on the final outcome and effectiveness of strategy.

Saunders, Mann and Smith (2007) state that strategy deployment is a description of how the organisation converts its strategic objectives into action plans and a summary of the organisation's action plans and related key performance measures. It also requires projections of the short and longer term performance of the organisation based on the likely changes resulting from the implementation of the strategy. This is supported by Tan and Platts (2007) who state that the process of strategy deployment involves identifying and evaluating the potential alternative actions which will achieve the desired objectives, action plan implementation, performance monitoring and feedback control.

Seven dimensions were derived by Saunders, Mann and Smith (2007:618) from their study on benchmarking strategy deployment as a framework for the deployment of strategic initiatives. These dimensions are depicted in table 2 below:

Dimensions of strategy deployment	Purpose of each dimensions
1. Communicating the initiative	Ensuring understanding of the strategy
2. Achieving buy-in	Acceptance and adoption by stakeholders
3. Aligning implementation	Aligning actions to the strategic direction
4. Learning	Continuously evaluating and adapting
5. Creating the infrastructure for development	Organising teams, roles and responsibilities
6. Understanding business drivers	Being aware of the business reasons for the initiative
7. Identifying deployment options	Identifying and scheduling projects, assessing risk and choosing performance measures

Table 2: Seven dimensions of strategy deployment (source: Saunders, Mann & Smith, 2007)

They go on to debate that a number of these dimensions operate in parallel, for example, communicating and building understanding of the initiative is necessary throughout all phases of deployment. They further argue that a number of the dimensions are linked, for example, communicating the initiative, achieving buy-in and aligning implementation are associated with the “soft” (people/social/behavioural) management skills of changing behaviour and attitudes. Understanding the business drivers, creating the infrastructure for deployment and identifying deployment options form another closely linked group. These three are associated with “hard” (analytical or systems) management skills. Other links exist, for example, between achieving buy-in, and creating the infrastructure for deployment, where buy-in is increased when teams have responsibility for developing action plans. The learning dimension underpins and supports all the other framework dimensions (Saunders, Mann & Smith (2007). Sterling (2003:32) highlights the following for successful strategy implementation:

- *Align organisational design and capabilities with the strategy* – this is done by assessing the organisation existing capabilities and identifies what capabilities are lacking.
- *Involve managers in the strategy development process* – getting people involved in formulation process ensures buy in and ownership.
- *Consistent and persistent communication* – ensure dedicated resources for communicating the strategy so that people can have a sense of what is going on.
- *Action planning and budgeting* – this is done planning initiatives to be undertaken and putting in place a budget for implementation and capability development.
- *Monitoring and accountability* – effective implementation requires continual monitoring of progress of the implementation plan and accountability and change when change is needed.
- *Alignment of information resources with the strategy* – this includes aligning information technology with the strategy.

Sterling concludes by stating that only companies using a Balanced Scorecard approach rated their systems effective in supporting and communicating a strategy. This is supported by Saunders, Mann and Smith (2007) who identify the balanced scorecard developed by Kaplan and Norton as a means of assisting strategy deployment as it is primarily directed at ensuring that a series of appropriate measures are used to evaluate and improve progress by ensuring a link back to the organisational vision and strategic objectives. They state, however, that in practice, balanced scorecards are used more to fulfil the performance measurement and strategic control functions of strategic management than as a guide to effective strategy deployment practices.

3.2.4 Why Strategy Implementation fails

Sterling (1993) states that “strategy fails because it is ill-conceived, not enough resources are allocated for its implementation, insufficient buy-in or understanding of the strategy among those who need to implement it, due to lack of senior management support. Some strategies lack distinctiveness and focus, resulting in dissipated resources and never clearly articulated priorities”. These are supported by O’Regan and Ghobadian (2002) who identify the following as contributors to strategy deployment failures:

- Inadequate communication;
- Employee capability shortfall;
- Strategy not well understood by staff;
- Inadequate coordination of implementation;
- Crises distracted attention from implementation; and
- Unanticipated external problems.

Strategic planning cannot be divorced from implementation as there will be deficiencies in its implementation. O’Regan and Ghobadian (2002) argue that there is little purpose in having a range of visions, goals and objectives if there is no attention given to how they can be implemented.

3.3 Leadership

Today’s business imperatives of speed and quality mean that executives must try harder to achieve results not merely intended to keep up with their competitors but to surpass them by having a competitive edge. What these approaches to business mean can only be guessed at but it can be said that business talk of leadership today is not what it used to be and with changes

like these comes the need for a more strategic form of leadership. The focus has shifted irrevocably from managers being perceived as bean counters to that of being consultative counsellors, strategic planners and facilitators (Sarros and Santora, 2001).

There is growing interest in the role of leaders fostering employees to take initiative, embrace risk, stimulate innovation and cope with uncertainty. In addition, recent work on shared or distributed leadership emphasises the importance of leaders empowering followers and accepting mutual influence to facilitate performance (Luiz, 2006).

Leaders mobilise workers throughout the organisation to be adaptive in a changing workplace: instead of maintaining the norms leaders have to challenge the way business is done and help to distinguish immutable values from historical practices that must go (Sarros & Santora, 2001:383).

3.3.1 Definition of Leadership

Scholars have been systematically studying leaders since the 1920s and there are numerous articles and texts on the subject. The majority of leadership theory and knowledge developed over the years emanates from the West. House and Adiyta (1997) have indicated that 98% of leadership theory has been generated from America and American leadership has been the most studied by far.

According to John Luiz (2006:86) “while many scholars do not agree on a single definition, there is agreement in viewing leadership as a dialectical, proactive influence process”. Kreitner and Kinicki (1998) concur as they argue that disagreement about the definition of leadership stems from the fact that it involves a complex interaction among leader, the follower and the situation as some researchers defines leadership in terms of personality and physical traits while others believe that the concept of leadership does not exist. They

conclude by saying that there is a common thread among the different definitions of leadership and that common thread is social influence.

A widely used definition is offered by Yukl (2006:8): 'Leadership is the process of influencing others to understand and agree about what needs to be done effectively and the process of facilitating individual and collective efforts to accomplish shared objectives.' Luiz (2006) concludes that this definition views leadership as a dynamic process and system of relationships. Hemphill and Coons (1957: 7) defined leadership as "the behaviour of an individual ... directing the activities of a group toward a shared goal". Katz and Kahn (1978: 528) said that leadership is "the influential increment over the above mechanical compliance with the routine directives of the organisation".

Andrews and Field (1993) argue that leadership involves behaviors, traits, characteristics and outcomes produced by leaders as these elements are interpreted by followers. They take the position that leadership does not exist separate from follower perceptions.

Leaders inspire others, provide emotional support and try to get employees to rally around a common goal. Leaders play a key role in creating vision and strategic direction for the organisation (Kreitner & Kinicki, 1998).

3.3.2 Leadership theories

Leadership has always been defined through different approaches. Earliest approaches were trait theories and behavioral theories. Trait theories focused on identifying the personal traits that differentiated leaders from followers. Behavioral theories examined leadership from a different perspective by trying to uncover the different kinds of leader behaviors that resulted in higher work group performance (Kreitner & Kinicki, 1998).

3.3.2.1 Trait theories

Stogdill's and Mann's Theory

Studies conducted by Stogdill and Mann in 1948 and 1959 respectively concluded that the following five traits tended to differentiate leaders from average followers:

- Intelligence;
- Dominance;
- Self-confidence;
- Level of energy and activity; and
- Task relevant knowledge.

(Kreitner & Kinicki, 1998).

Cacioppe (1997) states that early research attempting to find consistent and unique personality traits that all leaders possessed showed no definite pattern. Recent studies have found six traits that differentiate leaders from non-leaders – honesty and integrity, high energy level, ambition and the desire to lead, intelligence, self-confidence and task relevant knowledge. He goes on to argue that there are six characteristics that people most admire in leaders: leaders should be honest, forward-looking, inspiring, competent, fair-minded and supportive.

Kreitner and Kinicki (1998) conclude by stating that traits play a central role in how leaders are perceived by followers and that organisation's should consider selected leadership traits when choosing candidates for leadership positions.

3.3.2.2 Behavioural theories

The Ohio State studies

This study began by researchers generating a list of behaviours exhibited by leaders. The researchers of the study concluded that there were two independent dimensions of leader behaviours, considerations and initiating structure. Consideration involves leader behaviours associated with creating mutual respect or trust and focuses on a concern for group member needs and desires. Initial structuring is leader behaviour that organises and defines what group members should be doing to maximise output (Kreitner & Kinicki, 1998).

University of Michigan studies

In this study researchers sought to identify between behavioural styles of effective and ineffective leaders. The researchers identified two different styles of leadership - employee-centred and job-centred. The results of this study are said to parallel the consideration and initiating structures identified by the Ohio State studies (Kreitner & Kinicki, 1998).

Blake and Mouton Leadership Grid

This is the widely known behavioural style model of leadership. Behavioural scientists Robert Blake and Jane Srygley Mouton developed a grid and used it to demonstrate that there is one best style of leadership (Kreitner & Kinicki, 1998). This matrix is formed by intersecting two dimensions of leader behaviour. On the horizontal axis of the grid is concern for people and on the vertical axis is concern for production, see figure 2. Blake and Mouton argue that the variables of the leadership grid are attitudinal and conceptual with behaviour descriptions derived from and connected with the thinking that lies behind action. By scaling each axis on a scale of 1 to 9 Blake and Mouton were able to plot five different leadership styles. The grid is used extensively

as training and consulting tool to diagnose and correct organisational problems (Kreitner & Kinicki, 1998).

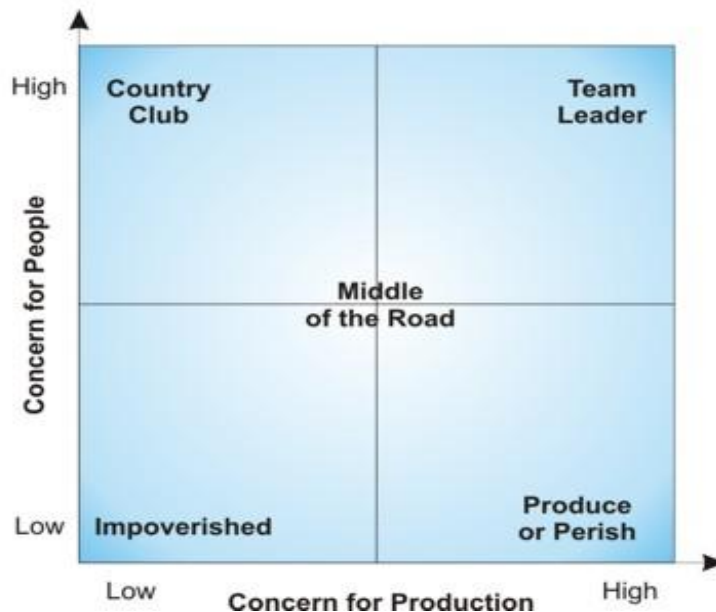


Figure 2: Blake and Mouton Leadership Grid (source: Werner, 2007)

3.3.2.3 Situational Theories

Situational leadership is one of several transactional approaches to leadership. These theories describe the major task of the leader as to guide and motivate their followers in the direction of established goals and to reward their efforts in ways that are fair and valued by the follower (Cacioppe, 1997).

Fiedler's contingency theory

Fiedler's theory is based on the assumption that the performance of a leader depends on two interrelated factors: the degree to which the situation gives the leader control and influence and the leader's basic motivation (Kreitner & Kinicki, 1998). Harker and Sharma (2000) state that, according to Fiedler's contingency theory, the leader's personality as measured by the least preferred co-worker scale should be matched to situational factors favouring that type of leader's prospects for success. They argue that the logic behind the contingency theory is that when the situation is unfavourable the leader needs to provide strong task orientation and direction to get the group moving towards its goal. Conversely when the situation is favourable the leader needs

to provide task direction for the cooperative group to complete the task as workers follow willingly. In moderately favourable situations a supportive relationship-oriented leader helps to smooth relations with the group and provides support as the group tries to cope with an unstructured task.

Path Goal Theory

The Path Goal theory is based on the expectancy theory of motivation. Expectancy theory proposes that motivation to exert effort increases as one's effort, performance and outcome expectations improve. The Path Goal theory focuses on how leaders influence follower expectations (Kreitner & Kinicki, 1998). The theory was developed by Robert House when he proposed a model that described how expectancy perceptions are influenced by the contingent relationships among four leadership styles and various employee attitudes and behaviours. According to this theory, leader behaviour is acceptable when employees view it as a source of satisfaction. In addition, leader behaviour is motivational to the extent that it reduces roadblocks that interfere with goal attainment, provides the guidance and support needed by the employees and ties meaningful rewards to goal accomplishment. Robert House sees the leader's main task as helping employees stay on the right paths to challenging goals and valued rewards (Kreitner & Kinicki, 1998).

Hersey and Blanchard Situational Leadership Theory

This theory developed by management writers Paul Hersey and Kenneth Blanchard states that effective leader behaviour depends on the readiness level of a leader's follower (Kreitner & Kinicki, 1998). Readiness is defined as the extent of the follower's ability and willingness to complete a task. In the Situational leadership theory the appropriate leadership style is found by cross-referencing follower readiness with one of four leadership styles. These leadership styles represent a combination of task- and relationship-oriented leadership behaviour. Leaders are encouraged to use a telling style with followers who have low readiness and as followers' readiness increases leaders are advised to move gradually from a telling to a selling, to a

participating and ultimately to a delegating style (Kreitner & Kinicki, 1998). This theory is further explained by Cacioppe (1997) who indicates that the theory of Ken Blanchard called Situational Leadership uses the two dimensions of supportive and directive to describe four leadership styles that are most appropriate depending on the situation and the developmental level of the person or group. He believes that the major advantage of the situational approach is the recognition that for different development levels and different types of situations, different leadership styles are more effective. He argues that when someone is learning a skill for the first time, it is better according to situational leadership to be highly directive by spelling out tasks and goals very clearly and less supportive.

Transformational Leadership

Harker and Sharma (2000) state that transformational leaders motivate individuals to perform beyond normal expectations by inspiring them to focus on higher level goals and to be confident in their abilities to achieve the extraordinary missions the leader identifies. Cacioppe (1997) argues that this approach goes a step further and helps lift the follower beyond personal goals and self-interests to focus on goals which contribute to a greater team and organisational good. Transformational leadership communicates a vision that inspires and motivates people to achieve something extraordinary and has the ability to align people and systems so there is integrity throughout the organisation towards this vision. These leaders pay attention to the concerns and developmental needs of the followers, they change followers by helping them to look at old problems in new ways and they are able to excite, arouse and inspire followers to make an extra effort to achieve group goals. In addition, the follower understands and takes ownership of the vision. If the transformation leader leaves, the followers continue the effort to achieve the vision (Cacioppe, 1997).

Several theories have been defined and discussed in order to understand the concept of leadership and how it affects transformation to improve the

competitive edge of an organisation. This paper shall examine the theory transformational leadership.

Transformational, charismatic, and visionary leaders can successfully change the status quo in their organisations by displaying the appropriate behaviours at the appropriate stage in the transformation process (Eissenbach, Watson & Pillai, 1999). Kreitner and Kinicki (1998) argue that a meta-analysis of 54 studies indicated that transformational leaders were viewed as more effective by both supervisors and followers and had followers who exerted more effort and reported higher levels of job satisfaction.

Transformational leadership differs from transactional leadership in that it motivates workers to perform beyond expectations (Sarros & Santora, 2001). Eissenbach et al (1999) concur by indicating that transactional leadership develops from the exchange process between leaders and subordinates wherein the leader provides rewards in exchange for subordinates' performance. Transformational leadership behaviours go beyond transactional leadership and motivate followers to identify with the leader's vision and sacrifice their self-interest for that of the group or the organisation. Stone, Russell and Patterson (2004) stipulate that this transcending beyond self-interest is for the organisation and is a process of building commitment to organisational objectives and then empowering followers to accomplish those objectives resulting in enhanced follower performance.

Transformational leaders raise the consciousness of followers by appealing to higher ideals and values such as liberty, justice, peace and equality. These leaders demonstrate the following four types of leadership styles (Sarros & Santora, 200; Eissenbach et al, 1999):

1. Individual consideration;
2. Inspirational motivation;
3. Intellectual stimulation; and

4. Idealised influence.

Individual consideration

Individual consideration deals with the fundamental transformational leadership behaviours of treating individuals as important contributors to the workplace. Leaders who use this style of leadership show consideration for their workers' needs and are prepared to encourage and coach the development of the desired workplace behaviour (Sarros & Santora, 2001; Eissenbach et al, 1999). The transformational leader disburses personal attention to followers based on the individual follower's needs for achievement and growth. To do this, the leader acts as a mentor or coach, developing followers in a supportive climate to higher levels of potential. The considerate leader recognises and demonstrates acceptance of the followers' individual differences in terms of needs and desires. By doing this, the transformational leader fosters two-way communication through effective listening. This leader develops followers by delegating tasks and then unobtrusively monitoring those tasks –checking to see if additional support or direction is needed. The net effect of individualised consideration and other transformational leadership behaviours is empowerment of followers. Ultimately, transformational leaders can develop a very powerful influence over followers (Russell, Stone & Patterson, 2004).

Inspirational motivation

Inspirational motivation addresses the principle of organisational existence, rather than the personality of the leader. Raising the consciousness of workers about the organisation's mission and vision is a key facet of the transformational leadership style (Sarros & Santora, 2001; Eissenbach et al, 1999). Transformational leaders inspire and motivate others by providing meaning and challenge to their work. The spirit of the team is aroused while enthusiasm and optimism are displayed. The transformational leader builds relationships with followers through interactive communication, which forms a cultural bond between the two participants and leads to a shifting of values by

both parties toward common ground. This leader inspires followers to see the attractive future state, while communicating expectations and demonstrating a commitment to goals and a shared vision. Idealized influence and inspirational motivation are usually combined to form charismatic-inspirational leadership (Russell et al, 2004).

Intellectual stimulation

Leaders who intellectually stimulate workers encourage creativity and accept challenges as part of their job. They keep their cool, working out ways of dealing with problems in a rational manner. These leaders cultivate the same skills in their workers. They work through difficulties with their staff in a calm calculated fashion and use problem-solving techniques for reaching decisions that reflect a mutual consensus between leaders and employees. The intellectual stimulation leadership approach reflects in large measure the coaching, morale-building strengths of individualised consideration. Both leadership approaches build character as well as organisational skill through caring leadership behaviours that coach and challenge (Sarros & Santora, 2001; Eissenbach et al, 1999). Transformational leaders stimulate their followers' efforts to be innovative and creative by questioning assumptions, reframing problems and approaching old situations in new ways. Followers' mistakes are not publicly criticised and creativity is openly encouraged. Transformational leaders solicit their followers' ideas and creative solutions to problems, thereby including followers in problem-solving. The intellectually stimulating leader encourages followers to try new approaches but emphasises rationality (Russell et al, 2004).

Idealised influence

Idealised influence is behaviour that encourages followers to use their leaders as role models. Another way to describe this type of style is Charisma. At the heart of idealised influence is the creation of values which inspire, provide meaning for and instil a sense of purpose in people (Sarros & Santora, 2001; Eissenbach et al, 1999). Russell et al (2004) further explain that the idealised

influence is the charismatic element of transformational leadership in which leaders become role models who are admired, respected, and emulated by followers and consequently followers demonstrate a high degree of trust in such leaders. Idealised influence in leadership also involves integrity in the form of ethical and moral conduct.

Table 3 summarises the four primary or functional areas of transformational leadership and identifies the attributes that, according to the literature, accompany these primary characteristics:

Functional attributes	Accompanying attributes
Idealised influence	
	Vision
	Trust
	Respect
	Risk-sharing
	Integrity
	Modelling
Inspirational motivation	
	Commitment to goals
	Communication
	Enthusiasm
Intellectual stimulation	
	Rationality
	Problem-solving
Individualised consideration	
	Personal attention
	Mentoring
	Listening
	Empowerment

Table 3: Transformational leader attributes (source: Sarros & Santora, 2001)

In summary, the transformational leader articulates the vision in a clear and appealing manner, explains how to attain the vision, acts confidently and optimistically, expresses confidence in the followers, emphasises values with symbolic actions, leads by example and empowers followers to achieve the vision.

3.3.3 Limitations of leadership

Because leaders garner power, all forms of leadership carry with them the possibility for manipulation and corruption. This negative side of leadership is potentially problematic.

The sources of influence and motivation inherent in transformational leadership carry with it certain distinct possibilities for manipulation. In transformational leadership personal power in the form of charisma can be very influential upon followers. In fact, the strength of the leader's charisma may determine his or her overall effectiveness. Strongly charismatic leaders can develop loyal, enthusiastic followers who may tend to overlook negative traits in their leaders. Consequently, if the leaders' motives or ethical standards are poor, they can manipulate their loyal constituency (Stone, Russell & Patterson, 2004; Cardona, 2000).

Sarros and Santora (2001) state that, a further criticism relates to the tendency to view transformational leaders as individuals who have special qualities that transform others. They argue that this image emphasises a trait characterisation of transformational leadership and therefore training people in this approach becomes problematic because it is difficult to teach people how to change traits.

3.4 Organisational culture

Change is the movement away from a present state toward a future state or generally a response to some significant threat or opportunity arising outside of the organisation. The change process in each organisation is unique in each situation, owing to the differences in the nature of the organisation, the nature of the business, the work culture and values and also the behaviour and attitude of the employees. Furthermore, the risk of failure is greater as people are generally resistant to change. For some, change may bring satisfaction, joy and advantages, while for others the same change may bring pain, stress and disadvantages (Rashid, Sambasivan & Rahman, 2004).

Managing the human part of the organisation becomes a major challenge in handling change processes in the organisation as it involves values, preferences, and attitudes toward a particular activity. Attitudes, for instance, are difficult to change as people are generally more comfortable with what they have learned or know due to stereotyping, fear of taking risks, intolerance to ambiguity and possibly the need to maintain tradition (Rashid, Sambasivan & Rahman, 2004).

Every organisation has its own culture, whether it knows it or not. It is a very powerful influence on everyone's behaviour, from senior management to shop floor workers. There are some things one simply does not do and the new-comer has to learn quickly what they are (Line, 1999).

3.4.1 Definition of organisational culture

Although it is important to understand what organisational culture is, trying to do so is difficult because of the great disparity in how the term is defined. A precise, widely accepted definition for organisational culture is elusive in part because it is not a physical object, it covers such a wide range of behaviour and thought and what it includes varies greatly from one group to another (Linn, 2008). In addition, there is a wide array of disciplines that have

studied organisational culture, including management, anthropology, and education. While this provides many perspectives on the topic, it also makes agreement on how to define the term difficult because the different fields tend to analyse questions differently. This failure to have a generally accepted meaning leads to confusion about what organisational culture encompasses the way it works and its importance (Linn, 2008).

Werner (2007) describes culture as everything a group thinks, says, does, ideas, morals, habits, traditions, languages, material artefacts and shared systems of attitudes and feelings that help create standards for people to co-exist which are acquired, developed and passed on by the group of people, consciously or unconsciously, to subsequent generations. “Culture is the collective programming of the mind which distinguishes the members of one human group from another” (Hofstede, 1980).

“Organisational culture is understood as a characteristic of the day-to-day environment as seen and felt by those who work there” (Balzarova, Castaka, Bamber & Sharp, 2006). Robbins and Judge (2009) define organisational culture as a system of shared meaning held by members that distinguishes the organisation from other organisations. This system of shared meaning is a set of key characteristics that the organisation values. According to Rashid, Sambasivan and Johari (2003), culture is to the organisation, what personality is to the individual. It is a hidden but unifying force that provides meaning and direction. It is also a system of shared meanings, or systems of beliefs and values that ultimately shapes employee behaviour.

According to Reiman and Oedewald (2002), the Schein’s theory defines organisational culture as a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and is therefore, to be taught to new members as a correct way to perceive, think and feel in relation to those problems.

3.4.2 Functions of organisational culture

Kreitner and Kinicki (1998) state that organisational culture fulfils four functions. Organisational culture gives members of organisation an identity, facilitates collective commitment, promotes social system stability and shapes behaviour by helping members make sense of their surroundings. Chan (1997:95) argued that organisations can create for themselves a more manageable social space which will provide them with protection and internal stability through adopting a clan culture and he identifies the following eight characteristics as functions of organisational culture:

1. a belief in the importance of the individual clan member;
2. a belief in the importance of maintaining internal stability;
3. organisational cohesiveness and internalisation of a we/they mentality;
4. attempts to differentiate strongly the clan from its external environment and the building of a defensive wall against external instability in order to attain a level of self-sufficiency;
5. socio-cultural barriers to entry to minimise dilution of the culture, such as a common set of socio-cultural beliefs and behaviours used in self-identification and as a cognitive leash;
6. a belief in the importance of clan identity and culture as exemplified by its traditions, rituals, rites and heroes/heroines which are to be protected at all costs;
7. a greater latitude of trust and acceptance of deviancy for clan members than for outsiders and a defence of organisational honour and survival before all else through the use of draconian penalties for going outside the zone of indifference; and
8. a set of clan elders who interpret the law and provide punishment (e.g. suspensions and termination).

Martins and Terblanche (2003) further state that the role that organisational culture plays in an organisation can be divided into the functions of organisational culture and the influence organisational culture has on the different processes in the organisation. The functions are internal integration and coordination, the integration is described as the socialisation of new employees and the coordination refers to creating a competitive edge, making sense of the environment in terms of acceptable behaviour and social systems that bind the organisation together. They describe the influence as offering a shared system of meanings which forms the basis of communication and mutual understanding. They conclude by stating that if the culture does not fulfil these functions in a satisfactory way, the culture may reduce the efficiency of the organisation.

3.4.3 Organisational culture theories

In trying to understand better the concept of corporate culture, several theories have been researched and developed.

3.4.2.1 Geert Hofstede theory

Moulettes (2007) and Smith (2004) state that this model is composed of four cultural dimensions - power distance, uncertainty avoidance, individualism and masculinity. She explains that the first dimension, power distance, is claimed to describe the extent to which the less powerful members of organisations expect and accept power to be unequally distributed. The second dimension, uncertainty avoidance, is supposed to describe the extent to which people tolerate uncertainty and ambiguity, while the third dimension, individualism, reflects the extent to which people are integrated into groups. The fourth dimension, masculinity, refers to male assertiveness and competitiveness on the one hand, and female nurturance and modesty on the other.

On the other hand, Ng, Lee and Soutar (2007) note that several researchers have criticised Hofstede's dimensions as being derived from old data, lacking general usability and being too condensed to capture culture. They state that Hofstede responded to these criticisms by arguing that the IBM data were obtained from well matched samples and that the dimensions found are assumed to have centuries-old roots. Only data which remained stable across two subsequent surveys were maintained and they have since been validated against all kinds of external measurements. Recent replications show no loss of validity.

3.4.2.2 Edgar Schein theory

According to Reiman and Oedewald (2002), Dooley (1992), Martins and Terblanche (2003) and Linn (2008), the Schein's theory considers culture to be a three-layer phenomenon. The first level of culture consists of visible organisational processes and various artefacts. The second cultural level consists of the organisations espoused values and beliefs. The third level of culture consists of underlying assumptions about the organisations culture. These levels are depicted in figure 2.

Several theories have been developed and discussed but for the purpose of this paper we shall focus on Schein's model of organisational culture.

Linn (2008), in his paper *Organisational culture: an important factor to consider*, states that Edgar Schein is viewed by many social scientists and others as one of the foremost experts in the study of organisational culture. Werner (2003) states that various authors refer to the work of Schein when they indicate means by which cultures are established and cemented in organisations. Martins and Terblanche (2006) note that the Schein's model is criticised for not addressing the active role of assumptions and beliefs in the forming and changing organisational culture.

Reiman and Oedewald (2002) state that although Schein's theory has been criticised, it covers the central elements of culture well, namely its holistic, partly unconscious and learned nature. They argue that organisational culture therefore is not merely a single variable which describes organisations' activities such as the structure, strategy, market orientation and the technology it uses but organisational culture is a scientific concept that strives to describe and explain activity in the organisation as a whole.



Figure 3: Schein's model of organisational culture (source: Reiman & Oedewald, 2002)

Artefacts

According to Reiman and Oedewald (2002), Dooley (1992) and Martins and Terblanche (2003), Schein's first level of culture consists of visible organisational processes and various artefacts such as dress codes, activities, rituals, jargon and general tidiness of the workplace that tell something about the organisation's culture. This level is said to be very difficult to interpret because it represents the most superficial cultural

phenomena, as behaviour is influenced by factors other than company culture (Reiman & Oedewald, 2002)

Espoused values

The second Schein's cultural level, according to Reiman and Oedewald (2002), Dooley (1992) and Martins and Terblanche (2003), consists of the organisation's espoused values and beliefs, official objectives, declared norms and operating philosophy and includes an organisation's espoused judgments about what is good and bad, which make sense of how actions are evaluated as exemplary or ineffective. These values, however, do not always reflect a company's everyday operations (Reiman&Oedewald2002).

Underlying assumptions

The Schein's theory consists of underlying assumptions that relate to and includes the deepest and most comprehensive explanation of reality and views of fundamental truths about people and problems relating to external adaptation and internal integration. This layer is usually tacit and additionally to be found in this deepest layer are the mental models and value systems that actually drive organisational behaviour (Reiman & Oedewald, 2002; Dooley, 1992; Martins & Terblanche, 2003). These solutions gradually become self-evident assumptions that cannot be called into question later, argue Reiman and Oedenwal (2007). Problems related to external adaptation concern views of an organisation's tasks and objectives as well as the means to implement and assess them. A solution has to be found for them in order for the organisation to function and succeed in its environment. Problems related to internal integration and to maintaining operating capacity concern the creation of common language and concepts, defining group limits, level of authority relationships and interaction as well as methods of reward and punishment. A solution has to be found for these so that members of the organisation can function together in an organised predictable manner (Reiman & Oedenwal, 2007).

This organisational theory of Schein also distinguishes deeper lying assumptions which relate to human nature as well as to the nature of information and the human activity in question. These are strongly influenced by national culture but an organisation always forms its own view of them in its operations and they influence how members of organisation perceive, think and feel in matters relating to the organisation. These assumptions function as a conscious basis for action and a range of decisions that shape the culture further. Underlying assumptions are therefore not static but an on-going accomplishment. Even though these assumptions direct the actions of a company's members they cannot be inferred from such actions as actions are influenced by situation specific and individual factors. These actions can be in conflict with the underlying assumptions which direct these actions. Organisations may deny existence of these conflicts (Reiman & Oedenwal, 2007).

3.4.4 Determining organisational culture

Many factors go into shaping an institution's culture. Linn (2008) proposes a list of elements that combine to create the culture of an organisation. These components are its environment, the mission, socialisation to the organisation, information, organisation's strategy and leadership. Reiman and Oedenwal (2007) maintain that leadership has a central position in organisational culture.

3.4.5 Organisational culture and organisational performance

Linn (2008) believes that since the culture is so influential it is not a surprise that some have found a link between an organisation's culture and its success. Linn further explains that most financially successful companies had cultures that strove to serve customers, employees and stockholders, instead of just one or two of these.

Kreitner and Kinicki (1998:67) describe three perspectives that explain the following types of culture that enhance an organisation's performance:

- ***The strength perspective*** which predicts a significant relationship between the strength of organisational culture and performance. The notion is that strong cultures create goal alignment, employee motivation and needed structure and controls to improve organisational performance.
- ***The fit perspective*** is based on the premise that an organisation's culture must align with its business or strategic context. This suggests that there is no one best culture but that culture is predicted to facilitate performance only if it fits its context.
- ***The adaptive perspective*** assumes that good cultures help organisations anticipate and adapt to environmental change. This adaptability is expected to enhance long term performance.

3.4.6 Organisational culture and change

Dooley (1992) argues that a roadblock to successful implementation of structural change programmes, such as Lean Manufacturing or re-engineering, is the vulnerability of such initiatives to powerful, yet poorly understood cultural influences. Change programmes, especially Lean Manufacturing, go beyond building new work habits, roles and responsibilities. They amount to a values-based organisational paradigm change to the extent that change initiatives may clash with cultural patterns of values, thought and action already in place. He goes on to debate that if already existing cultural patterns are inconsistent with new values and cultural implications of systemic change initiatives, then defensiveness, withdrawal and distortion of important information may result. These effects can powerfully inhibit an organisation's ability to implement successful, durable systemic change.

This thought is equally shared by Linn (2008) who states that when one wants to make modifications to an organisation, it is important to understand its

culture because, when it is not taken into account, the necessary changes can be rejected. Linn (2008) goes on to argue that the problem is that an organisation's culture is often difficult to change since it is hard to comprehend all of its branches and because the leaders are often focused on the more substantive issues involved in the change. However, it is often the cultural and political aspects of a change, rather than the substantive issues, that determine whether the modifications succeed or fail.

Linn (2008) states that the more congruent the dimensions of a culture are, the easier it will be to do things that go along with that culture and the harder it will be to make changes that go against it.

3.5 Employee involvement

The past decade has seen an extensive dialogue about industrial reform, the importance of consultation, employee participation and industrial democracy in achieving these reforms. Within the higher council of employer organisations and employee organisations there is a broad agreement about the necessity for increased employee involvement in decision-making (Davis & Lansbury, 1996).

“Closely linked to this notion of participative decision-making is the rationale that involving employees in factors that influence their work and decision-making processes increases job satisfaction, giving employees a greater sense of fulfilment and control over their work and the benefits that accrue from this strategy contribute to the overall organisation performance” (Parks, Scully, West & Dawson, 2007).

“Employee involvement is a process designed to empower members of an organisation to make decisions and to solve problems appropriate to their level in the organisation; the reasoning being that people closest to a problem are in the best position to make decisions for improvement if they have control of the improvement process” (Sun, Hui, Tam & Frick, 2000:350).

There is a growing number of managers and academics who point out that all personnel should not only be made aware of, but actively participate in improvement processes in such a way that this participation becomes a fundamental pillar in the continuous improvement of companies (Lorenzo, Prado & Arca, 2000).

“Total involvement is the integrating concept in quality management, comprising the participation and contribution of organisational stakeholders to continuous improvement, all members from management to shop floor. The importance of involvement in total quality is well established in Total Quality Management” (Dimitriadis, 2000).

3.5.1 Definition of employee involvement

Employee involvement is frequently recognised as an important enabler in total quality management (Sumukadas, 2006). Goetsch and Davis (2000), state that involving people in decision-making relating to their work is a fundamental principle of good quality management as this gets employees to be involved, not only in decision-making, but in the creative thought process that precedes decision-making.

Parks et al (2007) define “employee involvement as part of organisational systems, rather than belonging to individuals. It is an extension of power to make decisions, business information, rewards for performance and skills development to the lowest level employees of the organisation”. Goetsch and Davis (2000) describe employee involvement as a way of engaging employees at all levels in the thinking process of an organisation by recognising that decisions can be better made by those affected by the decisions and understanding that employees at all level of the organisation possess unique talents, skills and creativity that can be of significant value if allowed to be expressed.

3.5.2 Employee involvement theories

Employee involvement is said to draw from a number of theories and these are based on how managers think about their employees as individuals. Management will have either a very positive or negative mind set about their employees. A negative assumption is based on McGregor theory-X assumption that the average person dislikes work and wants to avoid it and is not interested in working for anything but money. Because of this employees do not feel committed or loyal and do not want to take responsibility for their work. A belief system is built around this assumption that workers need to be coerced, strictly controlled and directed by management. A positive assumption is based on McGregor theory-Y assumption that the average person wants to work and be held responsible, accountable, is creative and committed to his work. Theory Y is consistent with participative management and Theory X is aligned to a traditional autocratic style of managing people (Swanepoel, Erasmus, Van Wyk & Schenk, 2003). The rationale for employee involvement is that it creates the best way to bring creativity and initiatives of the employees to improve the company. Human beings are not robots: while working they observe, think, sense and ponder.

Several typologies have been offered for classifying the different properties of employee involvement. This paper will examine the framework for employee involvement as defined by Lawler, Mohrman and Ledford (Sumukadas, 2006):

- i. Information-sharing;
- ii. knowledge and training;
- iii. rewards; and
- iv. power-sharing

This classification is said to be compatible with theoretical typologies as it is empirically derived and assures an empirically grounded measurement scale (Sumukadas, 2006). This classification is further recommended by Sun et al (2000) where they state that management should hold the assumption that

employees are willing and able to contribute, all of which should be incorporated in quality management programmes.

3.5.2.1 Information sharing

Information sharing takes place when managers provide company-related information to employees on a regular basis. The type of information includes overall company performance results, business unit results, business plans, vision of the organisation and competitor performance results (Sumukadas, 2006). Sun et al (2000) state that, employees need to be shared strategic organisation information in order to direct their efforts at operational level. The most important information for employees is the business unit operating results as it provides them with the information they need in order to contribute ideas and suggestions to improve business results (Sumukadas, 2006).

3.5.2.2 Knowledge and training

Training to improve employee skills is an important element of employee involvement as it provides them with the necessary skills needed to contribute to improve the organisation. Training should include both technical and managerial skills in problem-solving, decision-making, team building, leadership, job skills and quality statistical techniques (Sun et al, 2000; Sumukadas, 2006). Training improves communication about work procedures, eliminates waste, improves performance and is an essential knowledge development in TQM (Sun et al, 2000; Sumukadas, 2006).

3.5.2.3 Rewards

Compensation plays a vital role in employee involvement and pay per performance is the most common system of compensation. The reward system provides incentives to motivate employees to be involved and

participate. Incentive systems include individual and team incentives, gain sharing, profit sharing and employee stock options (Sun et al, 2000; Sumukadas, 2006). Team incentives are the most preferred as they foster team effort in problem-solving. The employee stock option, when used with participation and involvement, has a positive effect on productivity and employee attitudes as they have a sense of ownership of the business (Sumukadas, 2006). Non-monetary rewards are also used as incentives for improvements and rewards for quality (Sumukadas, 2006).

3.5.2.4 Power sharing

Employee involvement is about empowering employees to make decisions and solve problems. Employees must be given more responsibility to participate. Management need to delegate more responsibility and decision-making power to employees at various level of the organisation. Without the necessary power employees cannot be involved in the improving of the organisation (Sun et al, 2000).

3.5.3 Barriers to employee involvement

Humans by nature resist any type of change and introduction of employee involvement in organisations is met with resistance and has many barriers. The major barriers to employee involvement, according to Goetsch and Davis (2000), are:

- i. resistance from employees and unions;
- ii. resistance from management;
- iii. workforce readiness; and
- iv. organisational structure and management practice.

3.5.3.1 Resistance from employees and unions

Resistance to change is natural: even positive change can be uncomfortable for employees as it involves unknown territories. Unions resist involvement

because of traditional advisory relationship with management and they might not understand management motives for implementing employee involvement. They might also feel threatened by the fact that involvement will affect their role as mediators between management and employees (Goetsch and Davis, 2000).

3.5.3.2 Resistance from management

Employee involvement will not work unless it has the full commitment of management. Managements resist because of insecurity, personal values, training, ego and exclusions of management in the conceptual stages of the introduction of employee involvement. The organisational structure, management style, how to behave and all other aspect of the job should be built around involvement and empowerment (Goetsch and Davis, 2000).

3.5.3.3 Workforce readiness

Employee involvement fails if employees are not ready for it. Involving and empowering employees who are not prepared is far worse than not involving them at all. To determine the readiness of employees management should be able to answer the following questions, according to Goetsch and Davis, (2000):

- Are employees accustomed to critical thinking?
- Do employees know the decision-making process and their role regarding it?
- Are employees aware of the big picture and how they fit into it?

If these questions cannot be answered employees are not ready for involvement and empowerment.

Employees that are ready should ask the following questions:

- Is there a better way to do this?

- Why do we do it this way?
- Could the goal be accomplished in another way?
- Is there another way to look at the problem?

These types of questions that involved and empowered employees ask, lead to continuous improvement of processes and effective problem-solving. Employees need to be taught to ask these types of questions (Goetsch and Davis, 2000). Employees need to know where the organisation is going, its goals and what strategies it will use to get there. They need to be understood and be part of the decision-making process so that they understand where they fit in order to be involved and make a contribution (Goetsch and Davis, 2000).

3.5.3.4 Organisational structure and management practices

Resistance to involvement is attitudinal. However, an organisation's structure and management practices can militate against successful employee involvement (Goetsch and Davis, 2000). Bureaucratic organisations with too many layers oppose employee involvement, as this affects decision-making. Empowered and involved employees take risks and they might make mistakes when taking those risks. If management punishes them for making mistakes and does not offer constructive criticism they will play it safe and not take risks, thus hindering continuous improvement (Goetsch and Davis, 2000).

3.5.4 Enablers of employee involvement

Creating a positive workplace environment where critical thinking and risk-taking is encouraged is central to employee involvement. Suggestions schemes and teams are proof that employees are actively involved in initiating improvements and decision-making (Imai, 1997).

3.5.4.1 Teams

A team is defined as a small number of people with a shared purpose, performance goal and a common commitment for which they hold themselves accountable for (Dimitriades, 2000). Team working is a central means of involving employees in continuous improvement activities. To understand teamwork in terms of quality one needs to consider how it relates to employee involvement and empowerment. In employee involvement key elements are likely to be present, such a sense of personal efficacy and worth, a sense of individual power and a freedom to use that power to achieve goals. Team working facilitates labour intensification and a self-policing device through peer supervision and control. This is achieved by organising employees into teams and making these teams accountable for their own performance. This allows managers to instil a customer focus on the workforce and harness peer pressure of fellow team members to ensure compliance to organisational goals (Rees, 1999). The role of teams is to recognise opportunities for improvement and apply a structured approach to problem-solving. This empowers employees to be directly involved in the day-to-day operations to improve their work environment (Jablonski, 1992).

3.5.4.2 Suggestions schemes

A suggestion scheme is defined as a system where employees can channel their ideas on how to solve problems towards workplace improvement (Goetsch and Davis, 2000). Suggestions provide the means where employees can interact amongst themselves and with management in order to solve problems (Imai, 1997). Management should create an environment that supports suggestions by establishing policy, systems, evaluating systems, implementing and rewards for suggestion schemes.

Employee involvement, if it is to be successful, needs to be correctly implemented and be aligned with company strategy. Team work and suggestion schemes are powerful ways to encourage employee involvement

but they need to be systematically implemented and operated and not flavour-of-the-month approaches.

Training and development is essential to support and develop a culture of employee involvement. Management need to let go of controls and let their employees be involved and engaged in improvements and decision-making. Employees need to be recognised and rewarded for their efforts, they need to be rewarded for the skills and abilities and be valued by incentives for improvements.

Employee involvement can achieve the desired results if it is implemented effectively under appropriate conditions.

3.6 Conclusion

In this chapter by discussing and defining the variables under review, those of strategy alignment, leadership, organisational culture and employee involvement, it was established that change capable organisations embrace and work with the challenges they face. By sharing leadership these organisations create commitment and passion around the organisation. This commitment and passion emanates from leaders creating a climate and empowering employees to run with ideas, challenge, take responsibility and achieve continuous success with minimal intervention. These leaders have identified that micromanagement and oppressive supervision create a climate of mistrust.

In the next chapter the research methodology undertaken for the study will be discussed.

Chapter 4

Research design and methodology

4.1 Introduction

In the previous chapter a literature review of the variables under review, those of strategy integration, leadership, organisational culture and employee involvement was conducted.

In this chapter we will discuss an appropriate research strategy for a given research problem.

The focus will be on research design, research objectives, methodological approaches and research procedure applicable to the nature of the problem.

4.2 The concept of research

“Research is a systematic and methodical process of enquiry and investigation to provide a coherent and logical route to a reliable outcome” (Collis & Hussey, 2003). “Research refers to the process in which scientific methods are used to expand knowledge in a particular field” (Welman & Kruger, 2003:2). Another definition by Babbie (2007) states that research is a method of enquiry, a way of learning and knowing things about the world around us: it is a conscious, deliberate and thorough undertaking.

“The concept of research involves the application of various methods and techniques in order to create scientifically obtained knowledge by using objective methods and procedures. The techniques must be appropriate for the task and these must entail specific tools used to sample, measure, collect and analyse information” (Welman & Kruger, 2003).

4.3 Research methodologies

In this section the main methodologies that are used in research are discussed. There are a number of different types of research methodologies: the type chosen should reflect the assumptions of the research paradigm (Collis & Hussey, 2003):

- Positivists methodologies;
- Phenomenological methodologies; and
- Mixed methodologies.

4.3.1 The positivists methodology

A positivists or quantitative paradigm seeks the facts with little regard to the subjective state of the individual. Thus logical reasoning is applied to the research so that precision, objectivity and rigour replace hunches, experiences and intuition as the means of investigating research problems (Collis & Hussey, 2003). Babbie (2007) describes the quantitative paradigm as the numerical representation and statistical manipulation of observations for the purpose of describing and explaining the facts that those observations reflect

Collis and Hussey (2003) identify and describe the following types of positivist methodologies:

- Cross-sectional studies;
- Experimental studies;
- Longitudinal studies; and
- Surveys.

4.3.1.1 Cross sectional studies

A cross-sectional study is a methodology that is designed to obtain information on variables in different contexts but at the same time. Different organisations are selected and a study is conducted to ascertain how factors differ. A statistical analysis is then conducted to determine whether there is any correlation between the two variables. This type of study is conducted when there are constraints of time and resources. The data is collected once in a short period of time before it is analysed and reported, thus giving a snapshot of an on-going situation (Collis & Hussey, 2003).

4.3.1.2 Experimental studies

Experimental studies are conducted either in a laboratory or in a natural setting in a systematic way. This methodology permits casual relationships to be identified, the aim being to manipulate the independent variable in order to observe effect on the dependent variable (Collis & Hussey, 2003).

4.3.1.3 Longitudinal studies

A longitudinal study conducts studies of a variable over time. The aim is to research the dynamics of the problem by investigating the situation several times or continuously over the period in which the problem runs its course. This is often many years. Repeated observations are taken with a view to revealing the relative stability of the phenomena under study: some will have changed, others will show little sign of change. This type of study allows the researcher to examine the change process over time, thus making it possible to suggest likely explanations from observations of the process of change and the patterns which emerge (Collis & Hussey, 2003).

4.3.1.4 Surveys

A survey is a methodology where a sample of subjects is drawn from a population and studied to make inferences about the population. If the sample is representative it is possible to use statistical techniques to demonstrate the likelihood that the characteristics in the sample are contained in the population. According to Collis and Hussey (2003) there are two types of surveys:

- *Descriptive survey* – is concerned with identifying and counting the frequency of a specific population either at one point in time or at various times for comparison.
- *Analytical survey* – is intended to determine whether there is any relationship between different variables.

4.3.2 The phenomenological approach

A phenomenological or qualitative paradigm is concerned with understanding human perceptions and perspectives from the researchers own frame of reference (Collis & Hussey, 2003). Qualitative research believes that the researcher's ability to interpret and make sense of what he or she sees is critical for an understanding of any social phenomenon (Leedy, 2001). The research methods used in this paradigm are an arrangement of interpretative techniques which seek to describe, translate and come to terms with the meaning, not the frequency of the occurring factors (Collis & Hussey, 2003).

4.3.2.1 Action research

This is an approach which assumes that the social world is constantly changing and the research itself is part of this change. The main aim of action research is to enter into a situation, attempt to bring about change and to monitor the results (Collis & Hussey, 2003).

4.3.2.2 Case studies

Collis and Hussey (2003) define a case study as an extensive examination of a single instance of a phenomenon of interest that focuses on understanding the dynamics present within single setting. Case studies are often described as exploratory research used in areas where there are few theories or a deficient body of knowledge. They describe the following types:

- *Descriptive* – case studies where the objective is restricted to describing current practice;
- *Illustrative* – case studies where the research attempts to illustrate new and possibly innovative practices adopted by particular companies;
- *Experimental* – case studies where the research examines the difficulties in implementing new procedures and techniques in an organisation and evaluating the benefits; and
- *Explanatory* – case studies where existing theory is used to understand and explain what is happening.

A case study approach implies a single unit of analysis and involves gathering detailed information about the unit of analysis with a view of obtaining detailed information (Collis & Hussey, 2003).

This type of research aims not to only explore certain phenomena but to understand them within a particular context and uses multiple methods for collecting data which may be both qualitative and quantitative (Collis & Hussey, 2003).

4.3.2.3 Ethnography

This methodology stems from anthropology and is an approach in which the researcher uses socially acquired and shared knowledge to understand the observed patterns of human activity. The main aim of this research is to be able to describe and interpret the social world in the way the members of that particular world do (Collis & Hussey, 2003).

4.3.2.4 Feminist perspective

The feminist perspective is said to be concerned with challenging the traditional research paradigm from the point of view of the politics and ideology of the women's movement. It challenges the methods by which knowledge is currently generated and the source of the views of the world it reflects (Collis & Hussey, 2003).

4.3.2.5 Grounded theory

Grounded theory is described as the interpretive methods that share the common philosophy of phenomenology, which are methods that are used to describe the world of the person or persons under study. This methodology uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon. The findings of the research constitute a formulation of the reality under investigation, rather than consisting of a set of numbers or a group of loosely related themes. The theory is generated by the observations rather than being decided before the study. This is in contrast with a positivist study where speculation and reflection lead to the development of the hypotheses. The purpose of grounded theory is to build theory that is faithful to and illuminates the area under investigation, where the intention is to arrive at prescriptions and recommendations with the theory which are likely to be intelligible and usable in the situation being studied (Collis & Hussey, 2003).

4.3.2.6 Hermeneutics

Hermeneutics was originally concerned with interpreting ancient scriptures. This methodology involves paying attention to the historical and social context surrounding an action when interpreting a text. It also assumes that there is a relationship between the direct conscious description of experience and the underlying dynamics of structures (Collis & Hussey, 2003).

4.3.2.7 Participative enquiry

Participative enquiry is a methodology that is about research with people rather than research on people. The participants in this type of study are involved as fully as possible in the research which is conducted in their group or organisation. Participants are involved in the data gathering and analysis; they also debate and determine the progress and direction of the research, enabling the researcher to develop questions and answers as a shared experience with a group as co-researchers (Collis & Hussey, 2003).

4.3.3 Mixed methodologies

It can be argued that the dominant paradigm in business research is the positivistic paradigm. However, a more phenomenological approach is becoming more acceptable and arguably is more appropriate for many business research studies. This means that a study could be entirely phenomenological in its approach but have aspects of a positivistic paradigm. The two main paradigms represent two extremes of a continuum and a study may represent a blend of assumptions and methodologies. It is perfectly possible and even more advantageous to use both qualitative and quantitative methods for collecting data (Collis & Hussey, 2003).

4.3.3.1 Triangulation

The use of different research approaches, methods and techniques in the same study is defined as triangulation. This approach can overcome the potential bias and sterility and leads to greater validity and reliability than a single method approach, argue Collis and Hussey (2003). Leedy and Omrod (2001) describe triangulation as the situation where it is possible to combine qualitative research methods with quantitative research methods in the same project. They state that many research projects could be enhanced considerably if a triangulation approach were taken.

Collis and Hussey (2003) identify four types of triangulation:

- *Data triangulation* – where data is collected at different times or from different sources in the study of a phenomenon;
- *Investigator triangulation* – where different researchers independently collect data on the same phenomenon and compare the results;
- *Methodological triangulation* – where both qualitative and quantitative methods of data collected are used; and
- *Triangulation of theories* – where a theory is taken from one discipline and used to explain a phenomenon in another discipline.

In this study the researcher has used the mixed methodologies of qualitative and quantitative approaches using methodological triangulation, because Collis and Hussey (2003) contend that triangulation has vital strengths, encourages productive research, enhances qualitative methods and allows the complementary use of quantitative methods.

A cross-sectional analytical survey approach in a descriptive case study will be undertaken.

4.4 Research design

Research is about making observations and interpreting what has been observed but before the observations and analysis, a plan is needed to determine what is to be observed and analysed. This planning process is known as research design (Babbie, 2007).

Collis and Hussey (2003) define research design as the science of planning procedures for conducting studies so as to get the most valid findings. They state that determining the research design gives a detailed plan which is used to guide and focus the research.

4.4.1 Data collection

The availability of data is crucial to the successful outcome of the research study. Collis and Hussey (2003) define data as known facts or things used as a basis for inference or computation.

Data can be described as qualitative or quantitative. Qualitative data is concerned with nominal characteristics. It is an array of interpretative techniques which seek to describe, decode, translate and come to terms with the meaning and not the frequency in an occurring phenomenon. Quantitative data is all data that is collected in numerical form and frequency of occurrence is used to collect data (Collis & Hussey, 2003).

4.4.1.1 Data collection methods

Once the research design has been decided, research participants need to be obtained according to the sampling procedure in order to carry out the research. The researcher will have to consider which data collection method is the most appropriate in the light of the research problem (Welman & Kruger, 2003).

One of the main advantages of a quantitative approach to data collection is the ease and speed with which the research can be conducted. Qualitative data collection can be expensive and time-consuming but qualitative data in business research provides a more 'real' basis for analysis and interpretation (Collis & Hussey, 2003).

Each data collecting method has its advantages and disadvantages: what counts as advantage for one, may be a disadvantage for the other (Welman Kruger, 2003).

Data collection methods are used in that part of the research which is concerned with collecting data. Collis and Hussey (2003) list the following data collection methods:

- *Critical incident technique* – used during in-depth interviews to generate qualitative data.
- *Diaries* – a daily record of events or thoughts and is used to capture what people think, do and feel and can be used either for qualitative or quantitative methodology.
- *Focus group* – are used to gather data relating to the feelings and opinions of a group of people who are involved in a common situation and is associated with the qualitative methodology.
- *Interviews* – are a method of collecting data in which selected participants are asked questions in order to find out what they do, think and feel. They can be used in both quantitative and qualitative methodologies. Interviews make it easy to compare answers and make it possible to ask more complex questions and ask follow-up questions which are not possible in a questionnaire.
- *Protocol analysis* – a data collection method used to identify the mental processes in problem-solving and is associated with a qualitative approach.
- *Questionnaires* – a list of carefully structured questions, chosen after considerable testing, with a view to eliciting reliable responses from a chosen sample. The aim is to find out what a selected group of participants feel, do or think and can be used either for quantitative or qualitative approach.

Collis and Hussey (2003) warn that data may either be not available or difficult to collect and therefore researchers need to make sure that they will be able

to get the data and other information that will be needed to conduct the research.

4.4.1.2 The research sample

The selection of a sample is a fundamental element of a quantitative study. Collis and Hussey (2003) state that a sample is made up of some members of a population. A population may refer to a body of people or to any other collection of items under consideration for research purposes. A sample frame is a list of population from which all the sample units are drawn. The members of the population are referred to as the unit of analysis. They maintain that a good sample is one in which the results obtained for the sample can be taken to be true for the whole population. They say a good sample must be:

- Chosen at random, where each member has an equal chance to be chosen;
- Large enough to satisfy the needs of the investigation being undertaken; and
- Unbiased.

Collis and Hussey (2003) list and describe the following types of sampling methods:

- *Random sampling*—in this method numbers are chosen at random, as in a raffle, where each member has an equal chance and probability to be chosen.
- *Stratified sampling* – with small samples, simple random sampling might result in some members of the population being over or under represented. Stratified sampling overcomes this problem as each identifiable strata of the population is taken into account. Stratified random sampling is used when the population is composed of various clearly recognisable, non-overlapping sub-populations that differ from

one another mutually in terms of the variables in question (Welman & Kruger, 2003).

- *Quota sampling* – involves giving interviewers quotas of different types of people to question.
- *Cluster sampling* – involves making a random selection from a sampling frame listing groups of units rather than individual units. Every individual belonging to the selected groups is then interviewed or examined.
- *Multistage sampling* – is used where the groups selected in a cluster sample are so large that a sub-sample must be selected from each group.
- *Snowball sampling* – is associated with qualitative methodology where it is essential to include people with experience of the phenomena being studied in the sample.
- *Judgemental sampling* – is similar to snowball sampling as the participants are selected by the researcher on the strength of their experience of the phenomena under study.

The researcher needs to look out for sample bias, mainly because a sampling frame cannot be unambiguously identified in advance as the sample will not be representative of the population as a whole (Collis & Hussey, 2003).

4.4.1.3 The unit of analysis

A unit of analysis is the kind of case to which the variables under study and the research problem refer and about which data is collected and analysed (Collis & Hussey, 2003). Welman and Kruger (2003) refer to the unit of analysis as the members of the population under study about which the researcher wishes to make conclusion.

4.4.1.4 The measurement instrument

Questionnaires are a popular means of collecting data, as they are, according to Collis and Hussey (2003):

- Less time-consuming than conducting interviews;
- Cheaper; and
- Suitable for larger samples.

There are also a number of problems associated with the use of questionnaires (Collis & Hussey, 2003), namely:

- Question design can influence the validity and reliability of the responses.
- Presentation of the questionnaire can encourage and influence the respondents to complete the questionnaire correctly and make analysis of the responses easy.

It is important to pilot the questionnaire prior to distribution to prevent errors and ambiguity.

Collis and Hussey (2003) identify the following ways to distribute questionnaires, depending on the associated costs related to the size and the location of the sample:

- *By post* – this is commonly used and reasonably inexpensive even for large samples. Postal distribution is easy to administer, but the response rate may be as low as 10 per cent.
- *By telephone* – this method could reduce the costs associated with face-to face interviews, but still allowing some degree of personal contact. Response rates can be as high as 90 per cent, but the results may be biased towards people who have a telephone or are willing to answer questions in this manner.

- *Face-to-face* – the questionnaire can be presented to the respondent in any convenient location. Whilst inexpensive, this method can be time-consuming. Response rates are, however, usually high and comprehensive data may be collected.

Collis and Hussey (2003) mention the problem associated with questionnaires, particularly those distributed by post, namely what to do about non-response bias. They mention two types of this problem:

- Questionnaire non-response – occurs where all questions are not returned; and
- Item non-response – occurs if all the questions have not been answered.

They go on to state that non-response is crucial in a questionnaire survey because the research design will be based on the generalisation from the sample to the population. If the data has not been collected from all the members of the sample, the data may be biased and thus not representative of the population.

4.4.1.5 Question design

Collis and Hussey (2003) reason that various data collection methods rely on questions for extracting primary research data. The questions may be described as open-ended, where each respondent can give a personal response or opinion in his or her words. Other questions can be described as closed questions, where the respondent's answer is selected from a number of predetermined alternatives.

They argue that open questions offer the advantage that the respondents are able to give their opinions as precisely as possible in their own words but can be difficult to analyse. In a questionnaire survey open questions may deter busy respondents from replying to the questionnaire. They maintain that

closed questions are very convenient for collecting factual data and are easy to analyse, since the range of potential answers is limited.

Collis and Hussey (2003) state that multiple-choice questions are those where the participant is asked a closed question and selects the answer from a list of predetermined responses or categories.

In trying to elicit factual questions the researcher will also be seeking opinions. It is possible to allow participants to give more discriminating responses and to state if they have no opinion by providing them with some form of rating scale, according to Collis and Hussey (2003). This allows a numerical value to be given to an opinion. This turns the question into a statement and asks the respondent to indicate their level of agreement with the statement by ticking a box or circling a response. A frequently used scale of this form is the Likert scale. This type of method has the advantage that a number of different statements can be provided in a list which does not take up space, is simple for the respondents to complete and simple for the researcher to code and analyse. Welman and Kruger (2003) agree that the Likert scale method is easier to compile and can be used for multi-dimensional attitudes which is not possible with other attitude scales

Classification questions are described as those questions which set out to find out more about the participant. In studies where the sample needs to be described in some way, this becomes important where cross tabulation or statistical analysis will be conducted (Collis & Hussey, 2003).

In this study a survey and face-to-face interviews were used by the researcher to elicit responses from the chosen sample. The survey was conducted with questionnaire that used classification questions, open and closed questions anchored on a 5-point Likert scale, rated “strongly disagree” to “strongly agree”. A stratified random sampling method was used, as the sample frame contains middle management and supervisors. The total sample consisted of thirty participants, segmented as follows: four middle managers and six supervisors in three randomly chosen organisations that have participated in

the AIDC Tirisano Cluster Programme. The organisation was taken as the unit of analysis.

The proposed measuring tool is depicted in Annexure: A

The questionnaire was sub-divided into the following parts:

Section A

This section was design to extract information about the respondent and the respondent's company. The respondent's designation, area of work and tenure at the company and the company's ownership, number of employees and industry classification were solicited.

Section B

This section is about strategic alignment of Lean Manufacturing implementation. The questions in this section are aimed to determine how strategic alignment affects the adoption and implementation of Lean Manufacturing.

Section C

This section focuses on organisational culture in the context of Lean Manufacturing implementation. The questions will help uncover how organisational culture affects the adoption and implementation of Lean Manufacturing.

Section D

This section deals with leadership effect on Lean Manufacturing implementation. The questions aim to determine how leadership affects the adoption and implementation of Lean Manufacturing.

Section E

This section is about employee involvement effect on Lean Manufacturing implementation. The questions aim to describe how employee involvement affects the adoption and implementation of Lean Manufacturing.

4.4.2 Credibility of findings

Collis and Hussey (2003) state that two measures exist to describe the credibility of research findings, namely reliability and validity.

According to Welman and Kruger (2003), any given measuring instrument measures the following three components:

- The construct intended;
- Irrelevant constructs; and
- Random measurement error (reliability).

The first two components represent systematic sources of variation because they remain constant for any given individual. The latter is an unsystematic source of variation because it refers to accidental factors that may vary from one measuring occasion to the next and from individual to the next in a haphazard fashion.

4.4.2.1 Reliability

Reliability is concerned with the findings of the research and is one aspect of the credibility of the findings. This phenomenon asks whether the evidence and conclusions stand up to the closest of scrutiny. If a research finding can be repeated, it is reliable (Collis & Hussey, 2003). Welman and Kruger (2003) go on to describe reliability as the extent to which obtained scores can be generalised to different measuring occasions, measurement forms and measurement administrators.

Collis and Hussey (2003) state that there are three common ways of estimating the reliability of the responses to questions in questionnaires or interview:

- *The re-test method* – in this method the questions are asked of the same people, but on two separate occasions. Responses for the two occasions are correlated and the correlation coefficient of the two sets of data computed, thus providing an index of reliability.
- *Split halves method* – here the questionnaires or interview record sheets are divided into two equal halves by putting the responses to the first half of the questions in a separate pile from the answers to the remainder. The two piles are then correlated and the correlation coefficients of the two sets of data are computed.
- *Internal consistency method* – this where every item is correlated with every other item across the entire sample and the average inter-item correlation is taken as the index of reliability. A high internal consistency implies a high degree of general visibility across the items within the measurement. Cronbach's coefficient alpha is a measure of the internal consistency of a measurement test (Collis & Hussey, 2003). This index shows the degree to which all the items in a measurement test measure the same attribute.

The responses to the questions may turn out to be highly reliable, but the results will be worthless if the questions do not measure what they were intended to measure, that is if the validity is low (Collis & Hussey, 2003).

The findings obtained in this study are deemed reliable because the researcher has designed the research instrument in such a manner to elicit the required response from the participants. Closed questions are used which limit the range of responses possible, which, in turn, reduce the variability of the responses received. The similarity of responses obtained from participants of the different companies also provides an indication of the reliability of the data collected

4.4.2.2 Validity

Validity is the extent to which research findings accurately represent what is happening in the situation. An effect or test is valid if it demonstrates or measures what the researcher thinks or claims it does (Collis & Hussey, 2003).

Welman and Kruger (2003) state that any given measuring instrument measures the following three components:

- The construct intended;
- Irrelevant construct; and
- Random measurement error.

They debate that the first two components represent systematic sources of variation because they remain constant for any given individual. The latter is said to be an unsystematic source of variation because it refers to accidental factors that may vary from one measuring occasion to the next or one individual to the next in a haphazard fashion.

The different ways that validity of a research can be assessed, according to Collis and Hussey (2003), are:

- *Face validity* – this involves ensuring that the tests or measures used by the researcher do actually measure or represent what they are supposed to measure or represent.
- *Construct validity* – this refers to the degree to which a measuring instrument measures the intended construct rather than irrelevant constructs or measurement error. This relates to the problem that there are a number of phenomena which are not directly observable. These are known as hypothetical constructs, which are assumed to exist as factors which explain observable phenomena. Hypothetical constructs

must be able to demonstrate that the observations and research findings can be explained by the construct.

- *Criterion-related validity* – is the degree to which diagnostic and selection measurement correctly predicts the relevant criterion. The relevant criterion refers to the variable that is to be diagnosed on which the success is to be predicted respectively (Welman & Kruger, 2003).

A high degree of confidence in the validity of the research findings is possible, because the sample consists of managers and supervisors who are actively engaged with the day-to-day running of operations in the selected companies. It is therefore reasonable to believe that the responses received represent a true reflection of the actual situation experienced.

4.5 The empirical study

In this study the questionnaire was developed by using the literature review from the various models illustrated in Chapter Two and Three. The questions were formulated with the objective of determining the most relevant points. The questions address the issue of Lean Manufacturing and are aimed at uncovering the factors which negatively affect its adoption and implementation. The questions selected are classification and open and closed questions anchored on a five-point Likert scale.

4.5.1. The pilot study

Welman and Kruger (2003) describe the purpose of a pilot study on a limited number of subjects from the same population as that for which the eventual study is intended, is, inter alia:

- To detect possible flaws in the measurement procedures and in the operationalisation of the independent variable;

- To identify unclear or ambiguously formulated items; and
- To allow the researchers to notice non-verbal behaviour that may signify discomfort about the content or wording of the questions.

They argue that such a pilot study is especially useful if the researcher has compiled the measuring instrument specifically for the purpose of the research study. They debate that if a self-constructed questionnaire is not tested, at least an experienced researcher in the field should check the instrument with a view to spotting glaring flaws. Collis and Hussey (2003) concur by stating that a questionnaire should be piloted as fully as possible before distribution: at the very least colleagues should read through it and play the role of respondents even if they have little knowledge of the subject.

For the purpose of this study the measuring instrument was piloted by distributing the questionnaire to three respondents at the AIDC Port Elizabeth office, before the actual study commenced.

These respondents were a Senior Project Manager with a Master's degree in Industrial Engineering who has lectured for over ten years and has extensive knowledge of the automotive industry; a Project Manager who is a field worker in implementing continuous improvement programmes and a student intern who has no work experience. The pilot respondents differed from the actual study respondents by their position and experience. The respondents were asked to identify any problems that they may have had with the questionnaire. After a discussion with these respondents the questionnaire was amended and the consequent concerns or additional contributions were taken into consideration.

4.5.2. The response rate

Thirty questionnaires were distributed to individuals and the purpose of the research explained, as illustrated in table 4 below.

Company	Middle Managers	Supervisors	Total
Company 1	4	6	10
Company 2	4	6	10
Company 3	4	6	10
Total	12	18	30

Table 4: Distribution demographics (source: researcher own composition)

Table 5 below depicts response rate per company and from the table it can be seen that an 83 per cent response rate was realised with 25 of the 30 questionnaires being returned for the purpose of the analysis.

Company	Middle Managers	Supervisors	Total
Company 1	4	6	10
Company 2	3	4	7
Company 3	3	5	8
Total	10	15	25

Table 5: Response demographics (source: researcher own composition)

From the above it becomes evident that a certain degree of questionnaire on-response occurred during the study.

4.6 Conclusion

In this chapter, the concept of research was defined, research methodology was explained and the research design followed was discussed.

The chapter was also used to introduce the questionnaire used for the collection of the data. The nature of the questions used was discussed as well as the reasons for the choice of the particular question types.

In the next chapter the results and findings of the empirical study will be presented.

Chapter 5

The results and interpretation of the empirical study

5.1 Introduction

In the previous chapter the research methodology was explained and the research design undertaken for the study was discussed.

In this chapter the results and findings of the empirical study will be presented and analysed.

The data was analysed and interpreted following the questionnaire structure, which was sub-divided into the following sections:

- Section A: Information about the respondent and the respondent's company.
- Section B: Strategic alignment of Lean Manufacturing implementation.
- Section C: Organisational culture in the context of Lean Manufacturing implementation.
- Section D: Leadership effect on Lean Manufacturing implementation.
- Section E: Employee involvement effect on Lean Manufacturing implementation.

5.2 Section A: Biographical information

The profile of the respondents was obtained from the biographical information in Section A of the questionnaire. In this section respondents were asked to provide information about their company, industry classification, number of employees and the nature of their position. Each of these categories will be analysed and presented.

5.2.1 The response rate

Thirty questionnaires were distributed to individuals and the purpose of the research explained, as illustrated in table 6.

Company	Managers	Supervisors	Total
Company 1	4	6	10
Company 2	4	6	10
Company 3	4	6	10
Total	12	18	30

Table 6: Questionnaire distribution demographics (source: researcher own composition)

Table 7 below depicts the response rate per company and from the table it can be seen that a seventy-three per cent response rate was realised with 22 of the 30 questionnaires being returned for the purpose of the analysis.

	n	%
Designation		
Manager	9	30
Supervisor	13	43
Not Responded	8	27
Tenure		
0 – 1 yrs.	1	5
2 – 4 yrs.	5	23
5 – 7 yrs.	6	27
8 yrs. +	10	45

Table 7: Response rate by employee (source: researcher own composition)

From the above it becomes evident that a certain degree of questionnaire non-response occurred during the study.

5.3 Section B: Strategy

The respondents were asked to indicate whether their company's Lean implementation project was aligned to company's overall strategy.

5.3.1 S1 - the lean transformation of the company you work for, is prioritised and aligned with the strategic business objectives

Figure 4 below shows that forty-five per cent of the respondents agree that their company's lean transformation is prioritised and aligned with their company's business objectives, twenty-three per cent disagree and thirty-two per cent is uncertain. Company two has eighteen per cent of the respondents stating that they either are uncertain or disagree that their company's lean transformation is linked to the business strategy.

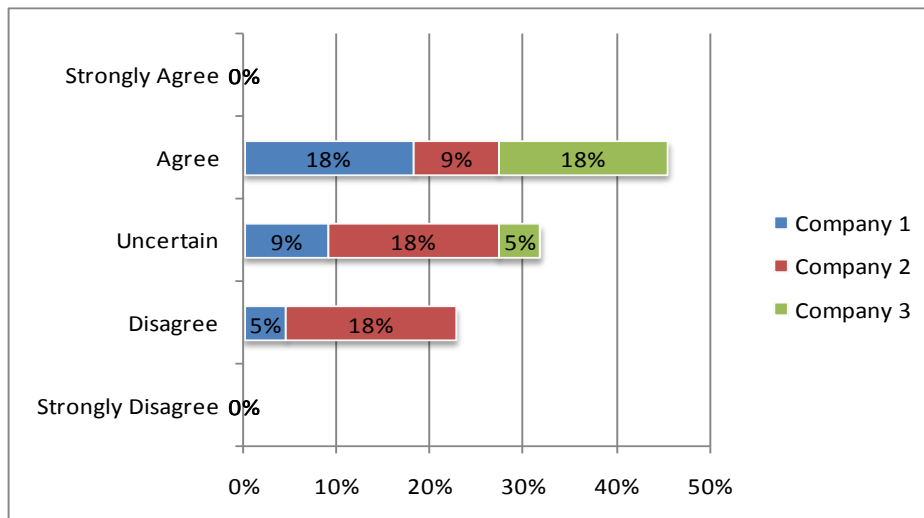


Figure 4: Linking of lean transformation to business strategy

5.3.2 S2 - organisational leaders and senior management understand the lean paradigm

Fifty-five per cent of the respondents agree that their managers and leaders understand the lean paradigm, eighteen per cent are uncertain and nine per

cent disagree (see figure 5 below). All three companies also show a resounding agreement that their managers understand the lean paradigm.

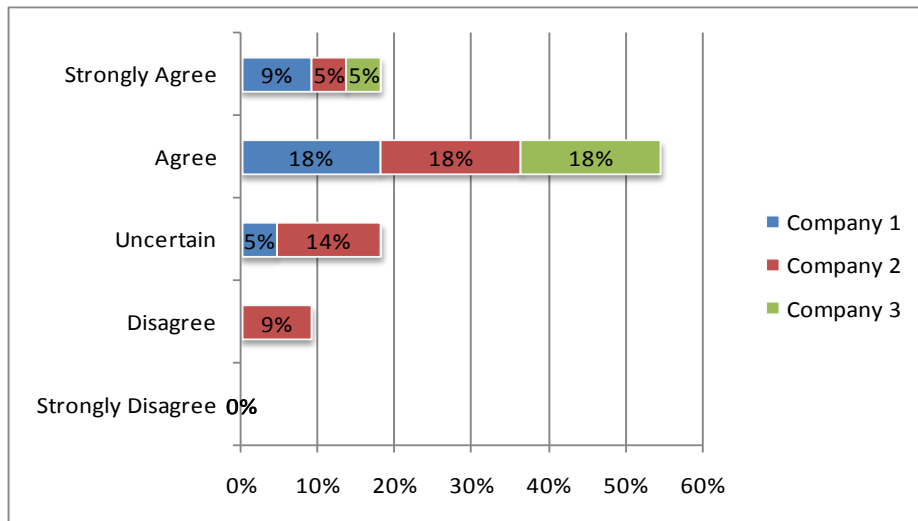


Figure 5: Understanding of the lean paradigm by managers

5.3.3 S3 - Organisational leaders and senior management support the lean transformation

Forty-one per cent of the respondents agree and nine per cent do not agree that their managers support the lean transformation (see figure 6 below).

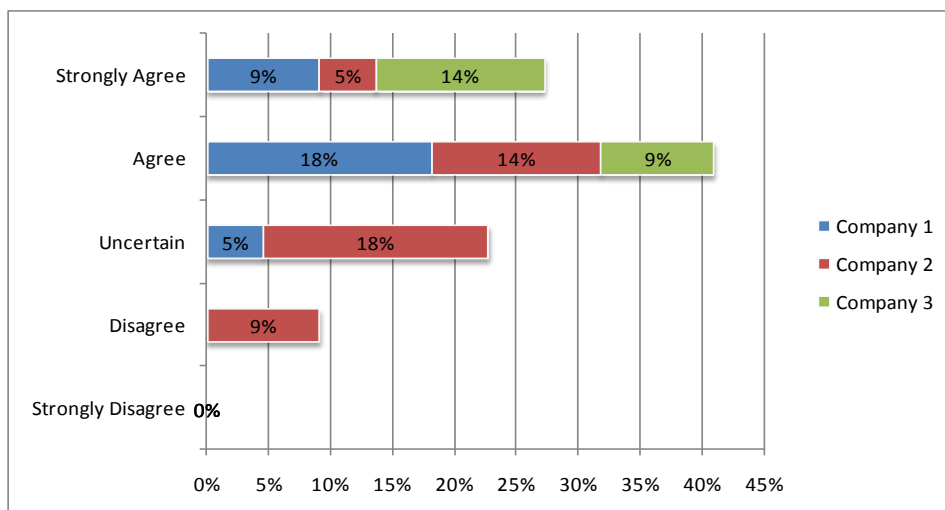


Figure 6: Support of the lean transformation by managers

5.3.4 S4 - a common vision of lean has been communicated throughout the organisation

Figure 7 below shows that twenty-seven per cent agree and fifty per cent are uncertain whether a common vision of lean has been communicated throughout the organisation. Nine and five per cent of company three and company two respectively disagree that a lean vision has been communicated in their organisations.

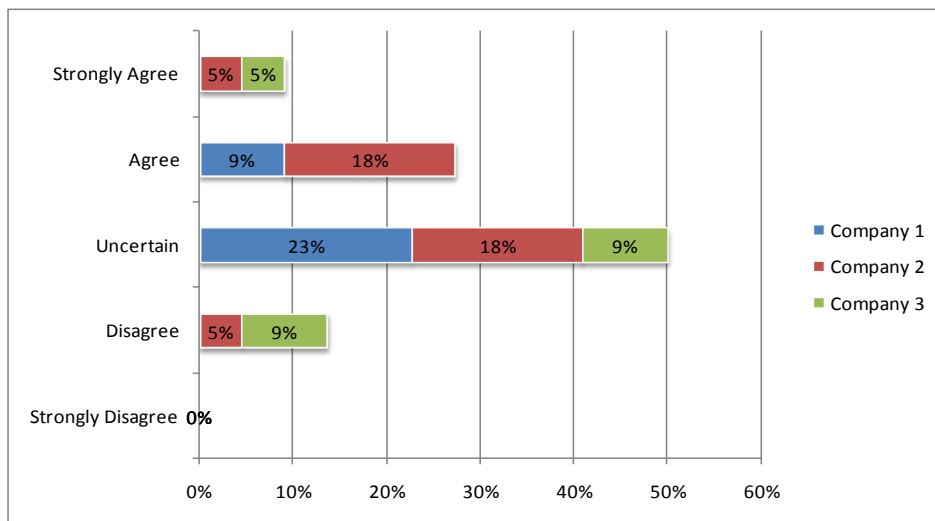


Figure 7: Communication of lean vision throughout the company

5.3.5 S5 - the current education and training programme adequately supports the lean transformation

Forty-five per cent of the respondents are uncertain, twenty-three per cent agree and twenty-seven per cent disagree that the current education and training in their companies adequately supports the lean transformation (see figure 8 below).

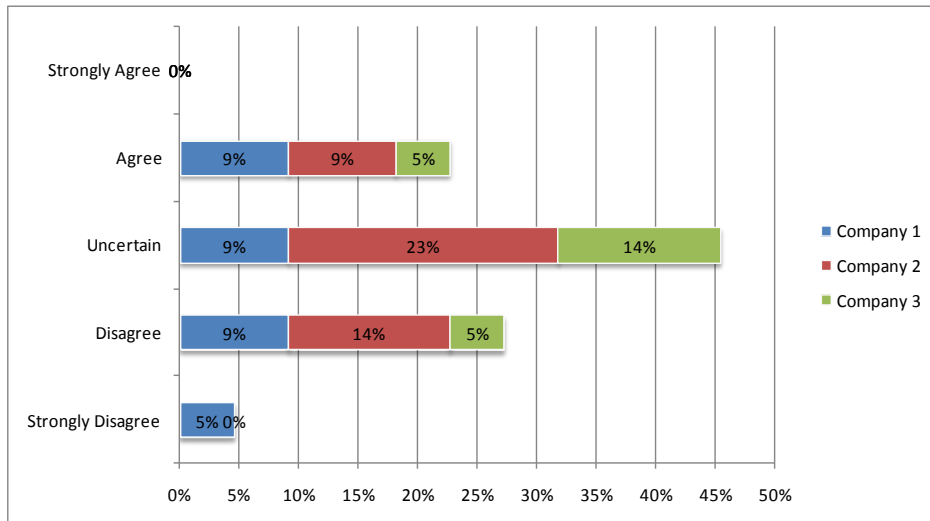


Figure 8: Current education and training support for the lean transformation

5.3.6 S6 - policies and procedures have been revised to promote and encourage lean behaviours

Seventeen per cent agree, thirty per cent disagree and forty-three per cent are uncertain whether the policies and procedures of their organisations have been revised to promote and encourage lean behaviours (see figure 9 below). Four per cent of company one respondents strongly disagree that their company policies and procedures have been revised.

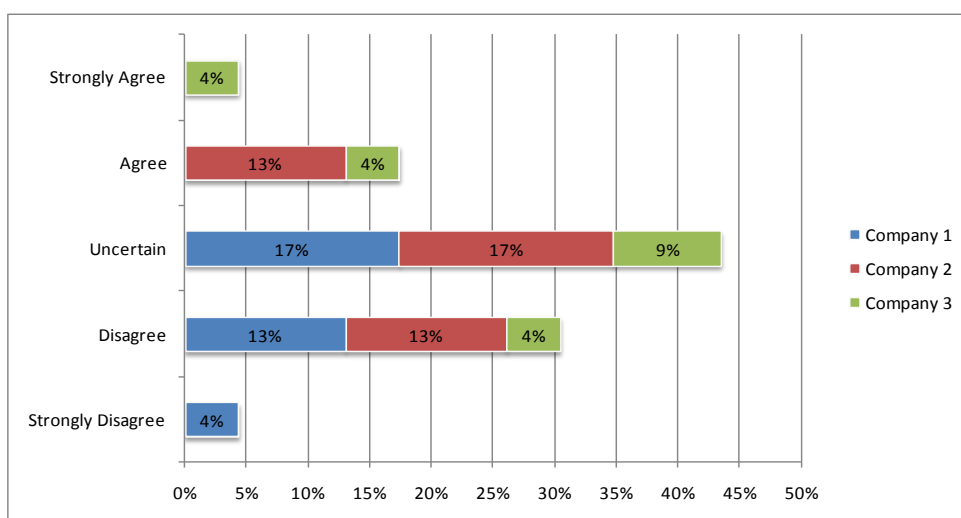


Figure 9: Policies and procedures have been revised to promote lean transformation and encourage lean behaviours

5.3.7 S7 - adequate resources have been provided to facilitate lean transformation

Twenty-six per cent of the respondents agree and disagree, thirty-nine per cent are uncertain and nine per cent strongly agree that adequate resources have not been provided by their companies to facilitate the lean transformation. This is strongly depicted by company two and three as can be seen in Figure 10 below.

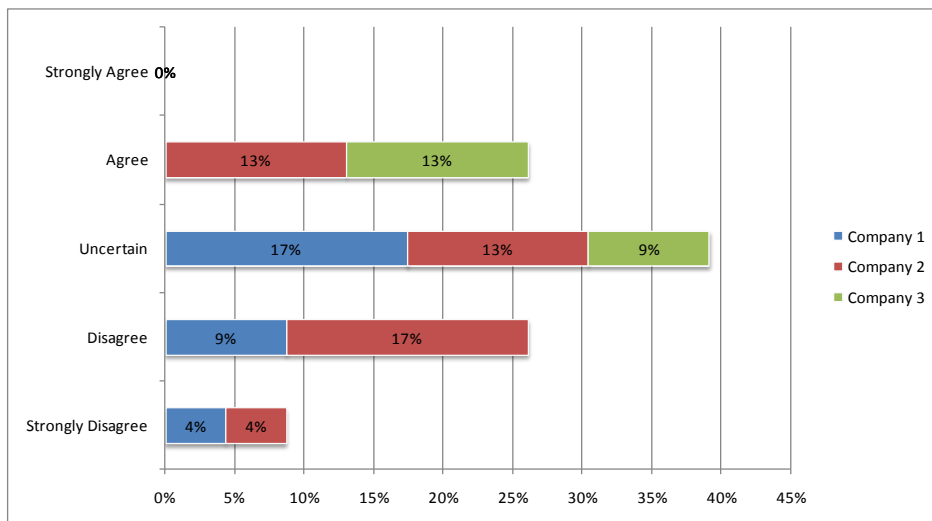


Figure 10: Provision of adequate resources to facilitate the lean implementation

5.3.8 S8 - Managers are actively involved in the lean implementation

This category shows that forty per cent of the respondents are uncertain, nine per cent strongly agree and disagree that their managers are involved in the lean transformation. Nine per cent and fourteen per cent of company two and three agree and four and five per cent of company one and two respectively say that their managers are not involved in the lean transformation (see figure 11 below).

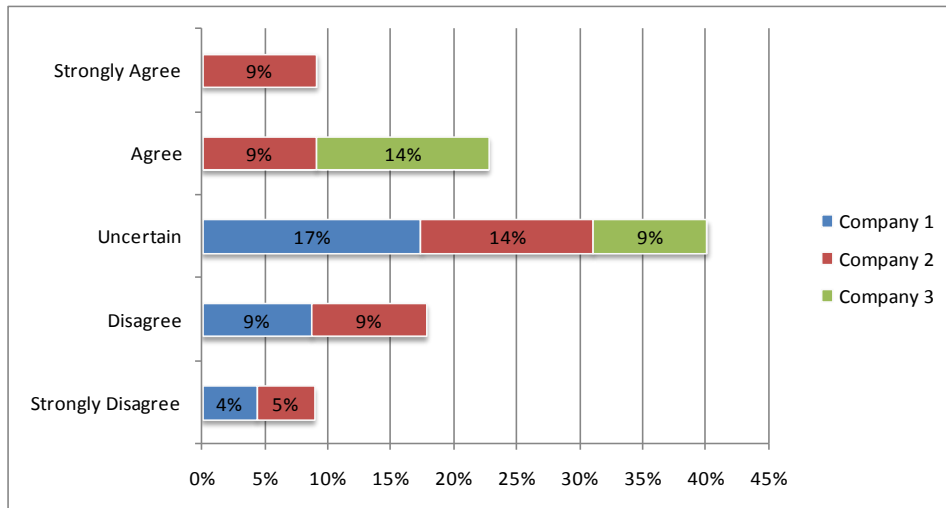


Figure 11: Involvement of management in the lean implementation

5.3.9 S9 - lean change agents have been identified and empowered to provide guidance and leadership for the lean transformation

Forty-one per cent of the respondents agree and twenty-seven disagree that their companies have identified and empowered change agents to lead the lean transformation (see figure 12 below). Twenty-three per cent of the respondents from company two state that their company has identified change agents and company three has five per cent of respondents who disagree and strongly disagree respectively that their company has identified change agents.

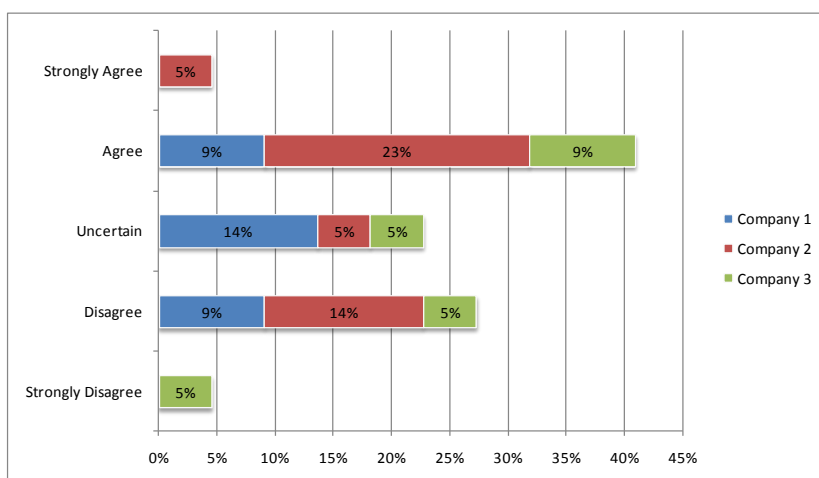


Figure 12: Identification of change agents to lead the lean transformation

5.3.10 S10 - a system has been identified to measure the lean transformation

Figure 13 below shows mixed feelings about the identification of a system to measure the lean transformation as twenty-seven per cent of the respondents are unsure, thirty-two per cent disagree and twenty-seven per cent agree with the existence of such a system.

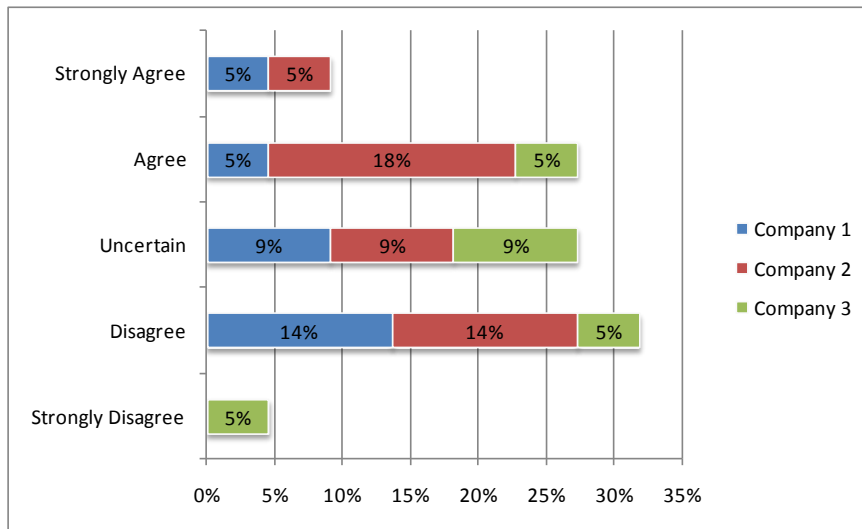


Figure 13: A system to measure lean transformation has been identified

5.4 Section C: Leadership

This section solicited responses from respondents about the behaviours displayed by their leadership towards the Lean transformation.

5.4.1 L1 – My manager is available and listens to everyone and to the team

Figure 14 below shows that thirty-six per cent of the respondents strongly agree and agree that their managers listen to their teams and five per cent state that they do not listen. A similar trend is evident within the companies

but five per cent of the respondents from company two disagree that their managers listen to their teams.

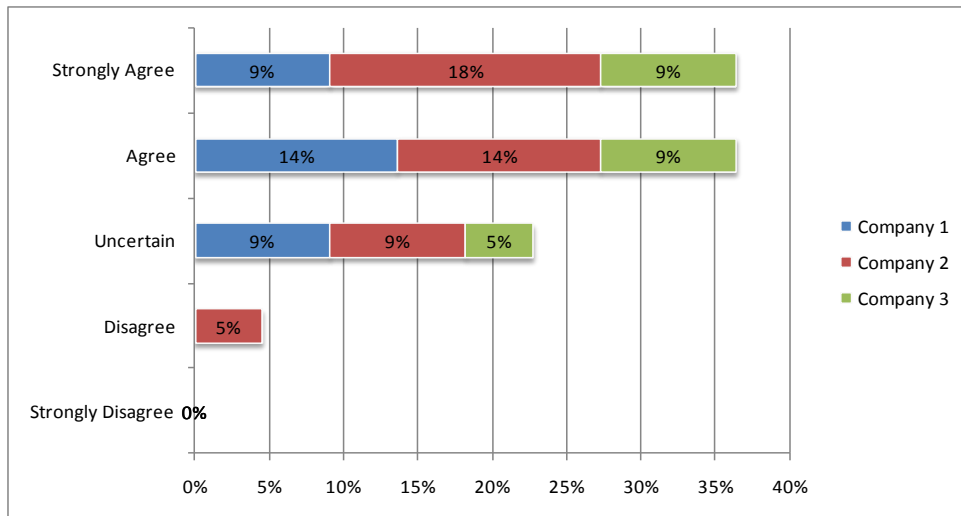


Figure 14: Availability of my manager to listen to the team

5.4.2 L2 – My manager acknowledges my work achieved

Fifty per cent of the respondents strongly agree and thirty-six per cent agree that their managers acknowledge the work achieved. Five per cent of the respondents from company two disagree that their managers acknowledge work achieved (see figure 15).

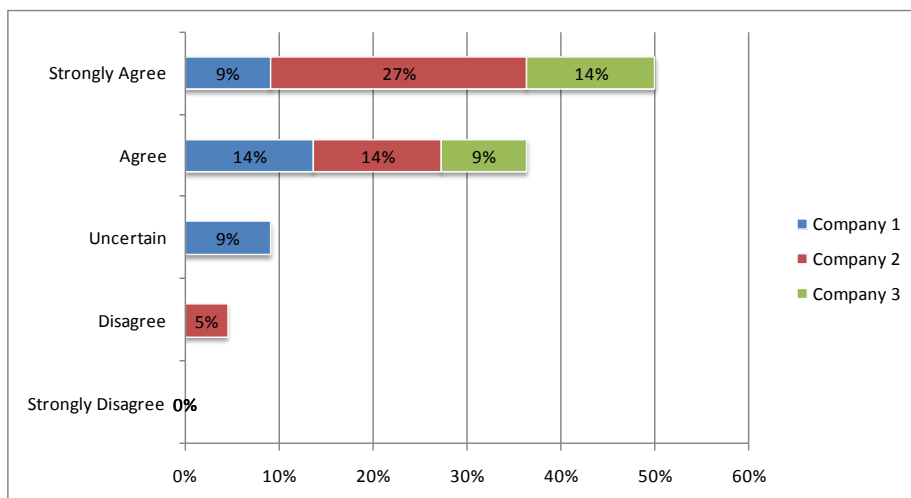


Figure 15: My manager acknowledges the work achieved

5.4.3 L3 – My manager establishes a climate of trust

Overwhelmingly forty-five per cent and thirty-six per cent of the respondents strongly agree and agree that their managers establish a climate of trust. Five per cent of the respondents from company two strongly disagree that their managers establish a climate of trust (see figure 16 below).

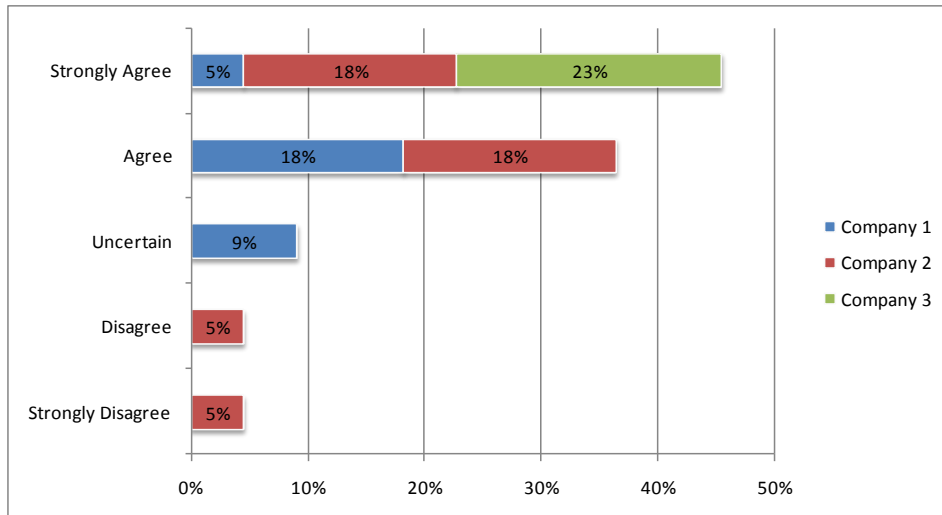


Figure 16: Managers establishes a climate of trust

5.4.4 L4 – My manager entrusts me with projects that allow me to develop my strengths

Thirty-six per cent of the respondents strongly agree that their manager gives them work that develop their strengths and five per cent strongly disagree (see figure 17 below).

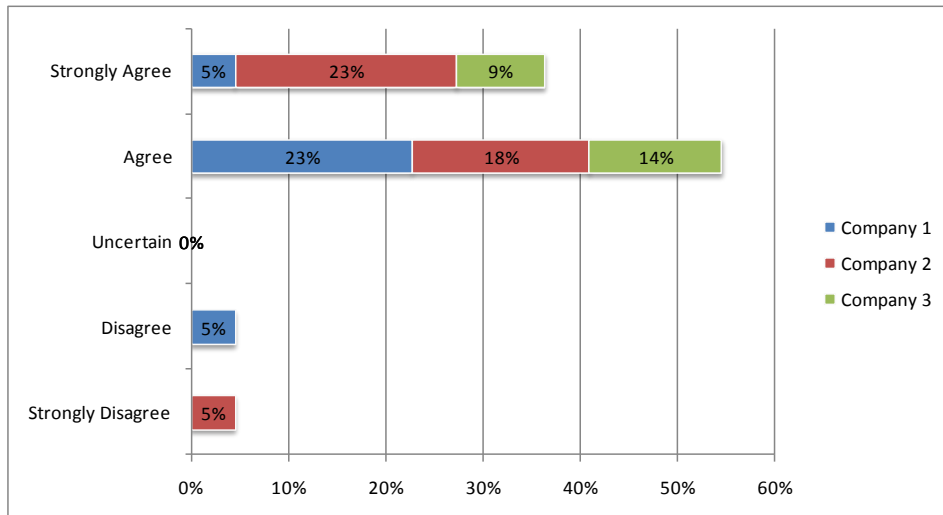


Figure 17: My manager entrusts me with projects that develop my strengths

5.4.5 L5 – My manager transfers his expertise to his subordinates

Fifty-nine per cent of the respondents agree and five per cent of respondents from company two strongly disagree that their managers transfer their expertise to their subordinates as illustrated in figure 18 below.

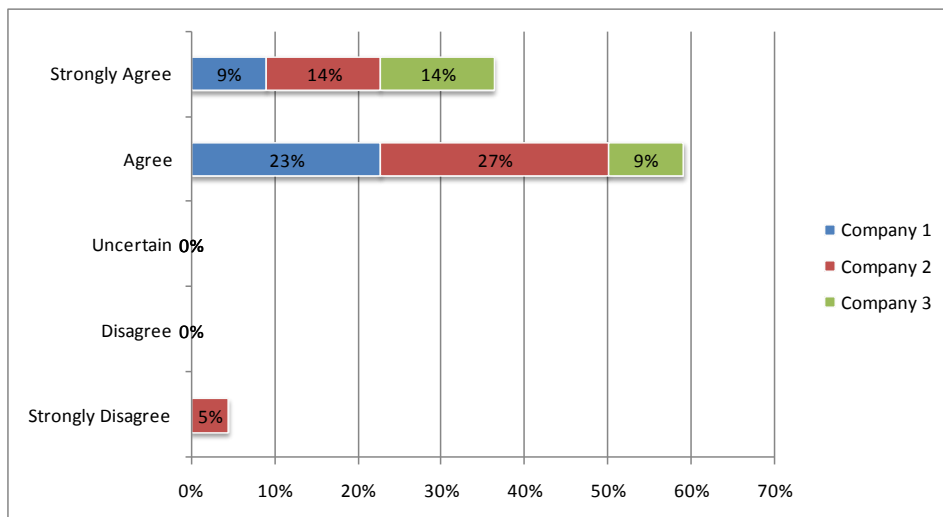


Figure 18: My manager transfers his expertise to his subordinates

5.4.6 L6 – My manager encourages me to make new proposals

Figure 19 shows that forty-one per cent of the respondents agree and strongly agree respectively that their managers encourage them to make new proposals. Five per cent of company two respondents strongly disagree that they are encouraged by their managers to come up with new ideas.

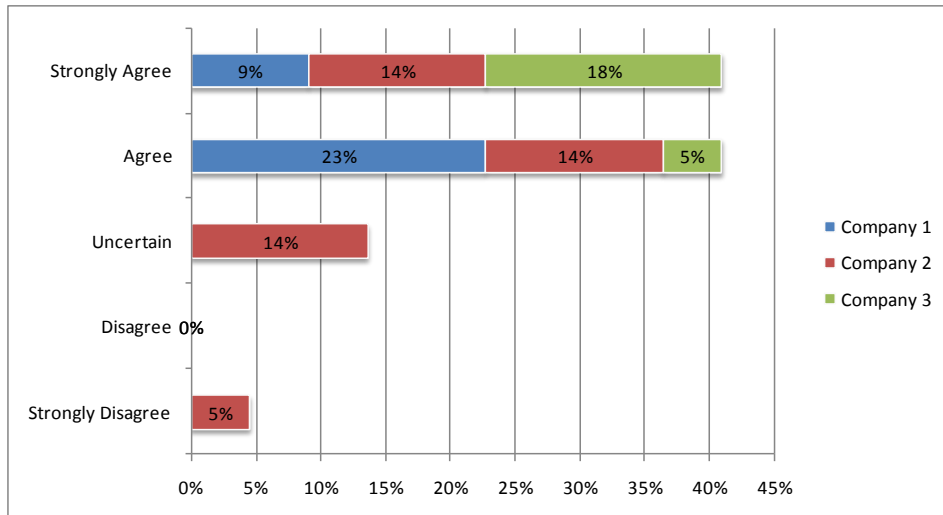


Figure 19: My manager encourages me to make new proposals

5.4.7 L7 – My manager helps me implement proposals even if that implies a portion of risk

Nine per cent of the respondents strongly disagree that they are helped by their managers to implement proposals that contain an element of risk, a notion that is shared by five per cent of company two and company three respondents respectively as illustrated in figure 20 below.

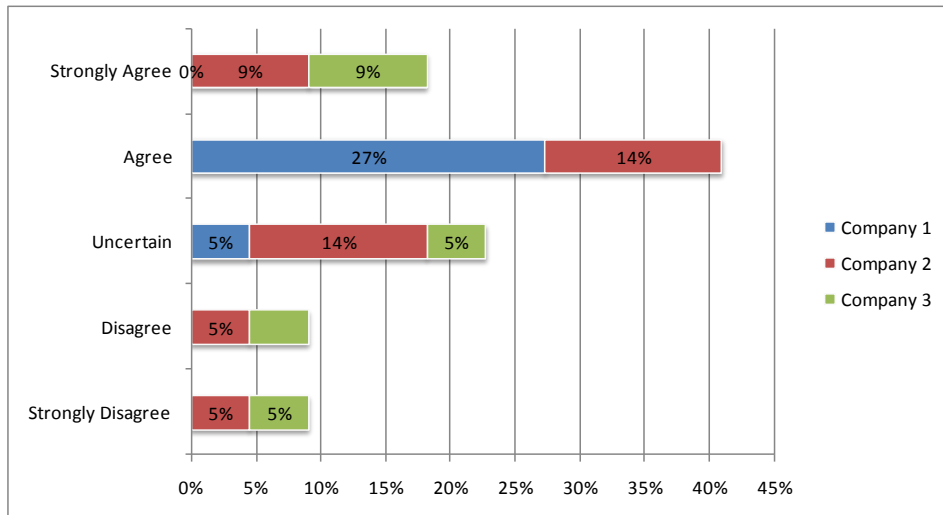


Figure 20: My manager supports me to implement ideas even if they have a portion of risk

5.4.8 L8 – When I make mistakes my manager gives me constructive criticism

Respondents strongly believe that their managers give them constructive criticism when they make mistake, as forty-one per cent and thirty-six per cent agreeing and strongly agreeing with the statement and only nine per cent of the respondents coming from company one and two strongly disagreeing with the statement (see figure 21 below).

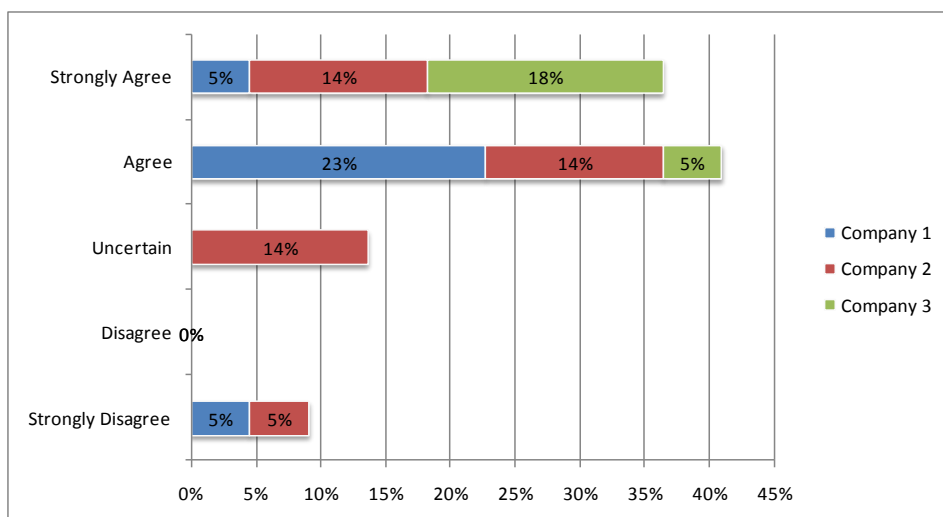


Figure 21: When I make mistakes my manager gives me constructive criticism

5.4.9 L9 – My manager acknowledges individual and collective success

Figure 22 below depicts forty-one per cent respondents strongly agreeing and five per cent respondents strongly disagreeing that their managers acknowledges individual and collective success. Company two has five per cent of their respondents strongly disagreeing that their managers acknowledges individual and collective success.

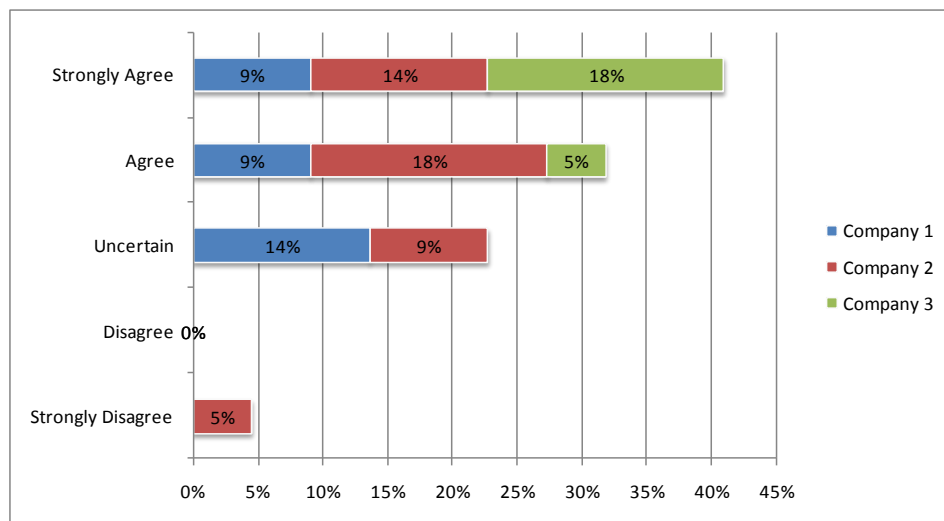


Figure 22: My manager acknowledges individual and group success

5.4.10 L10 – My manager defines with me the responsibilities that he entrusts me with

Thirty-six per cent of the respondents strongly agree, twenty-three per cent are uncertain and five per cent strongly disagree that their manager defines their responsibility that they entrust them with as depicted in figure 23 below.

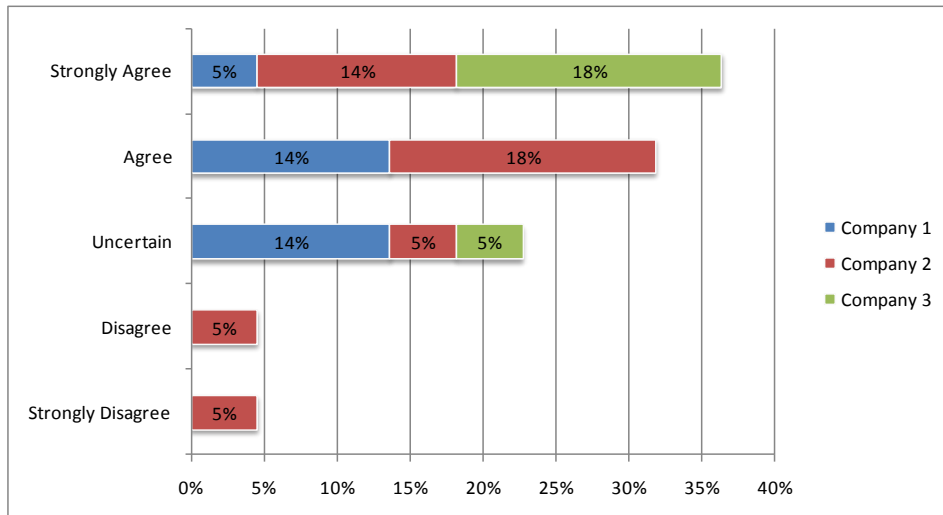


Figure 23: My manager defines with me the responsibilities that he entrusts me with

5.4.11 L12 – When he takes decisions my manager respects people and diversity

Thirty-six per cent of respondents strongly agree whilst five per cent strongly disagree that when their managers make decisions they take into account respect for people and diversity. Company two has five per cent strongly disagreeing and disagreeing as shown in figure 24 below.

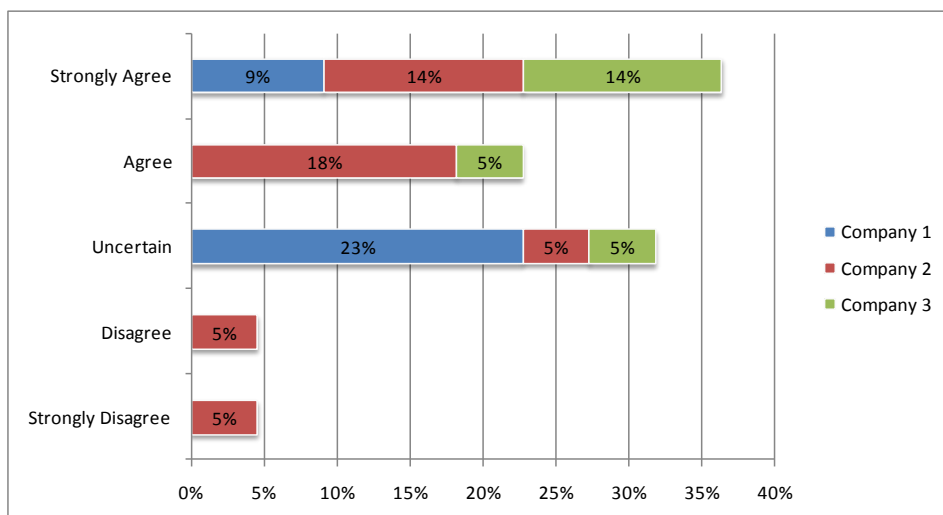


Figure 24: When he makes decisions my manager respects people and diversity

5.5 Section D: Organisational Culture

Responses were solicited in order to establish whether the appropriate company culture exists for lean transformation.

5.5.1 O1 – Employees are encouraged to be innovative

Figure 25 below illustrates that fifty per cent of the respondents are uncertain if their companies encourage their employees to be innovative and five per cent from company one and two strongly disagree.

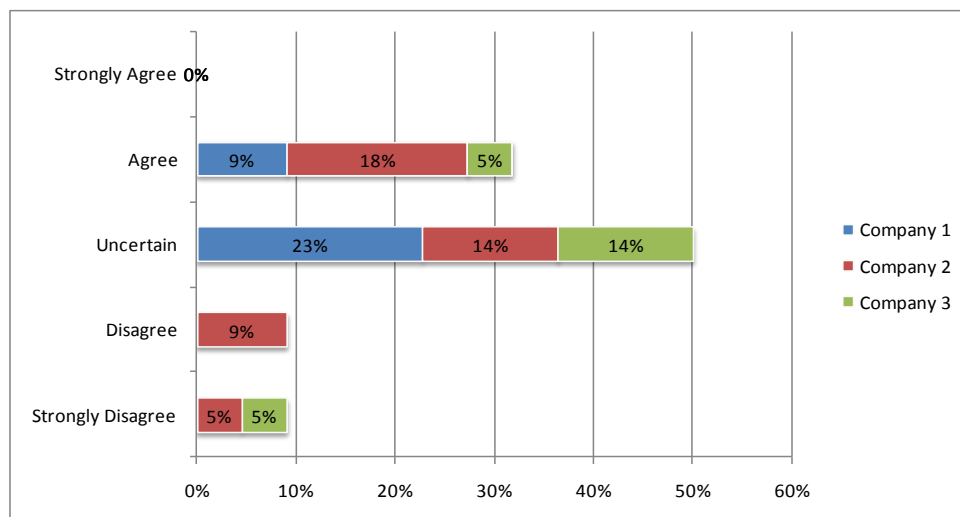


Figure 25: Employees are encouraged to be innovative

5.5.2 O2 – Management focuses on results, rather than on the techniques and processes used

Nine per cent of the respondents strongly disagree and twenty-three per cent strongly agree that their manager focuses on results rather than techniques and processes used. Company one and three strongly support the statement as five per cent of their respondents indicate that they strongly disagree with the statements as illustrated in figure 26 below.

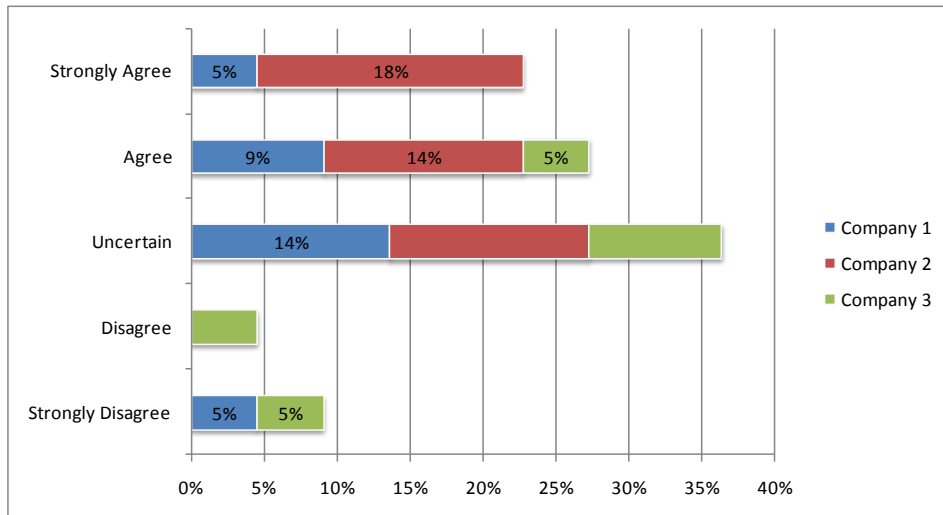


Figure 26: Management focuses on results rather than technique or processes

5.5.3 O3 – Management when making decisions takes into consideration the effect of outcomes on people

Twenty-three per cent agree, twenty-seven per cent disagree and twenty-three per cent are uncertain if their management when making decisions takes into consideration the effect of outcomes on people. Company two respondents were indifferent as they scored nine per cent throughout the spheres of measurement (see figure 27 below).

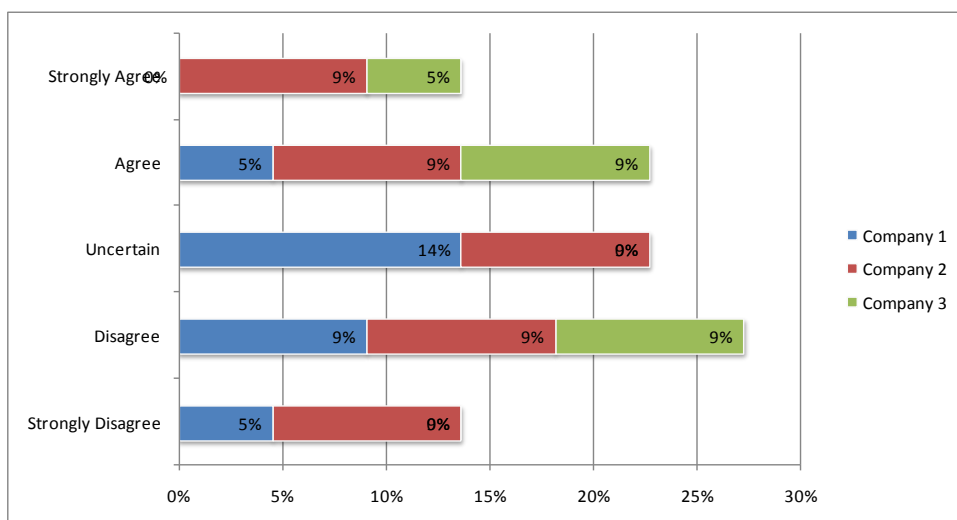


Figure 27: Management make decisions taking into consideration effect on people

5.5.4 O4 – Work activities are organised around teams rather than individuals

Forty-one per cent of respondent strongly agree, twenty-seven per cent is uncertain and five per cent strongly disagree that in their company work activities are organized around teams rather than individuals (see figure 28).

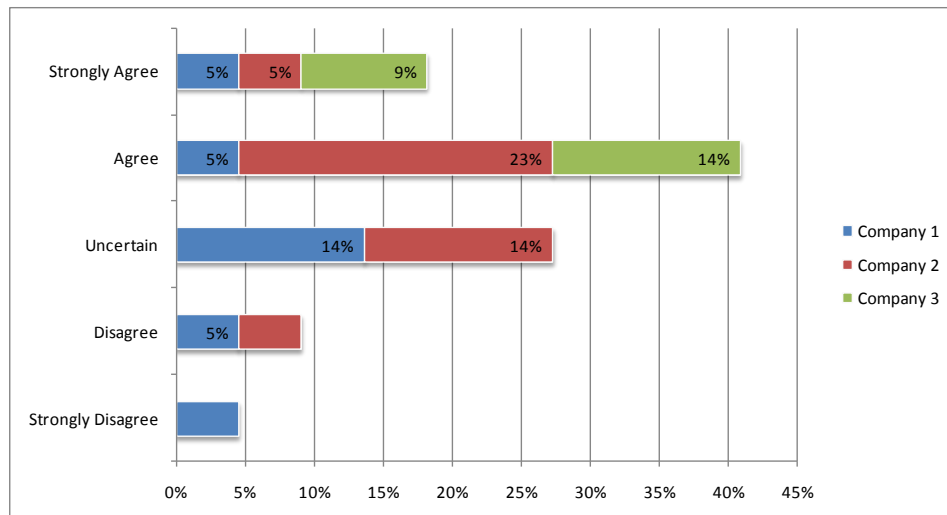


Figure 28: Work is organised around teams rather than individuals

5.5.5 O5 – The organisation is committed to transformation & equity

Figure 29 below shows that forty-five of the respondents are uncertain, eighteen per cent disagree and twenty-seven per cent agree that their organisation is committed to transformation and equity.

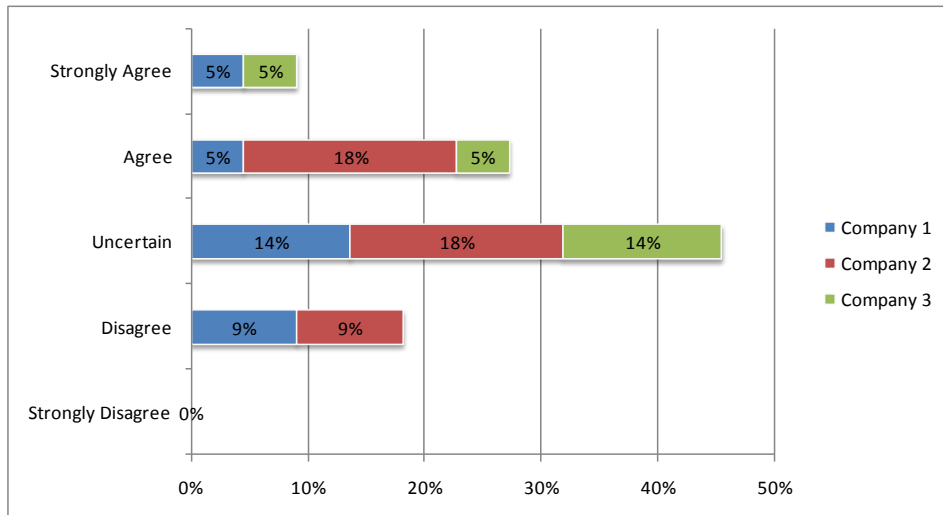


Figure 29: My organisation is committed to transformation and equity

5.5.6 O6 – Performance is rewarded

Overwhelmingly fifty per cent of the respondents state that in their company performance is not rewarded - a notion shared by all companies with only five per cent of company three respondents strongly agreeing (see figure 30 below).

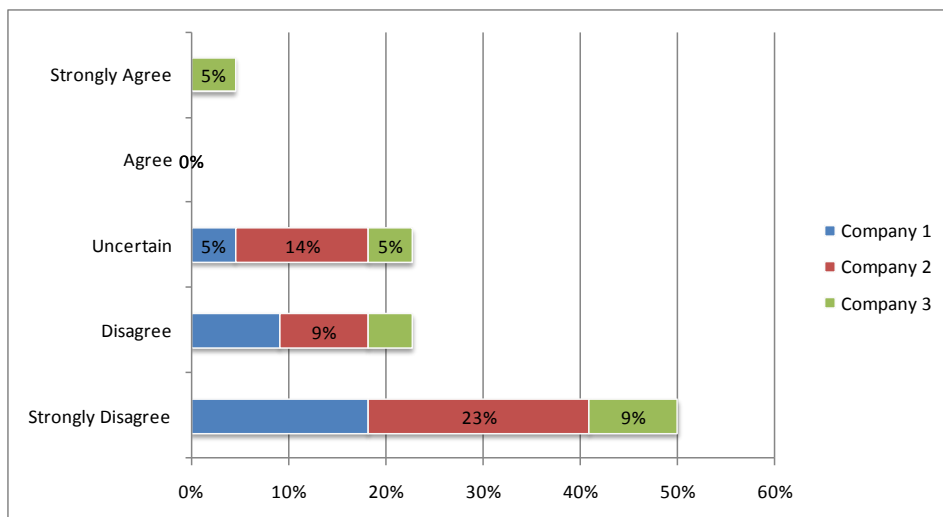


Figure 30: Performance is rewarded

5.5.7 O7 – There is freedom of communication

Forty-five per cent of respondents agree that there is freedom of communication of communication in their company with five per cent emanating from company two stating there is no freedom of communication in their company as illustrated in figure 31.

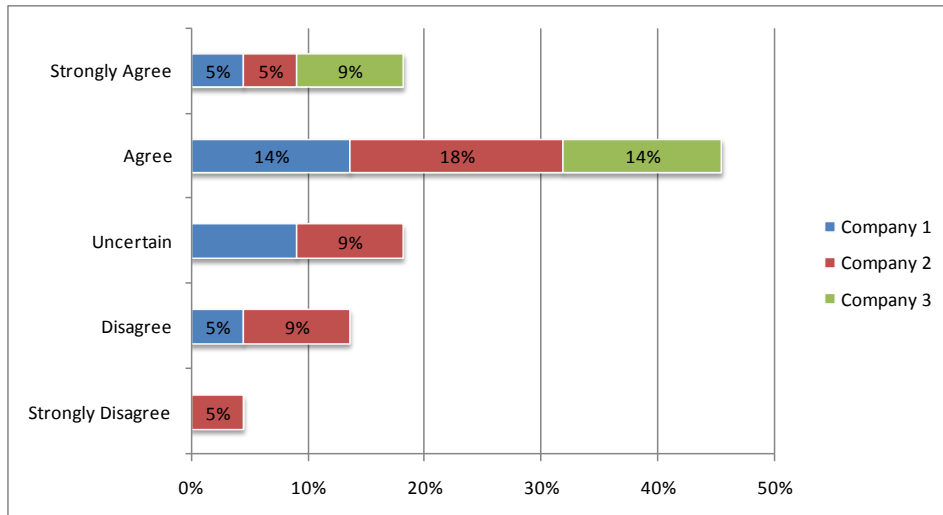


Figure 31: There is freedom of communication

5.5.8 O8 – Communication systems are accessible to all

Responses in this section show mixed feelings: there is an equal number of respondents who agree and disagree with the statement. Fourteen per cent of respondents from company two strongly disagree that communication systems are accessible to all in their company (see figure 32).

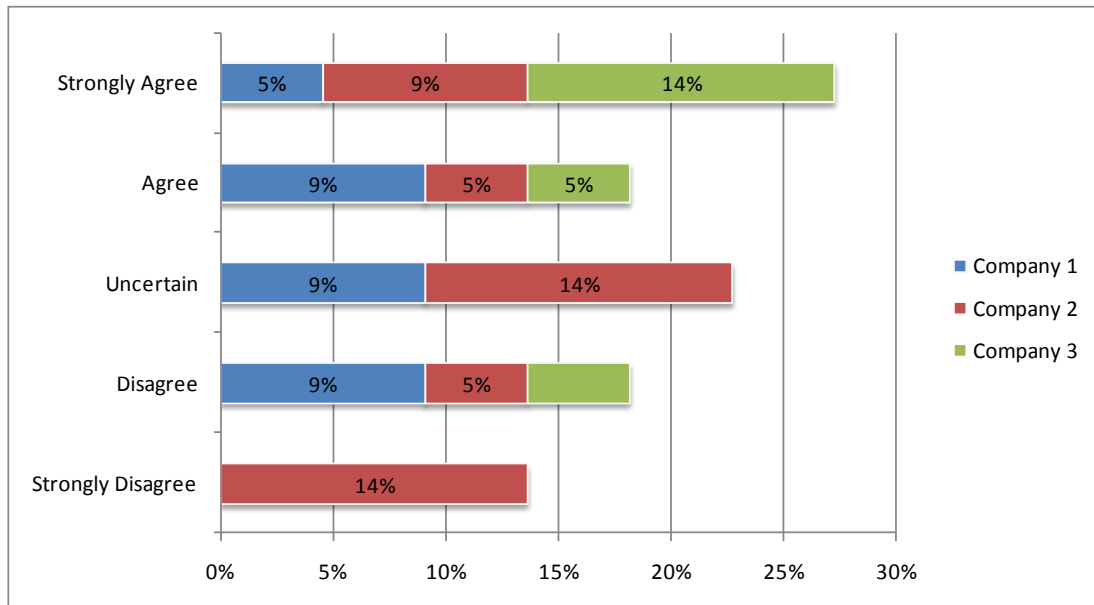


Figure 32: Communication systems are accessible to all

5.6 Section E: Employee involvement

The respondents were asked to indicate whether in their company employees are involved in the day-to-day running of the company.

5.6.1 E1 – I am aware and fully understand my company overall business strategy

Overwhelmingly fifty-five per cent of the respondents agree that they are fully aware of their company overall business strategy with nine per cent stating that they strongly disagree that they understand their company business strategy (see figure 33).

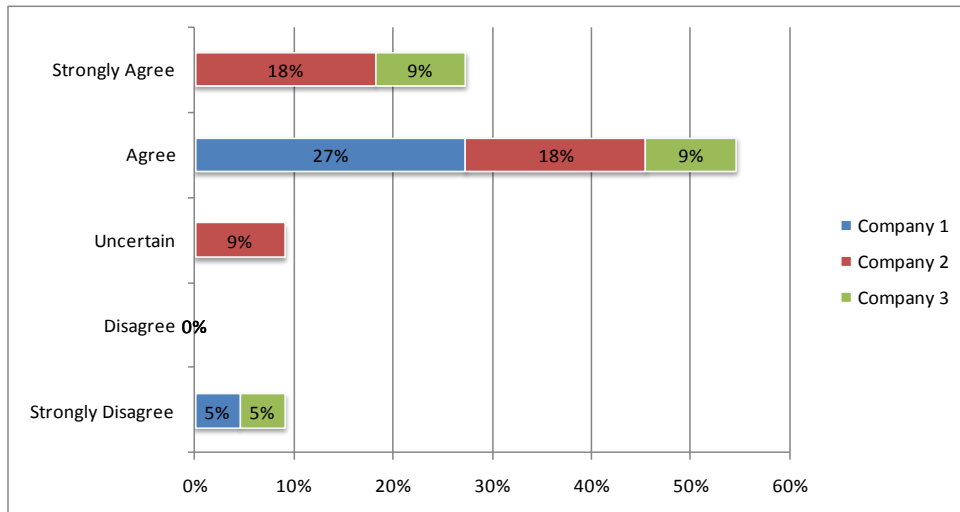


Figure 33: Awareness and full understanding of company overall business strategy

5.6.2 E2 – I am aware and fully understand my department business plan

Forty-one per cent strongly agree, fifty per cent agree and five per cent disagree that they are aware of and fully understand their department business plan, as illustrated in figure 34 below.

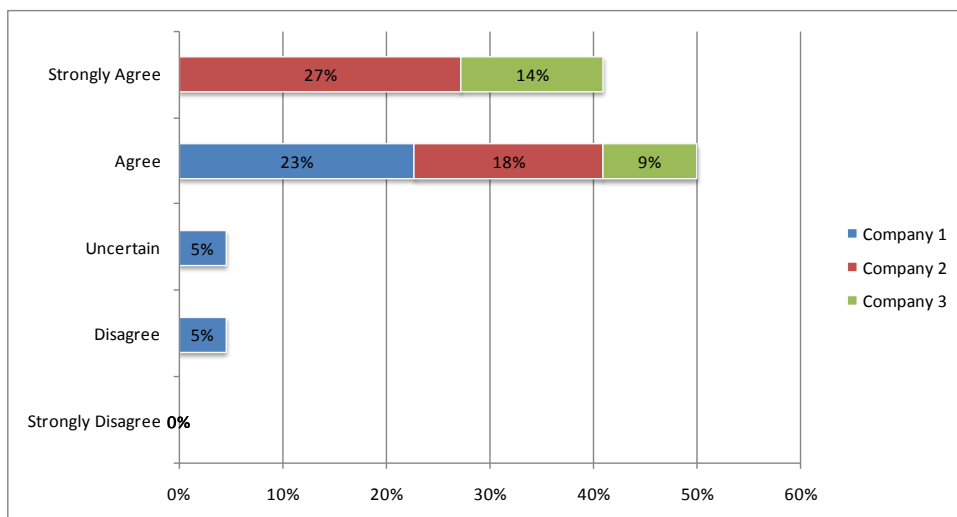


Figure 34: I am fully aware and understand my department business plan

5.6.3 E3 – I am aware of how the company and my department are performing

Forty-five per cent of the respondents strongly agree and twenty-three per cent are uncertain of how the company and their department are performing (see figure 35).

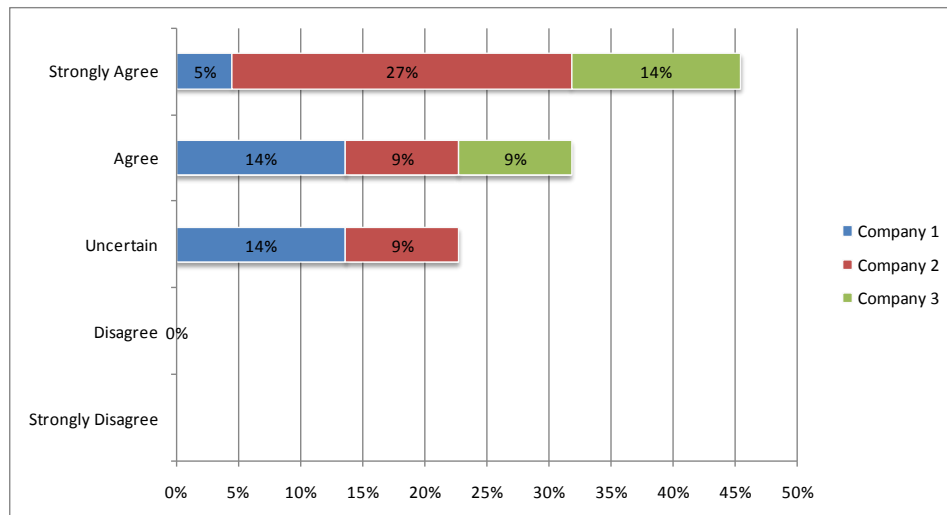


Figure 35: I am aware of how the company and my department are performing

5.6.4 E4 – There is a connection between my compensation and performance

Figure 36 depicts that thirty-two per cent and eighteen per cent of the respondents strongly disagree and five per cent of company two and company three respondents strongly agreeing that there is a connection between their compensation and performance.

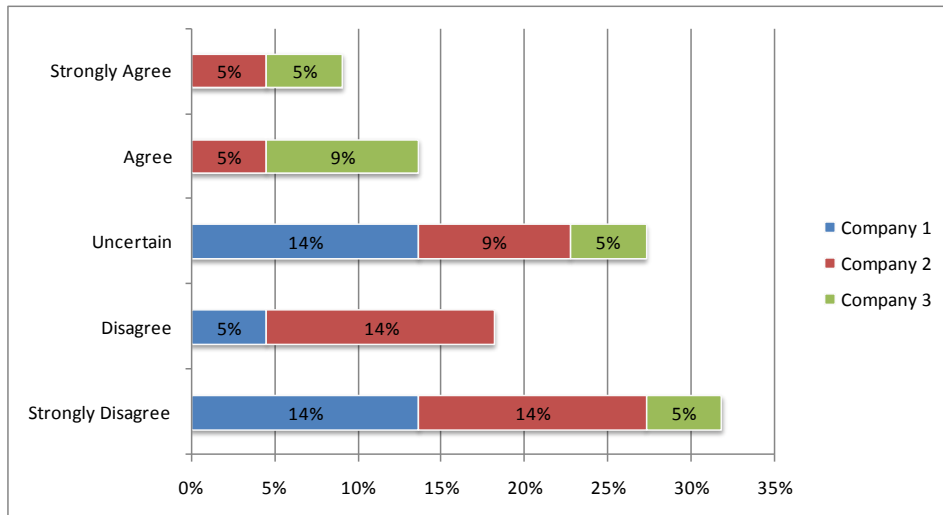


Figure 36: There is a connection between my compensation and performance

5.6.5 E5 – I receive appropriate recognition for my contribution

Figure 37 shows a spread in the responses as fourteen per cent strongly agree and strongly disagree with twenty-seven per cent disagreeing and uncertain respectively that they receive appropriate recognition for their contribution.

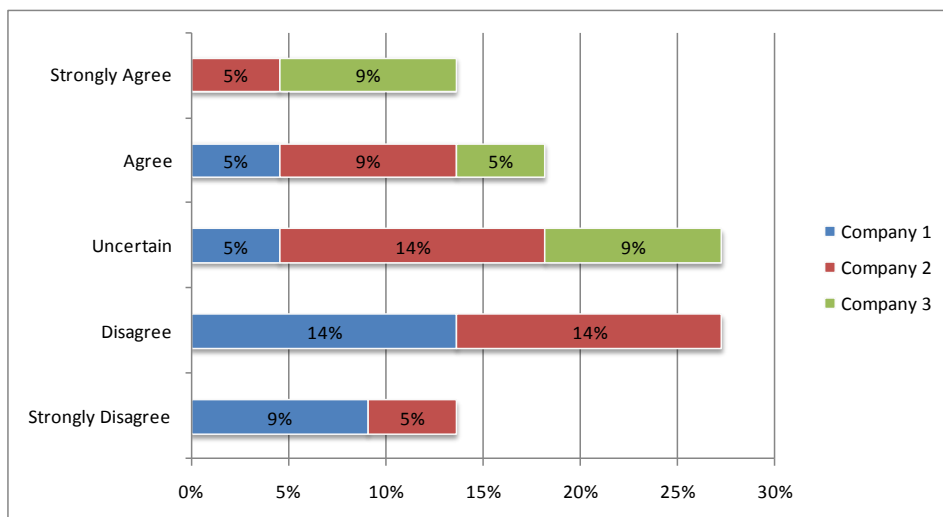


Figure 37: I receive appropriate recognition for my contribution

5.6.6 E6 – I am involved in decision making that affects my job

Thirty-six per cent of respondents both agree and strongly disagree that they are involved in decision-making that affects their jobs. Five per cent of company two respondents strongly disagree with the statement (see figure 38).

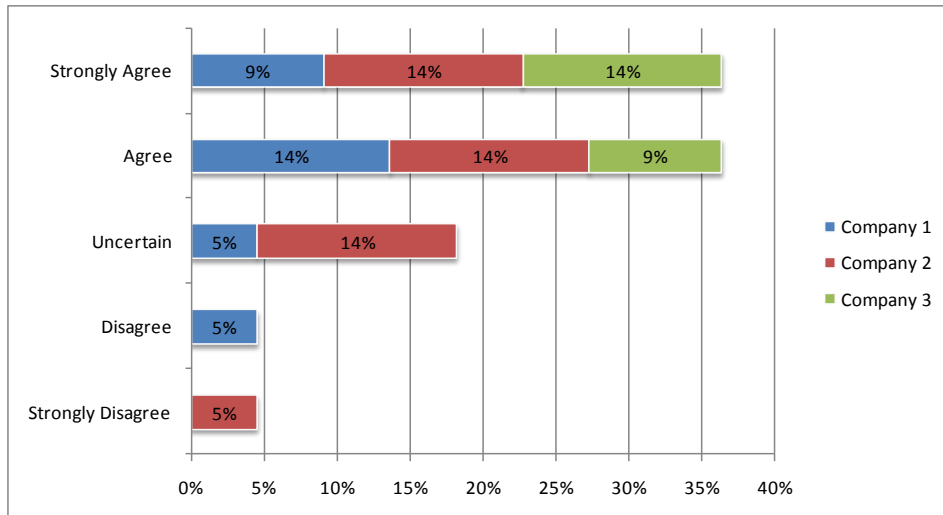


Figure 38: I am involved in decision making that affects my job

5.6.7 E7 – Employees work well together to solve problems and get the job done

Figure 39 shows that fifty per cent of the respondents agree, nine per cent strongly disagree and nine per cent strongly agree that employees in their company work well together to solve problems and to get the job done.

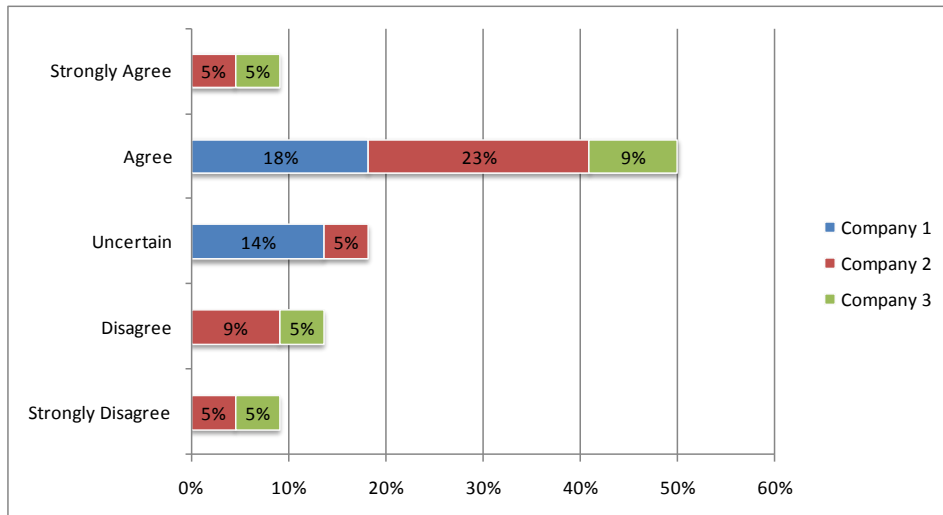


Figure 39: Employees work well together to solve problems and get work done

5.6.8 E8 – I have enough freedom in my position to do what is right for the customer

Fifty-five of the respondents agree that in their companies they have enough freedom to do what is right for the customer - a feeling that is not shared by five per cent of company two respondents, as illustrated in figure 40 below.

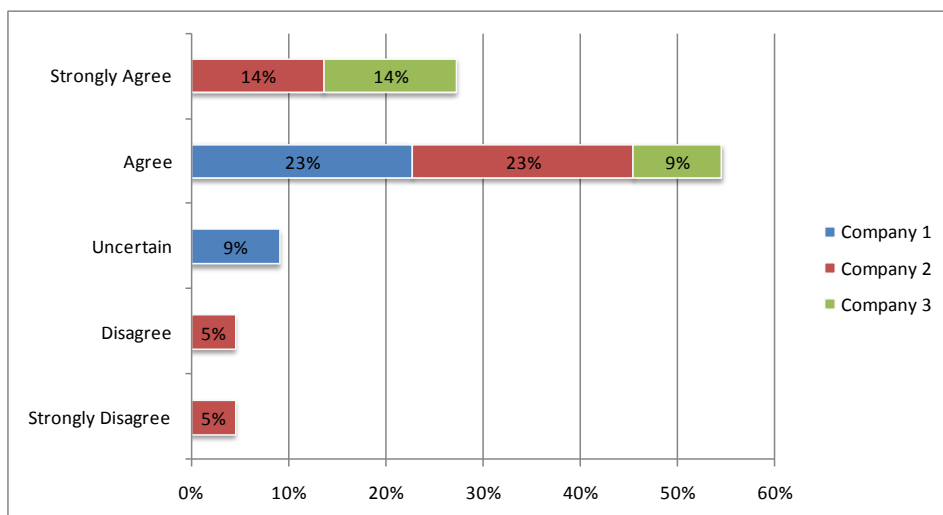


Figure 40: I have enough freedom in my position to do what is right for the customer

5.6.9 E9 – My department uses employee feedback to make improvements

Figure 41 depicts fifty per cent of the respondents strongly agreeing, eighteen per cent disagreeing and fourteen per cent uncertain whether their departments use employee feedback to make improvements.

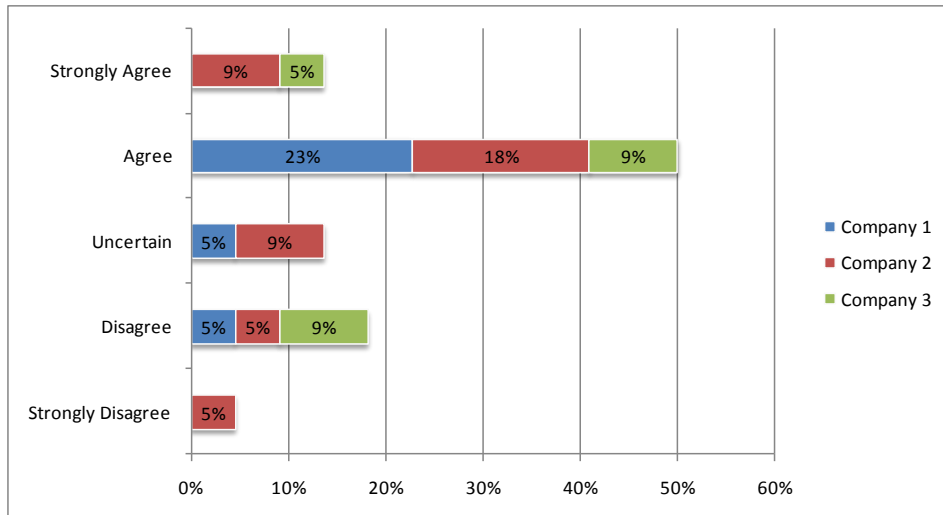


Figure 41: My department uses employee feedback to make improvements

5.6.10 E10 – I have received the training I need to do my job efficiently and effectively

Figure 42 shows that forty-five of the respondents are uncertain whether they have received the training that they need to do their jobs, twenty-three per cent agree and strongly disagree and nine per cent disagree.

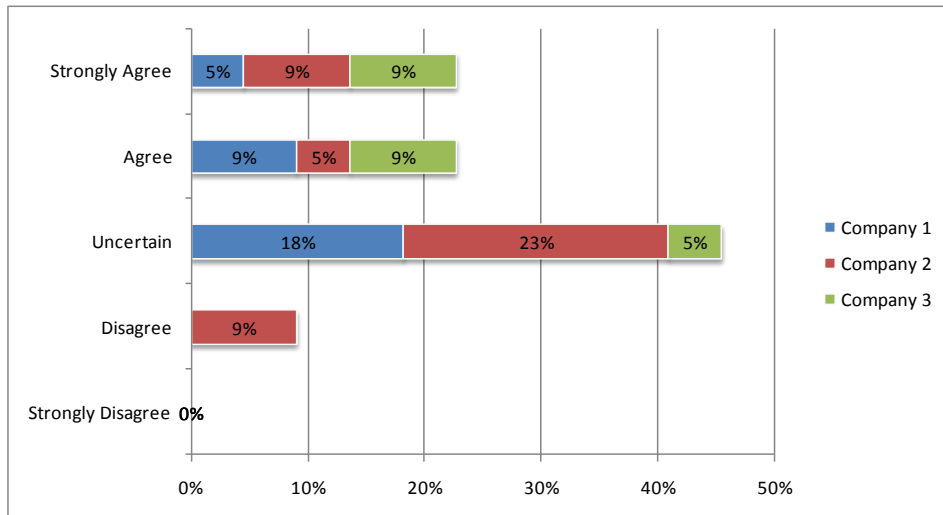


Figure 42: I have received the training I need to do my job efficiently and effectively

5.6.11 E11 – Management recognises and makes use of my abilities and skills

Thirty-six per cent of the respondents strongly agree and five per cent strongly disagree that their managers recognise and make use of their abilities and skills (see figure 43 below).

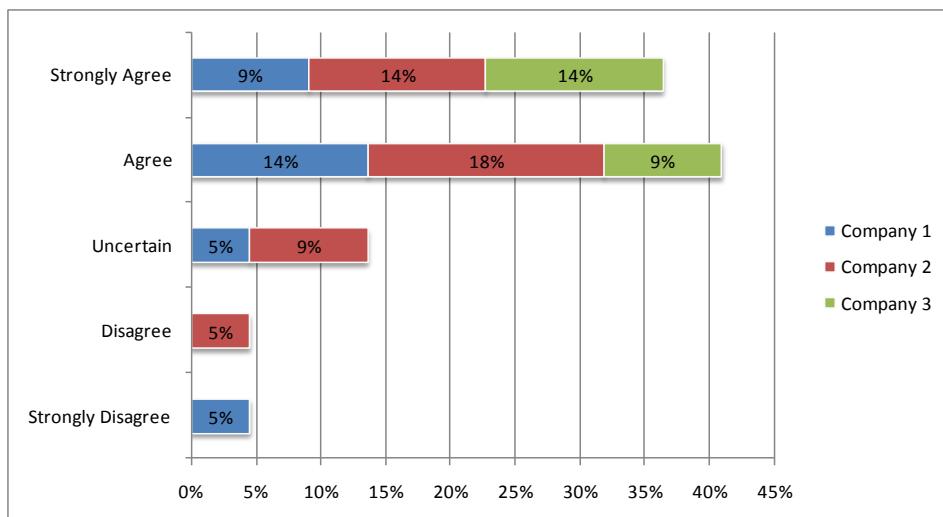


Figure 43: Management recognises and makes use of my abilities and skills

5.6.12 E12 – I am encouraged to take the initiative in determining my own career development

Forty-five per cent of the respondents agree and nine per cent strongly disagree that they are encouraged to take the initiative to determine their own careers (see figure 44 below).

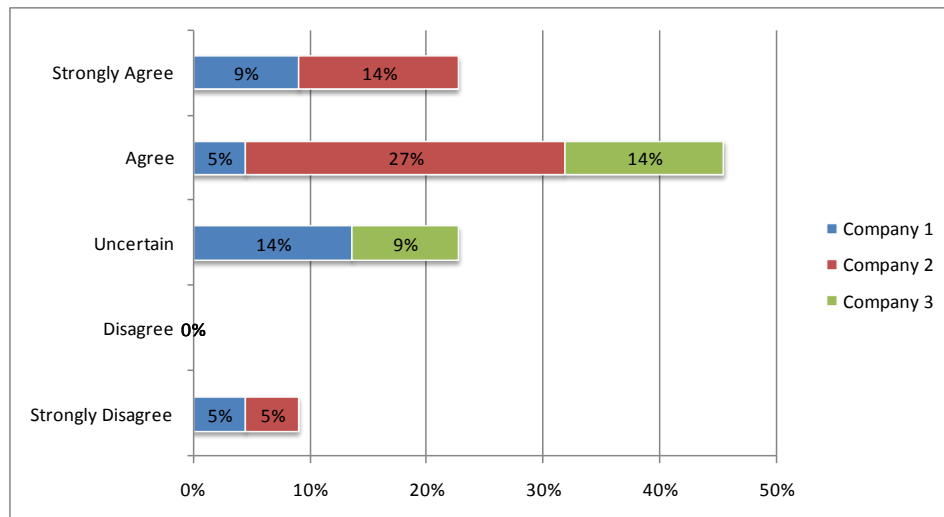


Figure 44: I am encouraged to take the initiative to determine my own career development

5.7 Conclusion

In this chapter, the results of the empirical study were presented. Graphs were used to illustrate the responses from the respondents.

In the next chapter an analysis, interpretation and integration of the empirical study and the literature review will be conducted.

Chapter 6

Analysis and interpretation of empirical study

6.1 Introduction

In the previous chapter the results and findings of the empirical study were presented.

In this chapter an analysis, interpretation and integration of the empirical study and the literature review will be conducted. The aim is to uncover whether there are any similarities and differences between the empirical study and the literature review.

The analysis of the data is aimed at providing answers to the original research problem statement, namely:

“What factors negatively affect the adoption of effective and sustainable Lean Transformation in companies that participated in the AIDC Tirisano cluster programme in the Eastern Cape automotive component manufacturers”?

The analysis of the data further seeks to address the following sub-problems as defined in chapter 1, namely:

- ❖ What influence and relationship does Organisational Culture have on the adoption and implementation of Lean Manufacturing?
- ❖ What influence and relationship do Leadership Behaviours have on the adoption and implementation of Lean Manufacturing?
- ❖ What influence and relationship does Employee Involvement have on the adoption and implementation of Lean Manufacturing?

- ❖ What influence and relationship does Strategy Integration have on the adoption and implementation of Lean Manufacturing?

Once the findings of the literature study and empirical study are integrated, recommendations as to other areas of research and potential problems encountered in this study will follow.

6.2 Strategy alignment

“Strategy encompasses the following elements: a focus on long-term direction of the organisation, matching the activities of the organisation to the environment in order to minimise the threats and maximise opportunities as well as matching the organisations activities to the resources available”(O’Regan & Ghobadian, 2002).

The Lean transformation of the company you work for, is prioritised and aligned with the strategic business objectives

A manufacturing strategy attempts at giving a strategic rather than purely tactical role to the manufacturing function, by identifying the manufacturing criteria by which the manufacturing function can better contribute in the achievement of the business objectives and developing manufacturing policies to ensure that critical manufacturing decisions support the chosen criteria (Carpinetti, Gerolamo & Dorta, 2000).

It can be seen in figure 3 of the previous chapter that not much effort is being made by companies to align their Lean transformation as a preferred manufacturing strategy, as thirty-two per cent of the respondents are uncertain whether their Lean transformations are aligned to their business strategy. Company two has more respondents disagreeing at eighteen per cent with only nine per cent agreeing, a notion that is not shared by eighteen per cent of company one respondents agreeing that their company’s Lean

transformation is linked to their business strategy. Emiliani and Stec (2005) indicate that in most cases, Lean activities do not directly link to corporate strategy and goals. Kaizen is often applied haphazardly; fantastic improvements are achieved in activities that only provide “local” benefits, not system-wide gains or benefits to its end-use customers (Soriano-Meier & Forrester, 2002). They state that Lean Manufacturing is best viewed strategically as a formidable weapon in increasingly competitive markets.

Organisational leaders and senior management understand the Lean paradigm

From figure 4 it is evident that all companies agree that their managers understand the Lean paradigm, as fifty-five per cent and eighteen per cent of respondents agree and strongly agree. It is worth noting that nine per cent of company two respondents disagree that their managers understand the lean paradigm. Emiliani and Stec (2005) argue that most senior managers understand and practise Lean as a set of tools. Furthermore, senior managers implementing Lean principles and practices typically fall prey to an abundance of misunderstandings and misconceptions about Lean and usually misapply some or all aspects which impedes Lean transformation efforts. They go on to claim that organisations have high levels of awareness of Lean but most senior managers lack detailed knowledge of Lean principles and practices, and they do not recognise it as a management system.

Organisational leaders and senior management support and are involved in the Lean transformation

The results shown in figure 5 indicate that lean transformation is supported by management as forty-one and twenty-seven of the respondents both agree and strongly agree. Hunt and Xavier (2003) state that one of the characteristics of strategy is the involvement and participation of the entire organisation. Emiliani and Stec (2005) identify management participation as one of the inhibitors of Lean implementation: they argue that every manager says they support Lean, but in reality most believe they should be doing other

things, or claim they are too busy to get involved with continuous improvement activities, either as team leaders or as team members. The lack of personal participation in improvement activities sends the message that Lean implementation is the job of lower-level workers and that senior managers do not have to get involved. As a result, senior managers miss important opportunities to deepen their understanding of Lean principles and practices.

Figure 10 in the previous chapter reveals that eighteen per cent of respondents disagree that their managers are involved in the Lean transformation. Nine per cent emanating from company one and two strongly dispute that their managers are involved in Lean transformation activities. An obvious worry comes from the forty per cent who are uncertain of their management involvement. This can be attributed to the arguments put forward by Emiliani and Stec (2005) that managers typically understand Lean as a “manufacturing thing” and not as a comprehensive management system. Therefore the application of Lean principles and practices is limited to only a portion of the company’s activities such as operations and often referred to as the job of the low level workers. Sterling (1993) states that strategy fails due to lack of senior management support. Achanga, Shehab and Nelder (2006) argue that management involvement and commitment are perhaps the most essential prerequisites in aiding any of the desired productivity improvement initiatives, such as Lean Manufacturing

A common vision of lean has been communicated throughout the organisation

In chapter 3 Feurer and Chaharbaghi (1997) and Tan and Platts (2005) define strategy as the determination of the basic goals and the objectives of an enterprise. Hunt and Xavier (2003) state that strategy formulation includes defining, vision, mission, objectives and goals of the organisation. Mann and Smith (2007) state that this vision needs to be communicated in order to ensure understanding of the strategy. Figure 6 shows an overwhelming fifty per cent response that the respondents are not sure if their company’s lean vision has been communicated. Nine and five per cent of company three and two respondents disagree with five per cent of company three and two

strongly agree. Sterling (2993) states that strategy fails because of insufficient buy-in or understanding resulting in never clearly articulated priorities of the strategy among those who need to implement it.

Policies and procedures have been revised to promote and encourage Lean behaviours

From figure 8 it is evident that most (forty-six per cent) respondents are uncertain whether their company procedures have been revised to promote and encourage Lean behaviours. Tan and Platts (2005) argue that effective strategy formulation requires the identification and evaluation of alternative actions and the implementation of the selected choice. They also state that the process of strategy deployment involves identifying and evaluating the potential alternative actions which will achieve the desired objectives. The results show an inclination towards disagreement that policies and procedures have been changed. Thirteen per cent of company one and two disagree that their policies and procedures have been changed. McCreery and Anand (2007) state that the strategic effectiveness of a firm depends on the existence of fit, which is the compatibility of structures and processes both within the firm and with the environment in which it operates

Adequate resources have been provided to facilitate Lean transformation

Figure 9 shows a combined thirty-three per cent of the respondents disagree that adequate responses have been provided to facilitate lean transformation and twenty-six per cent agree. Company one and two are in agreement to disagree with a combined eleven and twenty-one per cent respectively. Company three appears to have resources in place to support its Lean implementation. Sarmiento, Knowles and Byrne (2008) state that once the strategic plan has been developed, it is important to keep the structural and infrastructural resources aligned to that plan. They further explain that the greater the fit, coherence, alignment and agreement amongst the company's resources that support its strategy, the better its performance will be.

A system has been identified to measure the Lean transformation

As discussed in chapter 3 Saunders, Mann and Smith (2007) state that strategy deployment is a description of how the organisation converts its strategic objectives into action plans and a summary of the organisation’s action plans and related key performance measures. They argue that effective implementation requires continual monitoring of progress of the implementation plan and accountability and change when change is needed. Figure 12 in the previous chapter shows that thirty-two per cent of the respondents disagree that their companies have systems to measure the implementation of the Lean transformation. Company one has five per cent of its respondents agreeing that there are systems and fourteen per cent disagreeing that a system is in place.

In this section, strategy alignment factors that were investigated in terms of Lean Manufacturing implementation with which had been analysed by the survey companies are described. Table 9 below shows that twenty six per cent of the respondents feel that their companies did not align their Lean Manufacturing implementation to their strategy, forty per cent feel that it was aligned. The thirty four per cent that is uncertain is concerning as this means that the strategic alignment was not explicit for all employees to see.

Question	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	0%	45%	32%	23%	0%
2	19%	54%	18%	9%	0%
3	28%	41%	22%	9%	0%
4	10%	27%	49%	14%	0%
5	0%	23%	44%	28%	5%
6	4%	17%	43%	30%	6%
7	0%	26%	39%	26%	9%
8	9%	23%	40%	18%	10%
9	5%	38%	24%	28%	5%
10	10%	25%	27%	33%	5%
	9%	32%	34%	22%	4%
	40%		34%	26%	

Table 8: Summary of Strategy alignment responses (source: researcher own composition)

It is evident that the three companies surveyed fell short in aligning their Lean Manufacturing implementation to their overall strategy. The reasons for Lean

Manufacturing implementation failure due to strategy alignment derived from the literature review are supported by the empirical study. This is clearly depicted in table 2, from chapter 3 of the seven dimensions identified by Saunders, Mann and Smith (2007) from their study on benchmarking strategy deployment as a framework for the deployment of strategic initiatives. Even though the companies had a range of visions, goals and objectives they divorced their strategic planning from implementation as there were deficiencies in their Lean Manufacturing implementation.

Dimensions of strategy deployment	Purpose of each dimensions
1. Communicating the initiative	Ensuring understanding of the strategy
2. Achieving buy-in	Acceptance and adoption by stakeholders
3. Aligning implementation	Aligning actions to the strategic direction
4. Learning	Evaluating and adapting continuously
5. Creating the infrastructure for development	Organising teams, roles and responsibilities
6. Understanding business drivers	Being aware of the business reasons for the initiative
7. Identifying deployment options	Identifying and scheduling projects, assessing risk and choosing performance measures

Table 2: Seven dimensions of strategy deployment (source: Saunders, Mann & Smith, 2007)

In Chapter 2 Emiliani and Stec, (2005) indicate that most companies have great difficulty implementing Lean principles and practices. They identify Strategy integration as one of the common errors that organisations make when implementing Lean. They argue that in most cases Lean activities do not directly link to corporate strategy and goals, they are often applied haphazardly and only provide “local” benefits, not system wide gains.

6.3 Leadership

“ is the process of influencing others to understand and agree about what needs to be done effectively and the process of facilitating individual and collective efforts to accomplish shared objectives” (Yukl, 2006:8).

My manager is available and listens to everyone and to the team

The considerate leader recognises and demonstrates acceptance of the followers' individual differences in terms of needs and desires. By doing this, the transformational leader fosters two-way communication through effective listening (Russell, Stone & Patterson, 2004). A combined seventy per cent of the respondents agree that their managers are available to listen to their staff, as shown in figure 13. The transformational leader disburses personal attention to followers based on the individual follower's needs for achievement and growth. This leader builds relationships with followers through interactive communication, which forms a cultural bond between the two participants and leads to a shifting of values by both parties toward common ground. (Russell et al 2004). Company two has five per cent disagreeing that their managers listen to them.

My manager acknowledges my work achieved

Eighty-six per cent of the respondents agree that their manager acknowledges their work as illustrated in figure 14. This is fundamental leadership behaviour of a transformational leader treating individuals as important contributors to the workplace (Sarros & Santora, 2001; Eissenbach, Watson & Pillai, 1999). Five per cent of company two respondents disagree that their work is acknowledged. Worley and Doolen (2006) state that if employees feel that management does not respect their efforts, they will feel discouraged and the Lean Manufacturing effort will fail.

My manager establishes a climate of trust

Figure 15 shows that a collective of eighty-one per cent of the respondents agree that a climate of trust is established by their manager - a notion that is disputed by a ten per cent of the respondents. It is important to note that this ten per cent is made up of company two respondents. Russell et al (2004) explain that the idealised influence is the charismatic element of transformational leadership in which leaders become role models who are admired, respected and emulated by followers and consequently followers demonstrate a high degree of trust in such leaders. Idealised influence in leadership also involves integrity in the form of ethical and moral conduct.

My manager entrusts me with projects that allow me to develop my strengths

Leaders develop followers by delegating tasks and then unobtrusively monitoring those tasks –checking to see if additional support or direction is needed. The net effect is empowerment of followers (Russell et al, 2004). Ninety per cent of the respondents agree and ten per cent disagree (see figure 16 in previous chapter). The purpose of using Lean Manufacturing processes and tools is to simplify work and the workplace, improve quality, reduce lead-time and focus people on performing only those activities that create value. Importantly, they also help people realise their full potential and actualise innate desires to make positive contributions to the workplace (Emiliani & Stec, 2005). Transformational leaders inspire and motivate others by providing meaning and challenge to their work (Russel et al, 2004).

My manager transfers his expertise to his subordinates

Ninety-five per cent collectively agree whilst five per cent from company two disagree as shown in figure 17. A leader transfers skills by delegating tasks and then tactfully monitors those tasks –checking to see if additional support or direction is needed. This approach reflects in large measure the coaching, morale building strengths of the leader. Good leadership ultimately fosters

effective skills and knowledge enhancement amongst its workforce. These supportive elements benefit the company intending to implement the lean concept (Achanga et al, 2006).

My manager encourages me to make new proposals

Figure 18 in the previous chapter illustrates that eighty-two per cent of the respondents agree that they are encouraged by their managers to make new proposals: something that five per cent of company two respondents say is not done by managers in their company. Transformational leaders stimulate their followers' efforts to be innovative and creative by questioning assumptions, reframing problems and approaching old situations in new ways. Followers' mistakes are not publicly criticised and creativity is openly encouraged. Transformational leaders solicit their followers' ideas and creative solutions to problems, thereby including followers in problem-solving. The intellectually stimulating leader encourages followers to try new approaches but emphasises rationality (Russell et al, 2004). Figure 20 shows that seventy per cent of the respondents agree that when they make mistakes they are criticised constructively by their managers and ten per cent from company one and two disagree.

In this section, Leadership factors that were investigated in terms of Lean Manufacturing implementation with which had been analysed by the survey companies are described. Table 9 below illustrates summary of leadership responses of companies surveyed, seventy eight per cent of the respondents agree that the Leadership behaviours needed for Lean Manufacturing implementation are present in their companies and six per cent disagree.

Question	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	36%	37%	23%	4%	0%
2	50%	37%	9%	4%	0%
3	46%	36%	9%	5%	4%
4	37%	55%	0%	4%	4%
5	37%	59%	0%	0%	4%
6	41%	42%	14%	0%	3%
7	18%	41%	28%	3%	10%
8	37%	42%	14%	0%	7%
9	41%	32%	23%	0%	4%
10	37%	32%	24%	4%	3%
11	37%	23%	33%	4%	3%
	38%	40%	16%	3%	4%
	78%		16%	6%	

Table 9: Summary of Leadership responses (source: researcher own composition)

The results from the empirical study in relation as to what type of leadership behaviours should be displayed by management in order to enhance the adoption of Lean Manufacturing indicate that the attributes and behaviours demonstrated by transformational leaders are suitable to enhance Lean adoption. Table 3 from chapter 3 summarises the four primary or functional areas of transformational leadership and identifies the attributes that, according to the literature, accompany these primary characteristics.

Even though the companies surveyed show the evidence of the required Leadership behaviours some of them still fall short in this regard. In Chapter 2 Emiliani and Stec, (2005) point out that one of the many obstacles in implementing Lean principles is Leadership participation. They debate that every senior manager says they support Lean, but in reality most believe they should be doing other things, or claim they are too busy to get involved with continuous improvement activities, either as team leaders or as team members. The lack of personal participation in improvement activities sends the message that Lean implementation is the job of lower-level workers, and that senior managers do not have to get involved. As a result, senior managers miss important opportunities to deepen their understanding of Lean principles and practices. It is another source of inconsistency that results in questions about senior management's commitment to Lean.

Functional attributes	Accompanying attributes
Idealised influence	
	Vision
	Trust
	Respect
	Risk-sharing
	Integrity
	Modelling
Inspirational motivation	
	Commitment to goals
	Communication
	Enthusiasm
Intellectual stimulation	
	Rationality
	Problem-solving
Individualised consideration	
	Personal attention
	Mentoring
	Listening
	Empowerment

Table 3: Transformational leader attributes (source: Sarros & Santora, 2001)

6.4 Organisational Culture

“Organisational culture is a system of shared meaning held by members that distinguishes the organisation from other organisations. This system of shared meaning is a set of key characteristics that the organisation values”(Robbins & Judge, 2009)

Employees are encouraged to be innovative

In the previous section respondents were asked whether their managers allowed them to make new proposals and Figure 18 in the previous chapter illustrates that eighty-two per cent of the respondents agree that they are encouraged by their managers to make new proposals. In this section thirty-two per cent agree that they are encouraged to be innovative and fifty per cent are uncertain and the number that disagrees is unchanged at eighteen per cent (see figure 24).

Management focuses on results, rather than on the techniques and processes used

Figure 25 illustrates fifty per cent agree, thirty six per cent are uncertain and fourteen per cent disagree. This fourteen per cent comes from company one and three respondents. Hines, Holweg and Rich (2004) state that the superior performance achieved by lean producers over the performance of traditional mass production system designs, emulated the shop-floor techniques, the structural parts of Lean, but often found it difficult to introduce the organisational culture and mind set. So many early Lean efforts showed localised impact only, and fell short of their intended impact on the overall system's performance.

Management when making decisions takes into consideration the effect of outcomes on people

This question raises mixed reactions from the respondents with thirty-four per cent agreeing, forty-one per cent disagreeing and twenty-three per cent uncertain (see figure 26).

Work activities are organised around teams rather than individuals

Figure 27 shows that fifty-nine of the respondents agree, fourteen per cent disagree and twenty-seven per cent agree. Ten per cent of company one

disagrees and another ten per cent agrees. Dimitriadis (2000) states that working in teams is means of involving employees in continuous improvement activities. This is achieved by organising employees into teams and making these teams accountable for their own performance. This allows managers to instil a customer focus on the workforce and harness peer pressure of fellow team members to ensure compliance to organisational goals (Rees).

Performance is rewarded

A combined seventy-three per cent of the respondents disagree, five per cent agree and twenty-three per cent are uncertain (see figure 29). The reward system provides incentives to motivate employees to be involved and participate. Incentive systems include individual and team incentives, gain sharing, profit sharing and employee stock options. Team incentives are the most preferred as they foster team effort in problem-solving. (Sun et al, 2000; Sumukadas, 2006).

There is freedom of communication

Figure 30 shows that sixty-three per cent of the respondents agree and nineteen per cent disagree that there is freedom of communication in their companies. Figure 31 show that these communication systems are believed to be not accessible to all employees as thirty per cent of the respondents disagree that they have access to communication systems. Company two appears to be lagging behind in the provision of communication system to all. Martins and Terblanche (2003) argue that the role that organisational culture plays in an organisation can be divided into the functions of organisational culture and the influence organisational culture has on the different processes in the organisation. The functions are internal integration and coordination: the integration is described as the socialisation of new employees and the coordination refers to creating a competitive edge, making sense of the environment in terms of acceptable behaviour and social systems that bind the organisation together. They describe the influence as offering a shared system of meanings which forms the basis of communication and mutual

understanding. They conclude by stating that if the culture does not fulfil these functions in a satisfactory way, the culture may reduce the efficiency of the organisation.

In this section, Leadership factors that were investigated in terms of Lean Manufacturing implementation with which had been analysed by the survey companies are described. From the three companies surveyed table 11 below shows that twenty seven per cent of the respondents disagree that their companies have the suitable culture for Lean Manufacturing implement and forty two per cent agree that their company has the suitable culture.

Question	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	0%	32%	51%	9%	8%
2	23%	28%	35%	4%	10%
3	14%	23%	22%	27%	14%
4	19%	42%	28%	7%	4%
5	10%	28%	45%	17%	0%
6	5%	0%	24%	21%	50%
7	19%	44%	19%	14%	4%
8	28%	19%	23%	16%	14%
	15%	27%	31%	14%	13%
	42%		31%	27%	

Table 10: Summary of Organisation Culture Responses(source: researcher own composition)

The results of the empirical study show that organisations have different cultures as it can be seen from the varying responses from the three companies surveyed. These differences are line with the model proposed by Schein, in chapter 3, to describe organisational culture.

In chapter 2 Bhasin and Burcher (2006) argue that whilst Lean is concerned with reducing waste at all levels, it is also about changing organisational culture. Companies should understand that implementation will never work without a culture characterised by the core principles of Lean Manufacturing. To succeed the right company culture has to be established from the top management to middle management and to the shop floor level.



Figure 2: Schein's model of organisational culture: adopted from Reiman and Oedewald (2002).

6.5 Employee involvement

Employee involvement is a process designed to empower members of an organisation to make decisions and to solve problems appropriate to their level in the organisation; the reasoning being people closest to a problem are in the best position to make decisions for improvement if they have control of the improvement process (Sun, Hui, Tam & Frick, 2000)

I am aware of and fully understand my company's overall business strategy and what goals and objectives my company is trying to achieve.

Eighty-two per cent of the respondents as shown in figure 32, agree that they understand their organisations overall business strategy, an impression that is not shown by five per cent of company one and three employees. Overwhelmingly eighty-seven per cent of the respondents state that they

understand what objectives their company is trying to achieve. Five per cent of company one respondents disagree. According to Sumukadas (2006), managers need to provide company-related information to employees on a regular basis. The type of information includes overall company performance results, vision of the organisation and competitor performance results. Employees need this information in order to contribute ideas and suggestions to improve business results.

I am aware of and fully understand my department's business plan and how the company and my department are performing

Ninety-one per cent of the respondents fully understand their department's business plan. Five per cent from company one disagree and the other five per cent are uncertain (see figure 34). Seventy-seven per cent understand how their department is performing whilst twenty-three per cent are uncertain (see figure 35). Sun et al (2000) state that the most important information for employees is the business unit operating results as it provides them with the information they need in order to contribute ideas and suggestions to improve business results.

There is a connection between my compensation and performance

Figure 38 illustrates that fifty per cent of the respondents strongly disagree that there is a connection between their compensation and performance, a feeling that is strongly not shared by company one and two (see figure 38). Compensation plays a vital role in employee involvement. The reward system provides incentives to motivate employees to be involved and participate (Sun et al, 2000; Sumukadas, 2006).

I receive appropriate recognition for my contribution and am involved in decisions that affect my job

A combined forty-one per cent of the respondents shown in figure 39 disagree, thirty two agree and twenty-seven are uncertain of the recognition

they receive for their contribution. Seventy-two per cent as shown in figure 40 states that they are involved in decision-making that affects their jobs. Employee involvement is about empowering employees to make decisions and solve problems. Employees must be given more responsibility to participate. Management need to delegate more responsibility and decision-making power to employees at various levels of the organisation. Without the necessary power employees cannot be involved in improving the organisation (Sun et al, 2000).

Employees work as teams to solve problems to do what is right for the customer

Fifty-nine per cent of the respondents agree they work together to solve problems and twenty per cent disagree that they do (see figure 43). It is agreed by eighty-two per cent of the respondents that they have enough freedom to do what is right for the customer, a feeling that is not shared by ten per cent of company two respondents. Creating a positive workplace environment where critical thinking and risk taking is encouraged is central to employee involvement. Suggestions schemes and teams are proof that employees are actively involved in initiating improvements and decision making (Imai, 1997). This empowers employees to be directly involved in the day-to-day operations to improve their work environment (Jablonski, 1992).

I have received the training I need to do my job efficiently and effectively and my skills and abilities are recognised

Forty-six per cent of the respondents agree that they have received training that enables them to do their jobs efficiently and effectively whilst nine per cent disagree. This nine per cent emanate from company two (see figure 47).

Figure 48 illustrates that seventy-seven per cent agree that their skills and abilities are recognised and utilised whilst five per cent of company one and two do not agree.

Training to improve employee skill is an important element of employee involvement as it provides them with the necessary skills needed to contribute to improve the organisation. Training improves communication about work procedures eliminates waste and improves performance and is an essential knowledge development in Lean Manufacturing (Sun et al, 2000; Sumukadas, 2006).

In this section, Leadership factors that were investigated in terms of Lean Manufacturing implementation with which had been analysed by the survey companies are described. From the three companies that were surveyed table 12 depicts that sixty four per cent of the respondents agree that in their companies there is evidence of employee involvement and sixteen per cent say that it is not evident in their companies.

Question	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	27%	54%	9%	0%	10%
2	41%	50%	5%	5%	0%
3	46%	32%	23%	0%	0%
4	9%	14%	27%	18%	33%
5	14%	18%	27%	27%	14%
6	36%	36%	19%	5%	5%
7	10%	50%	19%	13%	10%
8	28%	55%	9%	5%	5%
9	14%	50%	14%	18%	5%
10	23%	23%	45%	9%	0%
11	35%	42%	14%	5%	5%
12	23%	46%	23%	0%	9%
	25%	39%	19%	9%	8%
	64%		19%	16%	

Table 11: Summary of Employee Involvement responses (source: researcher own composition)

The results of the empirical study reveal that employee involvement is key to the implementation of continuous improvement programmes such as Lean Manufacturing. The framework provided by the model of employee involvement discussed in chapter 3 captures this important aspect very well. The framework suggests the following as key to employee involvement as defined by Lawler, Mohrman and Ledford (Sumukadas, 2006:145);

- i. information sharing;
- ii. knowledge and training;
- iii. rewards; and
- iv. power sharing.

In chapter 2 Hines, Holweg and Rich (2004) state that lean should be regarded as more than a set of mechanistic hard tools and techniques and the human dimensions of motivation, empowerment and respect for people are very important. They argue that these elements are key to the long-term sustainability of any lean programme, regardless of the industry sector.

6.6 Conclusion

In this chapter the analysis, interpretation and integration of the empirical study and the literature review were conducted.

In the next chapter the findings from the empirical study and literature review will be discussed, recommendations will be suggested and the study will concluded.

Chapter 7

Findings, recommendations and conclusions

7.1 Introduction

In the previous chapter an analysis, interpretation and integration of the empirical study and the literature review was conducted.

In this chapter the findings from the empirical study and literature review will be discussed, recommendations will be suggested and the study will concluded.

7.2 Findings

The primary objective of this study is to investigate what factors negate the adoption and implementation of Lean Manufacturing, resulting in non-achievement of expected results and outcomes of 3 companies in the Eastern Cape automotive industry. The study integrates the findings from the literature review and the empirical study to derive major factors that affect the adoption and implementation of Lean Manufacturing and make recommendations to enhance the adoption of Lean Manufacturing as a transformation tool to increase competitive advantage.

The feedback from the questions and the interviews from the respondents who participated in the survey indicated that the practices in some companies enable the successful adoption and implementation of Lean Manufacturing whilst in some others the practices grossly negatively affect the adoption and implementation.

The feedback showed the following;

- One of the factors that affect Lean Manufacturing implementation is that Lean activities are not linked to corporate strategy with defined objectives and goals. Lean is taken as ad hoc approach to existing practices and mixes it with non-lean practices.
- Managers do not fully support and are not involved in Lean activities and its implementation. This can be attributed to a lack of understanding of the Lean paradigm by managers as they think of it as an application of set tools and do not recognise it as a management system. They believe that they should be doing “management work” and be busy with other things. This lack of participation sends a message to the workers that Lean implementation involves only the shop-floor workers and managers should not be involved.
- Policies and procedures have not been revised to drive and establish behaviour that enhances the adoption of Lean principles and behaviours.
- Adequate resources have not been provided by companies to facilitate and drive Lean implementation this impedes implementation.
- Companies do not have detailed action plans anchored on explicit performance measures for their Lean implementation. This makes it difficult for companies to measure progress and performance. The implementation fails as nobody can see results or the impact of Lean activities.
- The other factor that negates implementation is employees feel that they are not empowered and are not given an opportunity to grow by their managers. The team approach is not used by some companies to involve and empower their employees to solve problems. No formal suggestion system exists to solicit ideas and feedback to improve from employees.
- Companies do not fully share and communicate company information with the employees. This leads to failure of Lean implementation as employees do not understand the company’s goals, objectives and

business plans, resulting in employees not knowing where to focus efforts that drive a culture of continuous improvement.

- Failure is attributed to not fully training employees in Lean principles and the use of Lean tools. Employees are not provided with skills that permit them to be able to diagnose and solve problems.
- All companies do not reward performance. This leads to failure as team incentives that drive team effort and problem solving are not present. Employees are not motivated to participate in Lean activities as there is no performance reward systems linked to the continuous improvement efforts.

From the responses of the empirical study and guidelines of the literature review it is clear that the companies that participated in the AIDC Tirisano Cluster Programme made some basic errors in the implementation of Lean. Therefore the full potential of the programme was not fully realised in all companies included in this study. Parts that negatively affect the programme and need to be addressed are listed below in the recommendations.

7.3 Recommendations

The primary objective of this study is to investigate what factors negate the adoption and implementation of Lean Manufacturing, resulting in non-achievement of expected results and outcomes. This objective has been met through the consultation of various literature sources and an empirical study.

Literature review revealed a variety of suggestions that organisations could use to improve their adoption and implementation of Lean Manufacturing. By using some of these suggestions, organisations could become much more competitive. When implementing Lean Manufacturing companies need to take the following into account:

7.3.1 Strategy

Strategic planning needs to consider the following;

- Companies need to regard Lean Manufacturing as an operational strategy not as an ad hoc system to other systems that the company is using.
- A clear vision, objectives, action plans and performance measures need to be developed before commencing with the implementation.
- Resources need to be provided and allocated in order to enable the adoption and implementation.
- Strategy and the initiative to be undertaken need to be communicated to all employees in order to create understanding and buy-in from all.
- Managers and employees should be trained in the Lean paradigm.
- All policies and procedures need to be revised in order to enhance the creation of a climate that enables easy adoption and implementation of Lean Manufacturing.

7.3.2 Leadership

Leadership behaviours that foster continuous improvement can be attained in the following manner:

- Managers should be trained to ensure full understanding of Lean manufacturing, its concepts and how it is implemented.
- Managers need to show interest and be fully involved as part of the team in Lean initiatives and implementation.
- Managers need to listen and make sound judgements when solving disputes and problems.
- Managers must trust and empower employees with decision-making and problem-solving.
- Managers need to walk and talk the system and not use it sparingly or when it suits them.

7.3.3 Organisational culture

The following measures can be adopted in order create a continuous improvement culture:

- Employees need to be empowered in decision-making and problem-solving.
- The focus should be on techniques, processes and systems in order to facilitate new ideas and involvement in problem-solving.
- The pioneers of this paradigm have used the team approach and it has been proven to be very effective in problem-solving and giving a sense of ownership of processes to the employees.
- Incentive schemes should be used in order to reward performance.
- Communication and sharing of company information in terms of goals, objectives and company performance is essential.

7.3.4 Employee involvement

To ensure full participation of employees in continuous improvement programmes the following measures can be adopted:

- Employee involvement if it is to be successful needs to be correctly implemented and be aligned with company strategy.
- Team work and suggestion schemes are powerful ways to encourage employee involvement but they need to be systematically implemented and operated and not be flavour-of-the-month approaches.
- Training and development are essential to support and develop a culture of employee involvement.
- Management needs to let go of controls and let their employees be involved and engaged in improvements and decision-making.
- Employees need to be recognised and rewarded for their efforts. They need to be rewarded for their skills and abilities and be valued by means of incentives for improvements.

7.4 Conclusion

The South African automotive component manufacturers are under immense pressure to improve quality and reduce costs. Initiatives like Lean Manufacturing should be undertaken in order to bring about these improvements. But this improvement comes about by changing the current way of doing things. To be effective, this change needs to part of the business strategy and must be driven by management as leaders and a team culture that involves all employees needs to be present. Lean Manufacturing must be seen as a strategic long-term view and not as a tool to solve today's problems.

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Annexure A: Measuring instrument

SECTION A: Company Details

Name:	<input type="text"/>
Designation:	<input type="text"/>
Company:	<input type="text"/>
Address:	<input type="text"/>
	<input type="text"/>
City:	<input type="text"/>
Telephone:	<input type="text"/>
E-mail:	<input type="text"/>

**Years working for this company?
employees?**

- 0 - 1 year
- 2 - 4 yrs
- 5 - 7 yrs
- 8 yrs +

Number of

- 5 - 50
- 51 - 150
- 151 - 300
- 301 - 500

Ownership

- Multinational
- National
- Local

Industry classification

- Tier 1
- Tier 2
- Tier 3

SECTION B: Strategy

Please indicate the extent to which you agree or disagree with the following statements regarding your organisation

The lean transformation of the company you work for is prioritised and aligned with the strategic business objectives

Organisational leaders and senior management understand the lean paradigm

Organisational leaders and senior management support the lean transformation

A common vision of lean has been communicated throughout the organisation

The current education and training programme adequately supports the lean transformation

Policies and procedures have been revised to promote and encourage lean behaviours

Adequate resources have been provided to facilitate lean transformation

Senior managers are actively involved in the implementation of the lean implementation

A system has been identified to measure the lean transformation

SECTION C: Organisation Culture

Please indicate the extent to which you agree or disagree with the following statements regarding your organisation

Employees are encouraged to be innovative

Management focuses on results, rather than on the techniques and processes used

Management when making decisions takes into consideration the effect of outcomes on people

Work activities are organised around teams rather than individuals

Performance is rewarded

There is freedom of communication
Communication systems are accessible to all

SECTION D: Leadership

Please indicate the extent to which you agree or disagree with the following statements regarding your organisation

My manager is available and listens to everyone and to the team
My manager acknowledges my work achieved
My manager establishes a climate of trust
My manager entrusts me with projects that allow me to develop my strengths
My manager transfers his expertise to his subordinates
My manager encourages me to make new proposals
My manager helps me implement proposals even if that implies a portion of risk
When I make mistakes my manager gives me constructive criticism
My manager acknowledges individual and collective success
My manager defines with me the responsibilities that he entrusts me with
When he takes decisions my manager respects people and diversity

SECTION E: Employee Involvement

Please indicate the extent to which you agree or disagree with the following statements regarding your organisation

Information sharing

I am aware and fully understand my company overall business strategy
I am aware and fully understand my department business plan
I am aware of how the company and my department are performing

Rewards

There is a connection between my compensation and performance

I receive appropriate recognition for my contributions

Power sharing

I am involved in decision making that affects my job

Employees work well together to solve problems and get the job done

I have enough freedom in my position to do what is right for the customer

My department uses employee feedback to make improvements

Knowledge and training

I have received the training I need to do my job efficiently and effectively

Management recognises and makes use of my abilities and skills

I am encouraged to take the initiative in determining my own career development