

Assessing the impact of unions and related barriers in lean manufacturing implementation within Eastern Cape automotive component suppliers

By

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## **Abstract**

Lean manufacturing provides a fundamental basis for competitiveness in the auto component sector. The implementation and sustainability of the lean philosophy are important aspects when deciding on the adoption of the lean concept within organisations.

Various barriers to implementation present themselves during and after lean implementation. These barriers are often related and in some instances they may be converted from an impediment into an enabler of lean within companies.

The impact of unions as a negative or positive influence forms a central focus of this research. The influences on the perception of unions and their constituents are studied in relation to other barriers in order to determine their relevance in the Eastern Cape auto sector.

A research questionnaire was constructed in line with the selected research design. The application of triangulation in the research design allows for greater depth in the responses from the participants in this research. The quantitative analysis combined with the qualitative thematic analysis provides an excellent means to explore and understand these selected barriers to lean in great detail.

It can be concluded that automotive trade unions in the Eastern Cape are a barrier to implementation; however the factor that influences lean the most is the incorrect perception of lean due to ineffective leadership practices among organisational and union leaders, among other barriers. The impact of unions on the acceptance of a lean culture has far-reaching implications for the auto sector that requires a specific implementation approach in order to change perceptions and gain the requisite interest alignment among unions and their constituents.

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## **Declaration**

I Zahier Ebrahim with student number 20224825 hereby declare that the treatise for Master's Degree in Business Administration is my own work and that it has not previously been submitted for assessment or completion of any postgraduate qualification at another University or for another qualification.

Zahier Ebrahim



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# **Chapter 1 – Research Questions and Definition of Key Concepts**

## **Chapter 1 - Research Questions and Definition of Key Concepts**

### **1. Introduction**

Lean manufacturing allows companies to become more competitive through the elimination of waste (Simmons and Mason, 2003). Lean manufacturing is administered through various tools aiming to improve operations predominantly for economic benefit.

Failure to effectively implement continuous improvement lean initiatives has been studied in the past. However, in terms of the South African context in the auto industry, the success of the implementation will also be subject to unionisation, education levels, managerial approach and the uniqueness of the South African operating environment from a multi-cultural perspective. This study will differ by taking the factors unique to the South African environment into consideration while re-evaluating the contributing factors of failed lean systems identified in previous studies.

The cost and prevalence of failure need further study to avoid pitfalls in implementation and thus reap the benefits of lean manufacturing as required to allow competitive operations. The competitiveness of the South African manufacturing landscape renders this an urgent discussion. The need to compete on a global scale relates to a company's ability to adopt world class manufacturing standards and systems.

According to Vallas (2003), the predominance of a technical, expert-centred orientation towards production has introduced a contradiction into the new work regime (post-implementation), which places the effort towards standardisation at loggerheads with managerial efforts to cultivate participation. Vallas (2003) draws upon the comparison between normative versus rational controls, signifying a breakdown in communications between management and hourly employees. However, further study of the multitude of factors present within the local auto industry must be undertaken collectively in order to formulate a theory on the subject.

The problem of failed implementations needs to be evaluated in the context of local operating approaches.

In a study conducted by Shah and Ward (2002), it was found that unions do not have a major impact on the success of lean implementation efforts within organisations

Law and Tang (2009) discovered that unionised organisations are subjected to higher costs in relation to non-unionised organisations. Divide and conquer tactics are employed by unions in order to manipulate the organisation so that unions can get their way (Law and Tang, 2009). Unions capitalise on the opinions expressed by workers in organisations and use these as a primary tactic in their strategy to sway management to their will. From this study it is clear that the implications for successful lean implementation thus appear to be at the will of the unions to accept the philosophy as unions are able to create trust or distrust in organisations.

Chapter Four in the report on the future of unions (Heinz, 2010) highlights COSATU's (Council of South African Trade Unions) rejection of strategies for enhancing competitiveness through deterioration of workers' rights and labour standards, fragmenting the labour market or decreasing wages. This view expressed in the report clearly demonstrates COSATU'S unwillingness to support lean manufacturing implementation in South Africa. However, COSATU denies that it is not willing to support workplace productivity improvement. The trade unions view management and government policy as the main issues facing productivity in South Africa.

In the report by Heinz (2010), the union indicates that it is willing to change its view on productivity (lean) implementation in South African organisations provided that there are benefits for all stakeholders. Currently, the trade union sees little benefit for the worker and labels South African lean interventions as hypocritical as it propagates worker autonomy yet demand standardisation with management-defined work standards and measurements.

Unions and other barriers identified may have a relationship where one barrier may induce or intensify another barrier; conversely unions may serve to mitigate the impacts of other identified barriers such as culture of the workforce.

A previous study conducted on the critical success factors in the implementation of lean manufacturing by Achanga, Shehab, Roy and Nelder (2005) identifies leadership, finance, organisational culture, skills and expertise as the most pertinent issues affecting implementation. The study is limited, however, by the risk of bias in the provision of information that formed the data for the study. In addition, the study was conducted in a developed country, the UK, whereas the study being conducted through the present research will take into consideration certain specific factors including union involvement and language proficiency as well as the cultural diversity present in South Africa.

The problem facing management is the failure of implementation of lean manufacturing. This poses a threat to possible competitive advantages South African automotive component suppliers could enjoy as a result of the benefits derived from lean manufacturing practices.

## **1.2 Research questions**

### **1.2.1 Primary research question**

The main research question to be addressed is:

*What is the impact of unions and other contributing factors in sustainable implementation of continuous improvement programs within the Eastern Cape automotive component suppliers?*

### **1.2.2 Secondary research questions**

➤ *Sub-question 1*

*To what extent do trade unions influence the success of the implementation and subsequent sustainability of lean manufacturing?*

➤ *Sub-question 2*

*What other contributing factors are dominating unsuccessful implementation and is there a relationship between these factors and unions?*

➤ *Sub-question 3*

*How can structures and approaches to implementation be optimised to be more conducive to successful implementation?*

➤ *Sub-question 4*

*Will involving the unions in the implementation of lean lead to more success in terms of sustainability of lean programs?*

Sub-question one seeks to identify if unions are in fact a legitimate barrier to implementation in component suppliers. The literature review has highlighted incorrect organisational culture as a barrier, and through this research question, union impact on lean implementation will be analysed. Perhaps unions affect the culture of the organisation in a way that results in either lean implementation failure or success.

The impact of training and investment in organisational structures which are conducive to successful implementation as well as culture and management skill will form a key part of this study as well. Having the correct leadership style may influence the opinion of the drivers of lean implementation (the people) to be more susceptible to the philosophy. In addition, the appropriate leadership style and management of implementation could be viewed by unions in a manner that would gain support. The literature indicates that unions may impede or facilitate implementation (sub-question 4). The factors that influence unions' perception as well as those of shop floor workers are thus subject to various other factors that are both directly and indirectly related to the implementation process.

Another key factor addressed through sub-question 3 is that the size and structure of organisations may have an impact on the implementation process. The determination of which factors contribute most will also be investigated through the research. Organisational structure may have an impact on the communication

process within organisations. It may also limit the ability of worker autonomy on the shop floor level which is a key factor in gaining unions' support.

In addition, there may be other South African specific barriers that will emerge from the research that would either further support existing barriers or detract from the barriers as a legitimate concern to lean implementation in South Africa.

### **1.3 Preliminary literature study**

The study conducted by Achanga et al. (2005) shows that there are many difficulties to consider when implementing a lean program. Component suppliers are, for example, constrained by their size and financial abilities.

Herron and Braiden (2006) indicate that wide selections of lean manufacturing tools are available to manufacturers. Linking the correct tool with the respective industry problem requires careful consideration. According to Pavnascar (2003), there are in fact over 100 lean tools available. Pavnascar (2003) also claims that there is no systematic approach to linking a tool to a particular problem in industry. The end result could be a failure of implementation as the tool does not suit the problem presented.

Herron and Braiden (2006) contend that management in companies often do not understand the tools and techniques related to lean manufacturing to the extent required to make the correct match between the problem and the tool. Thus the abilities of management to effectively lead an implementation come under question. Additionally Herron et al. (2006) describe a three-stage model for a scientific approach to the matching of a manufacturing problem with a lean tool and emphasise the need for the shop floor hands-on training of all involved.

Smeds (1994) highlighted the importance of using the correct approach which that researcher determined to be interactive simulation games. These games are used in a bottom up approach which provides a fun way for shop floor workers to understand the lean initiative and to accept it. Once the simulation is completed, lean implementers are expected to coach the shop floor workers to implement the lean tool into their work environment and subsequently provide them with the ownership

of continuous improvement of their work environment through the employment of the tool.

Culture and organisational aspects may also have an impact on the implementation and subsequent competitiveness of the firm, according to Herron and Braiden (2006).

Another factor that needs to be considered is the impact of advanced manufacturing technologies on the use of resources such as labour, electricity and time (Sonntag, 2000). The reason why this is important is that if the outcome is not properly analysed, the effect of a lean intervention could directly impact other areas such as human resources and power utilities, as this undermines the ultimate aim of lean.

Sonntag (2000) states that policies aimed at transforming consumption patterns through lean manufacturing improving production cycles has serious implications for achieving sustainability as these firms operate under “fast to market strategies” and grow constantly to compete. This results in the need for an ever-growing market.

Simmons and Mason (2003) indicate that lean manufacturing directly affects quality, cost and delivery. A study conducted by Vallas (2003) relating to the obstacles to implementation in four manufacturing plants highlighted the social and organisational impact of the success of lean manufacturing implementation.

From the above literature review it is clear that lean manufacturing plays an important role in the competitiveness of a firm. Many factors influence the success of an intervention. The fact that there are so many different tools available requires skill on the part of the implementers to identify which lean manufacturing tool to apply to which specific problem. Consideration in the South African context must also be given to the effect of cultural (language, economic background, class barriers, labour productivity and tradition) and organisational processes on the sustainability of these interventions.

Determination of union involvement in organisations must be determined as regards having a positive or negative impact on lean implementation. In addition, the extent of the impact needs to be assessed as well as possible relationships between unions and the barriers identified through this literature review.

According to Vermaak (2008), South Africa is faced with an adversarial trade union in COSATU. In Vermaak's (2008) thesis, he highlights that achieving a climate of cooperation to the benefit of the company from trade unions is very difficult as the unions still view organisations with distrust. This distrust stems from legacy issues from the political history of South Africa.

An important study by Stuart (2000) points to the importance of trade union involvement in lean implementation programs. This stems from the fact that unions act as the voice of the people. Lean implementation requires frequent communication between shop floor workers and management, so to exclude unions in this effort would be counterproductive (Stuart, 2000).

A study conducted by Krauss and Matuzak (2001) highlighted the fact that the trade unions impeded the progress of a lean intervention in a number of US firms even though they were involved from the outset. Kraus et al. (2001) identify the restrictive nature of the US union's policy as a barrier to implementation in this regard.

## **1.4 Research Paradigm**

### **1.4.1 Quantitative Paradigm**

Quantitative data are data in numerical form (Collis et al., 2009). Collis et al. (2009) state that in quantitative research, the research is separate from the researcher, meaning there is no obvious connection. There are no preconceived ideas and the language employed in the research is often formal in nature. The research is also based on a set of definitions and the researcher has an impersonal or remote voice. Characteristics of quantitative research are large samples, static design and the categories involved in the research being determined in advance of any study conducted. Accuracy of the research is critical in quantitative research as it takes on a deductive approach. Relationships and theories are often tested.

### **1.4.2 Qualitative Paradigm**

On the other hand, the phenomenological approach produces qualitative data. The research employs small samples and is usually concerned with generating theories.

The collected data are subjective with high validity and low reliability (Collis et al., 2009). The research is often conductive in nature. The phenomenological approach sees the researcher as interacting with what is being researched. Categories are defined during the research process. It is deemed accurate and reliable through verification. The ultimate aim of the research is to explore the nature of variables and to theorise about relationships.

## **1.5 Research Design**

There are multiple theories on offer particularly from the South African perspective on this research topic. The present researcher interacts with lean manufacturing programs as part of his normal work routine. The study may be subject to certain bias being formed by the respondents. The questionnaire was used to gather information from respondents will be given to a sample of respondents from varying backgrounds and positions within manufacturing. The research was limited to a set of qualitative terms and definitions as defined in the definitions of concepts.

The methodology adopted was both quantitative and qualitative for the following reasons:

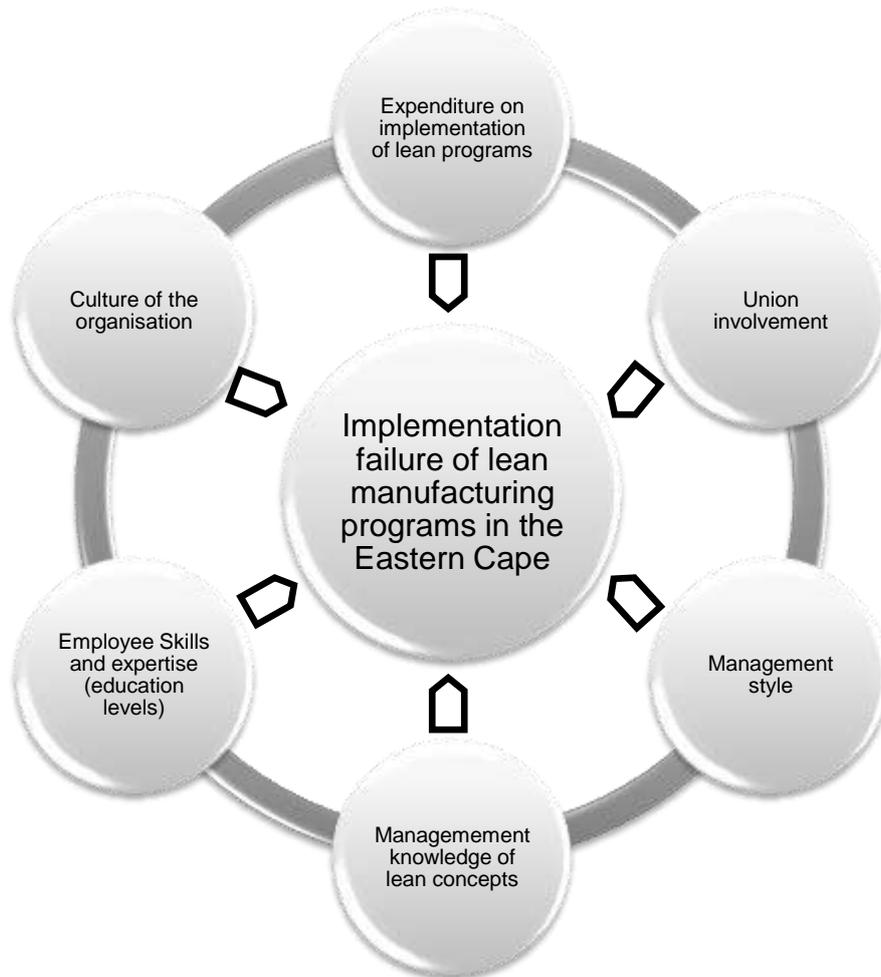
- i. The research was subject to the study of mutual and concurrent shaping factors with a design that emerged as the research progresses (qualitative).
- ii. The research was context bound (qualitative).
- iii. Patterns and theories were developed for clearer understanding of the barriers and their consequent reasons for existence.
- iv. The research has quantitative elements due to possible relationships that may exist between barriers (Collis and Hussey, 2009).

The research design included a combination of qualitative and quantitative data. The aim of the design was to extract enough pertinent information that will support the existence of barriers within the South African manufacturing environment, expose potentially new barriers and relationships among them and also theorise on the impact that unions may have on all these barriers as either impeding or facilitating lean implementation. In order to facilitate the qualitative aspect of the research, aspects of phenomenology were used where data was themed for patterns and

frequency in order to extract meaning from the research instrument. The phenomena reviewed related to the barriers facing lean implementation and subsequent possible relationships amongst other prominent barriers in the automotive component sector in South Africa.

Through the combination of qualitative and quantitative data analysis, theories on the barriers were identified through the research will and used to formulate various recommendations that will facilitate more effective and sustainable lean implementation. Qualitative information obtained through the research instrument was also analysed through finding themed patterns and relationships in the various responses (Saldana, 2010).

The quantitative aspect sought to determine patterns and frequencies from the research instrument in order to anchor qualitative findings. This was achieved through the Microsoft Excel software package to generate various graphical charts and tables indicating frequencies.



Identification of theories and recommendations	
Relationships between existing barriers	New barriers
Methodical Triangulation (Qualitative and Quantitative data analysis)	

Figure 1: Researcher's own model depicting research approach

## 1.6 Research Instrument

The research instrument was employed in order to collect information from respondents working with the phenomenon. The instrument took the form of a questionnaire. The structure of the questionnaire was in line with methodical triangulation in order to gain the necessary depth of analysis required for qualitative and quantitative research.

The instrument was specifically designed to extract information in sections pertaining to various barriers identified through the literature review and also to allow various themes to emerge through the identification of patterns and relationships.

Through the employment of both open-ended and close-ended questionnaires, the various data sets were supported by linking qualitative responses with quantitative responses to support certain answers.

Scales employed included the intensity rating scales and frequency rating scales. The structure of the question was validated and tested for reliability to ensure that the questions being posed relate to the research questions under review.

As indicated in the research design the open-ended questions were themed according to the framework described by Saldana (2010). This framework allowed for frequency and patterns to be recognised within the open-ended qualitative responses.

The close-ended questions featured using the rating scales were analysed using the Microsoft Excel Software package. The data was analysed for trends and patterns through the use of statistical techniques necessary for the purposes of this study. This provided meaningful information to develop themes and to cross reference with the information obtained through the thematic analysis of the qualitative data.

The questionnaire obtained the necessary depth to discuss various emerging patterns and relationships that was used in the formulation of theories in line with the phenomenological direction taken in this research study. Through the division of the research instrument into sections that streamline the information, data analysis will be made easier.

Through the validity testing, the ease of use, language, relevance of questions and structure was analysed by experts.

## 1.7 Sample Description

There are various stakeholders involved in lean implementation. Shop floor representatives who through training and development are required to drive the continuous improvement efforts are key research participants. The shop floor workers also work closely with the trade unionists who are another important stakeholder in this research.

The unions act as the voice of the people and become deeply involved with lean implementation. Their inputs into lean could either act as enabler or impediment to the success of the lean implementation initiative.

The next stakeholder to be considered in this research is middle management. Their involvement in lean often takes the form of training and measuring the success of the implementation as well as the physical implementation bringing together all stakeholders. The approach taken by this group affects the success of the implementation since middle management is so directly involved.

Senior leadership in organisations sets the strategic direction. This direction and approach to lean manufacturing affects its success indirectly. An example would be the strategic decision to develop a company policy that aims to link rewards and recognition through an incentive scheme that could facilitate lean implementation better while appeasing unions. In addition, they also form the central party for the determination of the structure of the organisation which may or may not have an overall impact on implementation success.

Based on the stakeholder involvement mentioned above, extracting the opinions of those both directly and indirectly involved added depth to the study and provided results that would be more accurate. This type of judgmental sampling served to involve all the relevant parties in order to extract a host of opinions and data that produced a result most representative of the barriers and the relationships these barriers share in impeding lean implementation within South Africa.

The characteristics of suppliers that formed part of this study are of equal importance as they have to be unionised. The stakeholders represented through the sample all have a working knowledge of lean, although some are not experts. The attempt to implement lean was already been executed. Whether this attempt was successful or not or whether it is still in progress was considered irrelevant.

The organisation was to be an automotive component supplier in the Eastern Cape region.

## **1.8 Research objective**

The primary objective of the research was to identify the major causes of failure and possible relationships between such causes/barriers to implementation of lean programs within the Eastern Cape automotive component suppliers. These causes of failure relate to the potential barriers identified through various literary sources as well as any other emerging barriers. The research also included union involvement as a barrier or facilitator of lean implementation.

The secondary objective was to formulate theories on how to avert the pitfalls to implementation. These theories centred on the barriers and their relationships whose impact has been determined through the primary objective.

Both the primary and secondary objectives required an understanding of the barriers that will form a key part of the research. The process was iterative by, firstly, as a primary objective, identifying the extent to which these barriers affect lean implementation success or failure. Subsequently, a means to enhance implementation success was theorised.

The recommendations were based on the quantitative data analysis and the qualitative themed analysis of the research instrument. Through better understanding the barriers and the interplay that occurred between them, an emergent theme became apparent that could assist the manufacturing sector in the regions with a strategy to implement lean that would be conducive to the success of the programs. This would then have an impact on implementation cost, results and the motivation of the stakeholders to continuously improve.

## 1.9 Delimitation of research

The sample size of the number of suppliers could be more representative of the supplier base in the Eastern Cape. The accuracy of the data provided is at the behest of the supplier providing the feedback through the questionnaires and thus may be subject to undue bias. The location specific parameter of the study is limited to the Eastern Cape Province.

A study encompassing other provinces may provide a better understanding of cultural implications where the concentration of cultures is more diverse (e.g. Kwazulu Natal).

## 1.10 Terminology

*Lean Manufacturing:* The principle of reducing waste such as walking, correction, overproduction, inventory, motion and work in progress in an organisation to ensure greater profitability (Pycraft, 2010).

*Lean Tools:* Tools that are designed to reduce or eliminate the waste in an organisation. There are over a hundred different tools available that can be employed in order to reduce waste (Pavnascar, 2003).

*Organisational Culture:* A set of values and norms unique to a particular organisation that is shared amongst the people who work there.

*Trade Unions:* An organised association of workers in a trade, group of traders or profession, formed to protect and further their rights. (Oxford Dictionary, 2010)

*Lean Implementer:* The individual responsible for overseeing the lean implementation.

## 1.11 Chapter Headings

The research consists of the following chapters:

- Chapter 1 Introduction to the concept of lean manufacturing in the local environment, the research questions and a discussion on the research paradigm, research methodology, delimitation of research, and chapter headings.
- Chapter 2 A literature study of prior research on lean manufacturing implementation and the factors that may play a role in the success of the implementation will be further evaluated in this chapter.
- Chapter 3 A detailed investigation into the research paradigms and methodologies to drive the results of the study. The selection of the respective research methodologies and research instruments will be discussed in greater detail.
- Chapter 4 Analysis of results obtained through the research instrument. Various tools and techniques will be used to present the findings of the questionnaire.
- Chapter 5 Theory formulation that will drive the recommendations and conclusions will be found in this chapter.

## **Chapter 2 – Literature Review**

## Chapter 2 – Literature Review

### 2.1 Lean Manufacturing defined

#### 2.1.1 What is Lean Manufacturing?

According to Engelund, Breum and Friis (2008), lean manufacturing started from the initiatives undertaken at Japanese car manufacturer Toyota. Authors such as Womack and Jones (2003) and Bicheno (2004) demonstrated that Toyota's car production was superior to that of its Western rivals. Due to the efficiency of Toyota's manufacturing system, Womack and Jones (2003) referred to the system as lean manufacturing. Lean has subsequently been adapted to fit a number of different industries (Engelund et al., 2008).

Womack and Jones (2003) indicate that lean manufacturing includes a set of tools and practices designed to eliminate waste and create wealth within an organisation. A slightly more explanatory definition comes from Wood (2004) who describes lean as providing people at all levels with the skills and shared means of thinking to systematically drive out waste by:

- i. Designing better ways of working
- ii. Improving connections and easing flows within supply chains.

Waste as it relates to lean manufacturing, can be defined as anything that adds unnecessary costs to the product without adding value. Lean manufacturing aims to improve the product flow, shorten the manufacturing lead time and reduce defects (Lean Institute, 2007).

As the above definitions show, the same lean manufacturing principles apply within a South African manufacturing context. The ultimate goal of lean is to optimise the use of resources in order to reduce cost and increase profits. It serves as a means to reduce human effort, space, capital and time. (Lean Institute, 2007)

Liker and Wu (2000) define lean as a philosophy of manufacturing that focuses on delivering the highest quality product on time and at the lowest cost.

In addition to the above-mentioned definitions, Womack and Jones (1994) characterise lean manufacturing as an integrative concept consisting of key areas or factors which are believed to be critical to successful implementation of lean and which include:

- i. Employees
- ii. Suppliers
- iii. Customers
- iv. Layout
- v. Scheduling
- vi. Inventory
- vii. Material Handling
- viii. Work Processes
- ix. Culture
- x. Management
- xi. Tools and Techniques.

Lean manufacturing is also viewed as an evolutionary socio-technological design since it relies on the active interaction of individuals within the work design (Paez, Deweez, Genaidy, Tuncei, Karwowski, Zurada, 2004).

### **2.1.2 Typical obstacles and/or success factors that apply to the implementation of lean manufacturing**

In the implementation of lean, successful implementation is hindered by inadequate funding and leadership deficiencies (Achanga, Shehab, Rajkumar, Nelder, 2006). Hayes (2000) states that lean implementation should be preceded by proper planning and management involvement and commitment. Holland and Light (1999) point out that a clear vision and strategy are important in anticipating likely costs and duration of lean implementation.

A problem identified by Achanga et al. (2006) is that organisations are uncertain of the costs as well as the potential benefits lean may have. This supports Holland and Light (2009) where they assert that strategy and vision will create a better understanding of the need for lean and subsequent investment in terms of time and

cost for implementation. Research results by Achanga et al. (2006) highlight the following critical success factors:

- i. *Leadership*: Companies should have strong leadership that can clearly express a clear vision and strategy throughout the organisation. Leadership will ultimately allow for integration of all structures necessary for successful lean implementation.
- ii. *Finance*: Finance covers consultancy fees and training budgets often necessary for lean implementation.
- iii. *Organisational Culture*: The creation of an organisational culture that allows for change is crucial to the acceptance of a high performance culture centred on lean. Management with strong communication skills is highly desirable as this assists with the change management process.
- iv. *Skills and Expertise*: Most organisations employ people with low skill levels who do not foster an ideology of skill enhancement. As a result, lean philosophy becomes increasingly difficult with a workforce not geared to understanding the principles and methodologies required of successful implementation.

Another interesting obstacle to lean implementation is the fact that there exists no systematic way to link lean tools to a particular organisational problem (Herron and Braiden, 2005). This clearly presents a problem as using the incorrect tool can be costly and time consuming thus risking the impact of the lean concept in eventual implementation. This would connect well with Achanga et al.'s (2006) assertion that skills are tantamount to success. Having the correct skills will allow the lean implementer to successfully select the correct tool through the combination of skills and experience.

Herron and Braiden (2005) go further by stating that lean implementers require knowledge of at least 19 out of the 100 plus lean tools and their areas of applicability. This leads to a complex matrix of combinations. The workshop approach has been proven to work where key members of the organisation are involved in idea sharing through interviews and interactive forums allow for more information leading to the selection of the correct tool.

Pieterse (2007) identifies some interesting barriers from a South African viewpoint. These barriers to lean implementation include:

- i. Lack of awareness and familiarity with lean concepts
- ii. Ineffective training centres or lack thereof
- iii. Culture of the organisation
- iv. Union resistance
- v. Erratic supply and demand
- vi. Long supply lines
- vii. Supplier quality
- viii. Management commitment.

Vallas (2003) highlights that lean manufacturing presents a contradiction in organisations where it seeks to promote shop floor worker participation through standardisation. Standardisation tends to limit participation efforts.

According to Lucey (2008), a lean manufacturing survey found that company culture was one of the biggest barriers to the implementation of lean. Further to this, the following barriers have been identified:



Figure 2: Adapted from Manufacturing Magazine – Lean Manufacturing Survey report 2002, p.20

According to Vermaak (2008), South Africa is faced with an adversarial trade union in COSATU (Council of South African Trade Unions). In Vermaak's (2008) dissertation, he highlights that achieving a climate of cooperation to the benefit of the company from trade unions is very difficult as they still view organisations with distrust. This distrust stems from legacy issues from the political history of South Africa. It therefore stands to reason that unions have the capability to impede the implementation of lean manufacturing by creating a culture of distrust among their members. Pieterse (2007) also identifies unions as entities that resist change and view organisations with distrust. The power base of unions within organisations has become consolidated along political, family and sometimes even racial lines, thus strengthening this potential barrier.

Organisational structures could also be a barrier to implementation as conditions which have prevailed for long in certain organisations act as a limit to change preferring rather to maintain old paradigms (Vallas, 2008).

This could be linked to older style centralised organisations that do not allow flexibility in the way the work is performed and remain focused on a strict regimen of work routines. This limits the ability of shop floor involvement and ultimately steers any efforts towards change in the wrong direction.

Middle managers could also be viewed as a potential obstacle to the implementation of lean. This can be viewed from the perspective of a middle manager who views the new work regime as a threat to his/her existing status and authority (Vallas, 2008).

Interestingly, racial and gender differences also had some impact on the acceptability of participating in a change program from an individual who differs in gender or race. In the context of South Africa, gender and race differences are found in many manufacturing concerns (Vallas, 2008).

Union involvement in lean implementation may have some impact on the success or failure of lean programs, provided there is agreement between high level managers of companies and union representatives who are actively involved from the lowest levels first. The reason why the lower levels are so critical to the success of implementation is that they ultimately serve as the drivers of continuous improvement and are thus the process owners (Vallas, 2008).

## **2.2 Prominent Barriers to Lean Manufacturing**

The preceding literature identifies many sources of obstacles to lean implementation. The literature emphasises certain barriers that would create serious implementation issues if they are not present or in the correct form required for successful implementation. The recurring nature of these barriers in the various literature sources consulted indicates their prevalence in industry. It also identifies possible relationships between these prominent barriers and the possible inducement that these barriers may have on other less prevalent ones. These prominent barriers are:

- i. Culture of the organisation
- ii. Knowledge of lean manufacturing in the organisation. This relates to the implementer, shop floor workers and unions who are all actively involved in the lean process.
- iii. Leadership style
- iv. Unions which may impede or facilitate lean progress
- v. Language and communication barriers.

These prominent barriers may be further aggravated by organisational structure and financial investment in the lean drive. Unions, which may or may not have a direct impact on each of the barriers, identified in the literature sources will be studied as a major part of this research with the aim of the entity as either having a positive or negative effect on lean implementation.

### **2.2.1 Lean Organisational Culture**

Achanga et al. (2006), indicate that a supportive organisational culture is essential for the implementation of lean manufacturing. They go on to state that high performing companies are those with a culture of sustainable proactive improvement.

It can be determined that an appropriate organisational culture is a crucial requisite for lean implementation initiatives. A further study of the text reveals that management ability to operate in a diverse culture is highly important. Managers are required to have a good command of communication skills, long term focus and an

understanding of the strategy and vision of the organisation. The goal of management is to convince the workers of the vision, thus gaining their acceptance and creating a culture that can facilitate lean implementation. Many small to medium enterprises reflect the personality of their owner/manager in their culture and this can be viewed as a constraint.

Vallas (2003) states that the boundary between hourly and salary workers can affect organisational culture to the degree where lean implementation fails. This can further be attributed to management orientation within the organisation if management does not communicate the restructuring initiatives clearly. This supports Achanga et al. (2006) findings of lack of management communication having a direct impact on lean progress.

Lean systems not only claim to enhance efficiency and product quality, they also promise to free workers from long-established dictates of centralised control (Vallas, 2003). Although lean requires involvement from the shop floor personnel in the drive towards continuous improvement, management inability to grasp this methodology serves as the ultimate barrier, creating resistance to change by ignoring the empowerment due to shop floor workers who are ultimately required to drive a lean culture. This breakdown in communication serves as the basis for failed lean programs where culture is the limiting factor towards progress. Vallas (2003) further explains that the lean philosophy is a shift away from “rational” to “normative” managerial rhetoric.

Lucey (2008) summarises the impact of culture on lean by analysing the reason for company culture not being supportive. He alludes to lack of employee participation in lean implementation not being at a high enough level to be accepted. Employee attitude is affected by the approach adopted within the particular organisation towards lean. If employees do not embrace lean culture, their participation will be affected by their unwillingness to fully commit to the principles of lean manufacturing.

### **2.2.2 Knowledge on lean manufacturing**

Lucey (2008) stated that the inexperience of the lean implementer is an obstacle to successful implementation. In many instances the lean implementer has differing roles within the respective organisation. This depends on the approach as well as

the strategic intent of the lean initiative. In some instances middle management will be responsible, in other instances it would be the shop floor team leaders and workers tasked with the job of implementation. Whatever the role or designation of the implementer, the base knowledge and approach has to be correct to ensure the concepts are transferred correctly and sustainability ensues.

The knowledge of the employees involved in the lean manufacturing initiative could be linked to the financial resources at the disposal of the company for the particular lean project. Companies with large investments in implementation are often more successful, as lean expert consultants are at times brought in to 'spearhead' the programs. It therefore stands to reason that one barrier could lead to another barrier. For example, the fact that inadequate lean knowledge is a barrier serves to support the other barrier which is the use of the correct lean tool for the correct problem.

According to Smeds (1994), an umbrella strategy is required that provides proper vision and guidelines. Without correct knowledge of lean concepts and their applicability in relation to the type of environment, an incorrect strategy may be employed. The ideal strategy would encourage bottom up learning and foster a culture of innovation. Change management also requires a certain skill set where lean implementers and management are required to sell their ideas within the organisation (Smeds, 1994).

Smeds (1994) highlights the importance of social simulation games where employees get to see the real benefit of the lean program thus bolstering their knowledge of the topic. Their involvement in a workshop structure gives rise to new ideas and creates ownership with regard to the program. This creates a positive influence towards improved technical knowledge of the lean concepts and a shift in the cultural acceptance of the drive towards continuous improvement (Smeds, 1994).

Knowledge of lean concepts is dependent to a large extent on training. Training can come in many forms, theoretical and practical. The knowledge of the lean implementer is crucial for implementation success. This knowledge relates to the approach, core understanding of concepts and the focus on change management as it relates to the strategic intent of the initiative.

Similarly, the understanding and knowledge of union representatives as related to the intention of the lean program have a major bearing on the perception of employees. Lean manufacturing serves to empower employees towards improved methods and working conditions. Union knowledge of the topic can impact on their assessment of a lean intervention. Subsequently this impacts on the union members' willingness to participate in the lean programs and creates a culture resistant to change should unions advise their members incorrectly.

### **2.2.3 Leadership style and its impact on lean implementation**

Previous literature indicated that when lean is implemented within organisations, change management is important in order to foster the culture towards acceptance of these practices. Leadership style ultimately acts as a driver of the change management process.

A robust change management strategy is required when implementing lean into organisations. This requires changing (transforming) the corporate culture (Vermaak, 2008).

It is critically important that the leadership of the organisation undergoing the implementation of lean is committed to and knowledgeable about the change management and implementation process.

Another important aspect related to the management and leadership of lean implementation is the resistance to change encountered as a result of managers and employees who have grown comfortable with the status quo (Vermaak, 2008).

Dubrin (2010) reports that effective leadership by an individual is displayed when high productivity, quality, customer satisfaction as well as job satisfaction are obtained from the team. Leadership may fall within two paradigms which are the level of consideration a leader affords his people and the level of structure initiated by the leader to guide the activities.

Leadership can broadly be divided into two distinct leadership styles, participative or autocratic. Participative leadership shares decision making with members and attempts to involve them at all levels of implementation (Dubrin, 2010).

Autocratic leadership seeks to retain most authority. In this style, decisions are centralised to the leader and team members are unable to share their ideas or participate in the decision making process (Dubrin, 2010).

Another type of leadership which holds opportunities for greater success in lean implementation is transformational leadership. The core theme of transformational leadership is the development and transformation of people. This supports lean manufacturing as the philosophy that is geared towards people driving the lean initiative. Transformational leadership, according to Dubrin (2010), transforms organisations in the following manner:

- i. Raising people's awareness
- ii. Helping people look beyond self-interest
- iii. Helping people search for self-fulfilment
- iv. Helping people understand the need for change
- v. Investing managers with a sense of urgency
- vi. Committing to greatness
- vii. Observing organisational issues from a broad rather than a narrow perspective
- viii. Establishing trust
- ix. Concentrating resources on the areas that need the most change.

An important character trait of transformational leaders is their charisma. Through this charisma a vision is created and people are inspired towards this vision. Cultural barriers, union involvement and resistance to change may be eliminated as barriers if the vision is accepted (Achanga et al., 2005).

According to Hey (2002), middle managers and senior managers play a pivotal role in managing enterprises towards change. According to Found, Dun and Fei (2009), effective implementation is dependent on leadership that embraces double loop learning within their organisations.

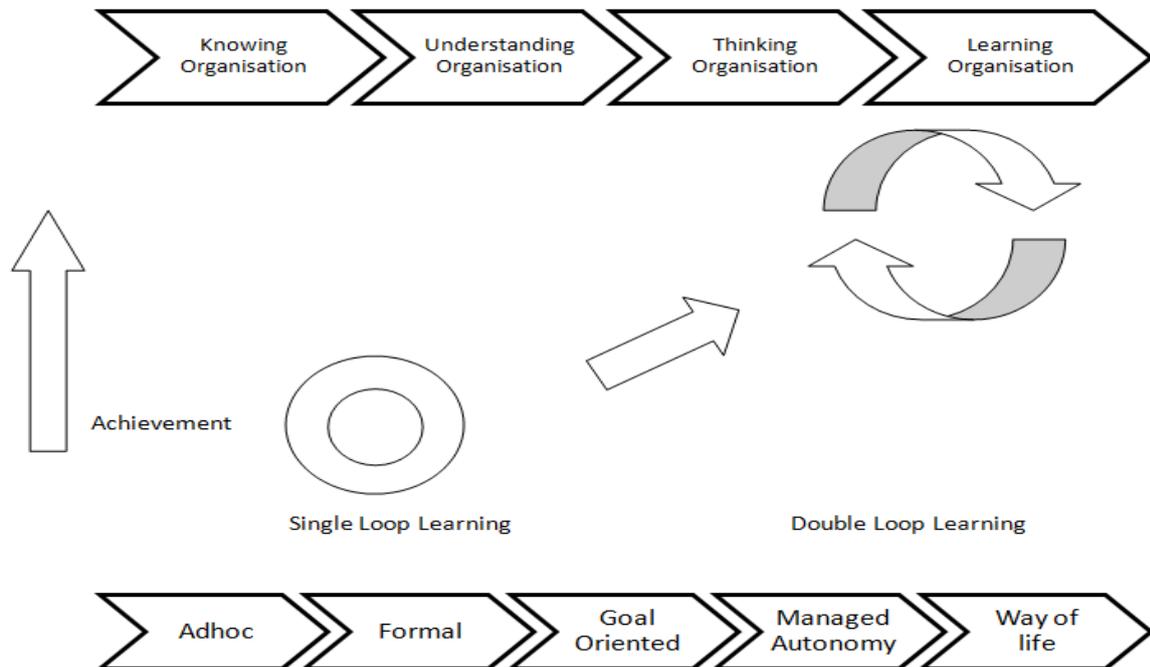


Figure 3: Adapted from Hines, Found, Griffins and Harrison (2008) depicting learning processes

Found et al. (2009) claim that without this switch to double loop learning, organisations do not become an organisation that fully accepts the lean philosophy. Both senior and middle management within organisations must adopt double loop learning in order to improve their leadership style. This will ultimately ensure sustainability of implemented lean initiatives.

#### 2.2.4 Language and Communication Barriers

Tracey and Flinchbaugh (2006) identify certain requirements that, if absent, could act as a barrier to implementation:

- i. Team development to support structure in the drive towards a lean culture
- ii. Effective communication and calculation of metrics
- iii. Communication amongst organisational levels
- iv. Managers clearly defining everybody's role in the particular lean implementation exercise
- v. Acknowledgement and celebration experienced in lean manufacturing.

Commitment of individuals also poses a potential barrier as individuals require their interest to be aligned towards lean goals. Therefore if individuals are not aligned in terms of rewards and recognition, they are not interested in the lean initiative. Communication is critical in this regard both in a bottom up and top down sense (Tracey and Flinchbaugh, 2006).

South Africa has eleven official languages. Since companies are required to practise diversity in recruitment policies, many firms have personnel with different first languages. Some employees are more challenged than others in overcoming language as a barrier to facilitate effective communication.

Language barriers can cause considerable problems in companies (Griffin, 2000).

Griffin (2000) identifies the following language and cultural barriers:

- i. Roles and status barriers caused by ethnocentricity
- ii. Personal space differences
- iii. Body language
- iv. Religion
- v. Personal appearance

Griffin (2000) goes on to state that language barriers go hand in hand with cultural barriers. These barriers often cause frustration and/or intimidation when communication is required for implementation of lean systems and lead to a lack of productivity.

### **2.3. Union impact on lean manufacturing implementation**

The Oxford Dictionary (2010) defines a trade union as an organised association of workers in a trade, group of traders or profession, formed to protect and further their rights. In order to better understand the role of unions in the success or failure of lean programs the union's opinion on the topic is required. The impact of union involvement will be investigated both locally in South Africa and internationally in order to gain an understanding of the effect unions may have on lean implementation.

An investigation into the views of lean experts towards unions in the drive towards lean implementation is also considered. The aim of this literature review on unions is to identify if there are differences in viewpoints (between lean implementers and unions) on the intention of lean implementation and how union involvement may aid or hinder the process based on these views.

### **2.3.1 Positive influence of unions on lean implementation**

Stuart (2000) highlights the fact that unions allow employees an enhanced sense of control and power over their jobs. Employees also view unions as a primary source of communication. Although lean philosophy requires communication from management as part of its strategy, its communication is not considered as effective as that of the unions. The study conducted by Stuart (2000) also indicates that unions are important for successful implementation.

Positive impacts on productivity attributable to unions stem from a study conducted by Mefford (1986). The results show that union involvement resulted in better management. This management was more attuned to the needs of the employees and the unified voice afforded through unions resulted in lower attrition rates and subsequent higher productivity rates. Workers in unionised facilities appeared to be more skilled, experienced and motivated than workers in plants that were not unionised (Mefford, 1986).

The positive effect of unions on the workforce can be traced back to better management practices leading to improved skills, motivation and experience. Higher wage rates and formalised labour relations practices have caused managers to place more emphasis on efficiency and human relations.

The idea of a positive influence of unions on productivity is further supported by Bemmels (1987). Bemmels (1987) indicated that unions allow for more effective communication leading to higher productivity gains in unionised factories.

Shah and Ward (2002) also reveal through a study that unions when present in plants do not have a significant impact on the success of lean implementation.

Katz (1985), Capelli and Sherer (1989) have also provided some evidence supporting the fact that unions have been helpful in the implementation of lean systems.

### **2.3.2 Negative influence of unions on lean implementation and productivity**

Companies which have a unionised workforce are subject to higher costs than companies with a non-unionised workforce (Law and Tang, 1999). Law and Tang (1999) make the statement that the tactic employed by the unions to get their way is linked to a divide and conquer strategy. Differences amongst employee opinions are highlighted and unions ostracise those who differ in opinion. This creates a demotivated workforce that distrusts management and does not proactively engage in team work.

Brunello (1992) states that workers in unionised United States firms work shorter hours than workers in non-unionised firms. This has a direct negative impact on the productivity of the company. Unions also act to reduce profitability of organisations. Similarly unions in Japan also act to reduce productivity and profitability of companies they are involved in. The study also draws attention to the fact that the size of the company determines the extent to which unions have their negative impact. Smaller firms tend to be impacted less than larger firms in the US and Japan (Brunello, 1992).

Krauss and Matuzak (2001) provide a US case study on cell manufacturing implementation. The case reveals that union involvement impeded the progress of the initiative. Subsequently, the company concerned allowed proposals from the unions, namely to advise, consult and give inputs. The restrictive nature of union policies caused the company, however, to bypass the union using a technicality (the broad management rights clause). This breakdown in communication occurred even though cellular manufacturing led to making the work more interesting for the employees and enhancing their skills. The union response to this particular case was that management required workers to speed up their work cycles. Management requested the unions to sell the concept to the workforce. The union identified this as

an illusion by management to let the unions give a perceived input when in fact the decision had already been made.

According to Kirkmeyer (1986), union focus is based on issues pertaining to wages, benefits and employee security, while issues such as job enrichment, task variety and feedback have not been a priority. Workers in unionised facilities have felt less autonomous than their non-unionised counterparts. This leads to the assertion that unions have a negative effect on job content.

### **2.3.3 South African and international trade union views on lean manufacturing and related concepts**

Chapter Four in the report on the future of unions (Heinz, 2010) in South Africa reflects the view of COSATU towards lean manufacturing. The report sees globalisation as the reason South African firms are adopting lean practices. The report identified this trend as causing:

- i. Growing divisions between the working class
- ii. Deteriorating conditions of work
- iii. Deteriorating conditions of wages.

COSATU seeks to transform the private sector in South Africa by making it a stakeholder sector, a sector where the interests of shareholders, workers and society are considered. The union seeks to improve the innovation, skills, work practices and management practices of industries in South Africa. However, negotiated agreement between unions and management should precede changes to workplace innovation and development. These changes are proposed to the National Productivity Institute of South Africa to facilitate these agreements between unions and management of companies toward joint goals.

An important point made in the report is the gap between blue collar and management employees within manufacturing concerns in South Africa. According to the world standard, South Africa is rated as one of the highest. It is therefore also high management cost burdens that contribute to low productivity and not exclusively to blue collar worker inefficiency. The report proposes rationalisation of management structures and re-distribution of savings to shop floor employees.

Statements made in the report by Heinz (2010) support previous literature in that union involvement in firms results in:

- i. Increased management effectiveness
- ii. Innovation
- iii. Increased investment in training and skills development
- iv. Worker participation.

The report indicates COSATU's rejection of strategies for enhancing competitiveness is because of deterioration of workers' rights and labour standards, fragmenting the labour market or decreasing wages.

COSATU denies that is an obstacle to workplace productivity improvement and blames management, government industrial policy and low capacity utilisation as the main drivers behind low productivity.

The union does not deny its contribution and responsibility towards workplace productivity improvement, provided the proper stakeholder rights are instituted. These rights are for employee access to a portion of the savings made by the productivity and efficiency improvements (Heinz, 2010).

Barchiesi (1998) indicated that the move towards innovation combined with authoritarian structures and managerial culture created suspicion among the union members in a study conducted in a South African OEM (Original Equipment Manufacturer).

The study identifies that workers and unions feel that the cost cutting results in extra work and extended working hours through the elimination of breaks. Workers just did not see the rewards of the new lean philosophy.

The union views the lean production system as a 'Taylorist' endeavour. The system can be seen to allow the worker only the most basic inputs, thus reducing their cognitive skill involvement (Barchiesi, 1998).

National Union of Metal Workers (NUMSA) organiser Chris Lloyd rejected the concept altogether referring to the concept of lean as advanced 'Taylorism' (Barchiesi, 1998).

Chris Lloyd further explains that work intensification combined with the limitation of the workers' active intervention provides little for workers to develop a sense of participation in the performance of the company towards quality enhancement.

The research by Barchiesi (1998) shows how workplace relations with regard to lean are impeded by managerial authoritarianism. The structures applied in the organisations identified in the research are not conducive to continuous improvement. Consequently, union involvement led to negative perceptions regarding the lean systems that were implemented.

Barchiesi's (1998) research can be linked to the COSATU report on the future of unions as outlined in Heinz (2010). It states that until management ideologies change and a full stakeholder approach with a win-win situation is considered, union involvement will not be entirely supportive. With the militant approach of unions, this could be the deciding factor between successful and unsuccessful implementation as work involvement and buy-in is crucial for sustainability of implemented lean systems.

It is also interesting to note that unions do seek worker development and a move towards active participation of their members. However, the fact that management approaches to implementation do not facilitate any real benefit to employees raises the question of whether the lean philosophy is truly understood by South African companies.

During the 1970s through to the 80s, US trade unions accepted the notion of lean and supported it. This was in response to the stagnation of US markets which led to the drive for cost reductions. Employees had to work longer hours and accept more work. US unions allowed these practices to continue in the hope that no retrenchments would result. American companies retrenched workers anyway. This led to unions taking a more militant approach in order to maintain member support. (Moody, 1997)

Globally unions view the components of lean manufacturing of participation, social partnership and empowerment as disarming their bargaining power.

Unions are aware that they have the capability to disrupt lean initiatives through various forms of industrial action (Moody, 1997).

### **2.3.4 Lean objectives versus union objectives**

Lean seeks to develop the skills of employees in order to help them to work better. The philosophy is not geared at reducing the workforce, a concern of many union representatives. In fact, it aims to foster collective goals towards the success of the company through the growth and development of the workforce (Flinchbaugh, 2001)

There are success stories such as the NUMMI plant in California where concept implementation of lean, combined with union involvement, has led to dramatic success.

If lean is done correctly, one can reduce costs without reducing the workforce and subsequently create more jobs through the competitive nature of the business (Flinchbaugh, 2001).

Central to the theme of lean is employee participation and involvement in a system that suits the individual and the organisation considering variables such as cost, safety, quality and morale.

### **2.3.5 Lean manufacturing a threat to unionisation**

Babson (1995) established that the benefits of thinking and team work to achieve lean goals have definitive benefits for the development and skills of workers. Because of these benefits unions lose control of job content and thus job control. Should unions oppose lean production and strive to maintain job control, both the workers and management will lose the benefits offered through lean manufacturing. Additionally, unions may lose the job security they ultimately seek for their members.

Unions might therefore attempt to seek a role in strategic direction of the firm. Managers through lean are able to effect positive changes to the motivation and commitment with the correct approach to lean implementation. This places management in direct competition with unions for worker loyalty and for acting as the voice of the people (Babson, 1995).

Companies which adopt lean practices that cater for the needs of employees are able to realise greater economic benefit through win-win situations. This reduces the power of the unions and ultimately renders them useless.

## 2.4 Summary

The literature shows that many barriers exist relating to the implementation of lean manufacturing. These barriers may have varying levels of impact on implementation. It may also be deduced that there are certain relationships between the various barriers identified.

Union involvement in firms also poses a potential barrier the impact of which is dependent on many variables which include management style, stakeholder involvement, outcomes of the initiative and knowledge of the lean implementers.

Unions in some instances also accept the need for workplace improvements but differ on the approach taken and the outcome on the workforce as pursued by South African companies.

Lean manufacturing potentially poses a threat to the fundamental reasoning behind union existence. This is due to the fact that lean manufacturing strives to:

- i. Enhance employee skill and improve communication lines between management and employees
- ii. Improve working conditions for employees
- iii. Promote and foster team work
- iv. Align employee goals with company goals and thus increase commitment and motivation levels amongst employees

Unions argue that lean manufacturing seeks to remove the freedom of workers to choose their preferred method. Unions claim that lean production may also lead to job losses. Ineffective leadership, language barriers and inadequate lean knowledge of implementers may be to blame for trust issues between unions, employees and management. This ultimately leads to the breakdown of the lean intervention.

Since unions endeavour to be the single voice of the employee, union involvement becomes a critical variable in the communication, culture, and employee attitude required for successful implementation. The effectiveness of the lean implementer's leadership skills in transferring lean knowledge to the shop floor together with union support also becomes important.

## **Chapter 3 – Research Design**

## Chapter 3 – Research Design

### 3.1 Introduction

In Chapter Two, various literature sources were reviewed relating to barriers that impede lean implementation within organisations. Many barriers were identified and through logical deduction it was found that some barriers may potentially induce totally different barriers to lean implementation.

The main barriers identified from sources include:

- i. Trade unions
- ii. Organisational culture
- iii. Leadership and management styles
- iv. Lean implementer knowledge on lean concepts
- v. Incorrect strategic approach to implementation
- vi. Poor communication between organisational levels
- vii. Structure of the organisation
- viii. Racial and gender issues
- ix. Financial investment in lean programs

From the sources studied, union involvement appears to be a limiting factor in some organisations and in others an enabling factor for lean implementation. Unions can create distrust towards management, or they could improve communication as a unified voice of the people.

The distrust caused by unions had a subsequent ripple effect on the attitude of employees and therefore the culture regarding lean manufacturing from the shop floor members who are ultimately expected to be the owners of the continuous improvement process.

Lean manufacturing, as defined in Chapter Two, may in essence lessen the need for union representatives. The literature pointed out that lean seeks to enable employee control of the work flow, while allowing improved communication between levels of authority within the organisation.

The counter argument from unions and other literary sources indicated that although lean may propose worker autonomy, in practice it propagates standardisation which is in direct contrast to the participation required through lean.

### **3.2 Research Paradigm**

The research investigation follows the qualitative paradigm with elements of the quantitative paradigm to support the results obtained through the research instrument (methodical triangulation). There is a strong social aspect to the research which focuses on the stakeholders involved in the implementation of lean programs. There is a definite bias from stakeholders as to possible causes of these particular barriers to lean implementation.

A structured research design methodology as employed in the quantitative paradigm would be restrictive and could ignore important findings; therefore triangulation was necessary in order to extract enough information from stakeholders that would offer valuable insight into the issues facing lean implementation.

The researcher interacts regularly with lean implementation as part of his duties at his current employer. He is therefore directly part of what he observes when implementing lean programs within automotive component suppliers. The research was subject to many views, ideas and variables that would not be accurately gauged through quantitative analysis solely. The aim was to obtain the views and opinions of those individuals directly and indirectly involved with lean implementations.

Since the literature strongly indicates that there is a disparity in perception between trade unions and management on the value and concept of lean, perception has been identified as a key factor in determining the impact of the various barriers and possible relationships that may exist between them. The possible relationships between barriers and the prevalence of these barriers in the industry being researched have been analysed through both qualitative and quantitative data analysis.

The research is also inductive with the aim of interpreting the views of lean implementation participants. Since a complex social aspect is involved, ignoring the perceived views of the participants in this research would affect its validity.

According to Collis and Hussey (2009), the ontological assumption is qualitative when the reality is subjective and multiple as seen by the participants. Since there are differing views from the participants in this research, it becomes clear that the ontological assumption supports interpretivism as a research paradigm.

The epistemological assumption is also qualitative when the researcher forms part of what is being researched. Since the author is involved in lean implementation on a regular basis, he is directly involved with barriers to implementation as well as union interaction (Collis and Hussey, 2009).

The axiological assumption is qualitative when the research is value laden and subject to bias. There is definite bias from the different stakeholders involved in this research further supporting the qualitative aspect of this research.

The methodological assumption is both quantitative and qualitative for the following reasons:

- v. The research is subject to the study of mutual and concurrent shaping factors with a design that emerges as the research progresses (qualitative).
- vi. The research is context bound (qualitative).
- vii. Patterns and theories are developed for clearer understanding of the barriers and their subsequent reasons for existence.
- viii. The research has quantitative elements due to possible relationships that may exist between barriers (Collis and Hussey, 2009).

The selection of a dominant qualitative paradigm with a portion of the research focused on quantitative data analysis ensures greater validity in the findings. It will establish if relationships exist between the different barriers that may be present when implementing a lean program.

The social impact on barriers may be compromised should this research be solely quantitative. Conversely, the critical relationships between barriers may be overlooked with a focus solely on the qualitative paradigm. By establishing

relationships and comparing these with the opinions and perceptions of stakeholders, a clearer understanding and possible consolidation of barriers and their causes may occur.

### **3.3 Research Design**

Aspects from the phenomenological approach forms part of the design as theories need to be developed taking into consideration themes that emerge through the research instrument. The phenomena being researched relate to the barriers facing lean implementation and subsequent possible relationships amongst other prominent barriers in the automotive component sector in South Africa (Saldana, 2009).

Following on from the results obtained through the research instrument, various recommendations will be developed to assist those directly involved with the phenomena.

In the literature review various barriers were identified that may be equally, less or more prominent in the South African manufacturing environment. Although these barriers are considered in the research, they are most certainly not confirmed in the South African context as the only barriers. The use of qualitative exploratory research is used to derive additional theories and causes of the barriers and to possibly identify new barriers.

Additionally, the literature on unions highlighted a militant approach that is openly apprehensive of the concept of lean manufacturing. The involvement of unions within component suppliers in lean programs therefore required the researcher to identify if the unions were a barrier to lean first and foremost and then to establish if they may be causal in the creation of further barriers.

The information analysed from questionnaires that have been themed accordingly presented findings that will show relationships and patterns amongst these barriers. Based on the data analysis, deductive reasoning will be employed to flesh out theories and provide valid recommendations.

Conclusions will be anchored by supporting data of a quantitative nature that further validate the findings. In no way are any assumptions made that are not supported by the literature reviewed in Chapter Two.

By analysing the responses of the participants in this research the following ideas seek to be expanded in order to gain clarity on the phenomenon and formulate theories:

- i. Do South African component suppliers also face similar barriers to lean manufacturing as identified in the literature review in Chapter Two?
- ii. Are unions a threat to lean manufacturing in South Africa or do they provide promise of support for greater competitiveness?
- iii. The views/perceptions of trade union NUMSA, managers and shop floor workers on the current approaches to lean manufacturing within component suppliers.
- iv. The deductive exploration of possible causal relationships found between the barriers presented in the literature review.

The experiences and opinions of the stakeholders involved will be identified through the open questions posed in the research instrument (Saldana, 2009). This offers the necessary flexibility as many direct and indirect variables are present. Opinions from stakeholders involved directly in lean as well as those involved indirectly in lean programs will serve as the basis for the contrasting of conclusions drawn from the literature and researcher experience. The combination of an inductive literature study and deductive conclusions has systematically been compared with experiences analysed through the data collected from stakeholders. Following on from this, prescriptions and recommendations will follow in line with the findings (Collis and Hussey, 2009).

Relationships that may have potentially existed between barriers were tested against the collected data in order to verify whether a relationship actually does exist.

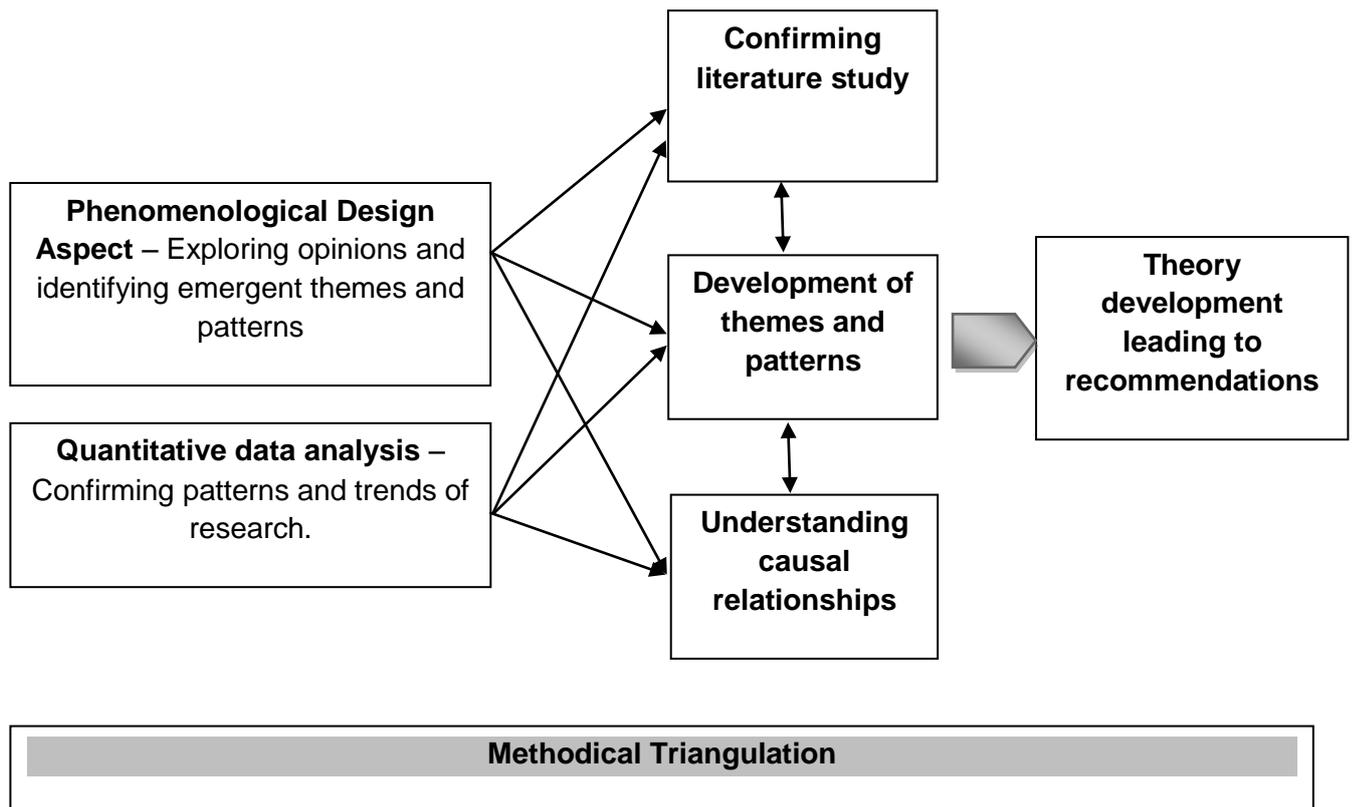


Figure 4: Researcher's own model illustrating research design

### 3.4 Research Questions

The purpose of this study was to understand the impact of unions and other barriers that may or may not be related to lean manufacturing implementation and its sustainability. Various component manufacturers participating in this study have had some sort of lean implementation programs either currently, in the past or planned for the future. In order to develop relevant theories on the subject, aspects of phenomenology have been used in conjunction with various quantitative measures to establish these themes and patterns pertaining to the subject under investigation. Theories were derived from the data collected through the research instrument in line with the substantive theories as propagated through the phenomenological approach in order to identify emergent themes and patterns.

Research questions have been developed to provide focus to the research that have allowed the respondents to answer various enquiries relevant to the phenomenon being researched.

The process followed has been adapted from Collis and Hussey (2009).

The process sought to establish the mechanism used to ensure that the research questions were targeting the phenomenon being researched thereby ensuring its relevancy which will further be supported through validation of these research questions. The research questions have thus be expanded into a series of open-ended and close-ended questions and presented in the research tool described in 3.6 of this chapter.

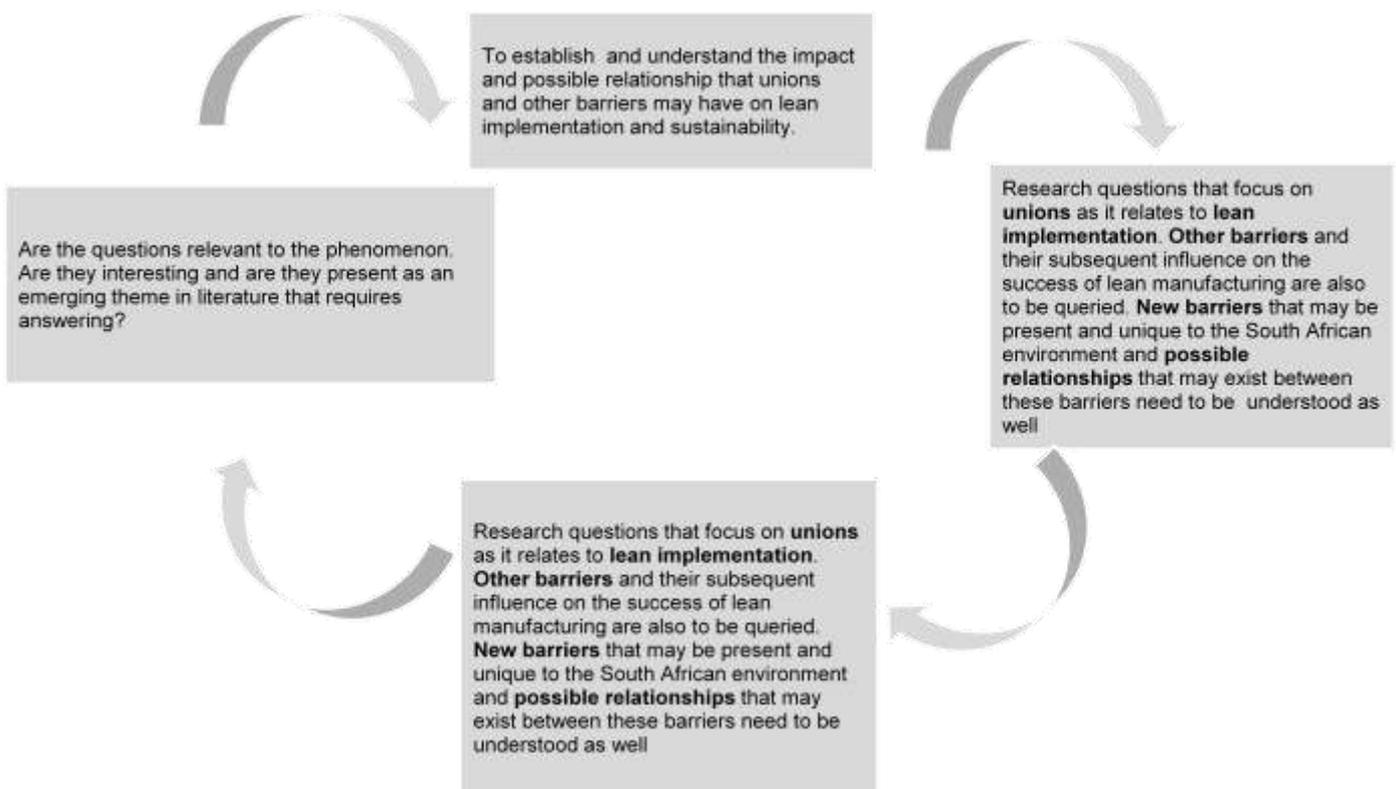


Figure 5: Research question intentions adapted from Collis and Hussey (2009: 118)

### 3.4.1 Main research question

*What is the impact of unions and other contributing factors in sustainable implementation of continuous improvement programs within the Eastern Cape automotive component suppliers?*

### 3.4.2 Secondary research questions

➤ *Sub-question 1*

*To what extent do trade unions influence the success of the implementation and subsequent sustainability of lean manufacturing?*

➤ *Sub-question 2*

*What other contributing factors are dominating unsuccessful implementation and is there a relationship between these factors and unions?*

➤ *Sub-question 3*

*How can structures and approaches to implementation be optimised to be more conducive to successful implementation?*

➤ *Sub-question 4*

*Will union involvement in the implementation of lean lead to more success in terms of sustainability of lean programs?*

### 3.5 Sample Size

Judgemental sampling seeks to select participants involved in the research who have some knowledge of the topic being studied. Because of the many stakeholders in a lean intervention, it was deemed necessary to include respondents from:

- i. Senior Management: They provide the strategic direction and are the decision makers in a drive towards a lean culture. In some instances they are the process owners. In other instances they simply make the decisions to adopt

lean practices. This level of the organisation is where the leadership approach can affect the change management process and thus the implementation.

- ii. Middle management: The literature review highlighted the importance of middle management in the implementation of lean practices. This level of the organisation usually interacts first hand with lean and affords staff the time and resources to effect the necessary change. Trust from shop floor staff and union involvement are critical at this level as communication becomes a prime driver of acceptance of the culture change required for lean. Lean implementers usually fall into this category.
- iii. Shop floor personnel: This is the level of the organisation that needs to embrace the lean philosophy. Through effective training and simulation exercises, employee involvement may lead to commitment. This commitment manifests itself in continuous improvement as employees start to determine their own work regimen. The trust towards the organisational leadership coupled with effective training and facilitation of employee efforts towards lean are salient points within this sample set.
- iv. Trade unions: The stance towards lean taken by trade unions could either assist or derail lean efforts. Unions act as the single voice of employees of unionised firms and as such have a tremendous effect on employee perception towards lean. By creating a climate of distrust, change management efforts may fail.

Characteristics of the sample also included:

- i. The supplier had to be unionised
- ii. Knowledge of lean needed to be present. This knowledge could stem from past attempts, current attempts or future planned attempts to implement lean
- iii. The supplier had to be an automotive component supplier in the Eastern Cape region.

The sample included:

- i. Eight (8) senior managers (managing directors/plant managers)
- ii. Eight (8) middle managers (lean implementers, coordinators, managers)
- iii. Eight (8) trade union representatives
- iv. Eight (8) shop floor personnel.

From this sample thirty-two (32) respondents were required to participate in the research. The sample covered both strategic representatives, implementers, process owners, trade unions and other support personnel across functional areas. The responses from this sample adequately assessed the barriers to implementation and even highlight additional barriers not discussed in the literature presented in Chapter Two of this research.



Figure 6: Researcher's own sample selection breakdown

### 3.6 Research Instrument

The aim of the research instrument is to gather the thoughts and opinions of a target group that will provide information relevant to the research questions posed.

The potential barriers studied in this questionnaire were:

- i. Culture of the organisation as a barrier to lean implementation
- ii. Communication in the organisation as a potential barrier
- iii. Leadership style and leader ability of lean implementer and shop floor team leaders
- iv. Knowledge and experience of the lean implementer, union representative and middle management involved in the lean implementation as a possible barrier
- v. Unions as a possible barrier or influence in creating other barriers towards lean implementation.

The questionnaire seeks to identify the severity of each of the above variables as a barrier in lean implementation. The questionnaire also served as a means to test relationships between the variables and unions.

The questionnaire was designed to include both open-ended and close-ended questions. The intensity rating scale and frequency rating scale were also used to measure each answer provided. Multiple choice questions were incorporated to crosscheck certain questions

The intensity rating scale presented in the questionnaire starts at 'strongly agree' (1) and extend to five (5) which is 'strongly disagree'.

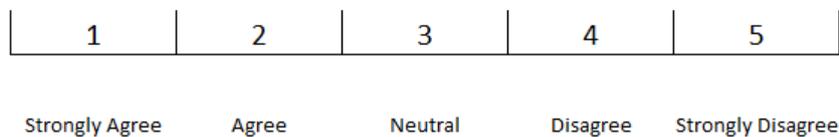


Figure 7: Intensity rating scale adapted from Collis and Hussey (2009)

By structuring the questionnaire in this manner more space was saved and the structure was easier for the respondent to understand and complete.

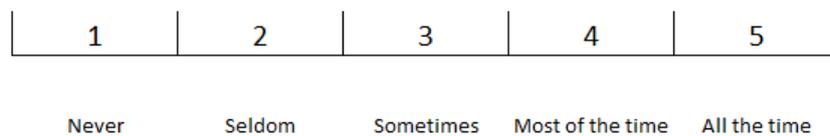


Figure 8: Frequency rating scale adapted from Collis and Hussey (2009)

Through the combination of various questions, the scales anchor certain responses and allow for simplicity in answering questions. The approach taken to include the scale variants allows for discrimination in the responses and also removed ambiguity. Multiple choice questions further crosschecked certain questions.

Validity of the questionnaire was tested through a pilot study consisting of four experts in a focus group setting. The questionnaire was reviewed in light of the responses from the focus group feedback.

Questions were reviewed and in some instances eliminated to ensure that only the most relevant questions are posed to respondents in order to gain the right information.

The following process adapted from Collis and Hussey (2009) to review and eliminate questions in conjunction with the pilot study findings resulted in a questionnaire with high validity to the research questions posed:

- i. Does the question measure some aspect of the research question?
- ii. Does the question provide some information needed in conjunction with some other variable?
- iii. Will the respondents understand the question and in the same way?
- iv. Will most respondents have the information to answer it?
- v. Will most respondents be willing to answer it?
- vi. Is other information required to analyse the question?
- vii. Should this question be asked of all respondents or only a subset?

Once reviewed and adjusted in line with focus group findings and the elimination of irrelevant questions, the questionnaire was emailed and in some instances hand delivered to the selected respondents. The questionnaire can be found in Addendum 1.

### **3.7 Reliability**

The manufacturing environment within which the study takes place is subject to many variables such as:

- i. Culture
- ii. Management changes
- iii. Organisational policies and procedures
- iv. Union involvement
- v. Dynamic changes in organisational structure

The approach taken in this research was predominantly qualitative where the perceptions and opinions of the respondents were used to develop certain theories. Perceptions change as the variables involved change. The biases that contribute towards the results of this research may also change. In light of these dynamics, similar observations made by different researchers may not be guaranteed as the research environment is not a static one. Therefore, reliability may be low within the context of the study being performed in this research.

### **3.8 Pilot study content analysis and validity testing**

#### **3.8.1 Why was the pilot study conducted?**

A pilot study has been conducted in order to validate the relevancy of the questions contained in the questionnaire. The research questions identified have been incorporated into a questionnaire that attempts to determine vital information pertaining to each research question. The questions are required to provide enough information to formulate a theory and to compare the results of the questionnaire with the literature review findings contained in Chapter 2.

The research arrives at a few conclusions that need to be tested and the validity of the questions are of critical importance to ensure that the conclusions drawn from the results of the study are appropriate to develop a theory that explains the phenomena of lean implementation failures under review.

Should the questions contained in the research instrument be flawed, then the subsequent theories that have been formulated are incorrect. It is therefore vital that all elements of the questionnaire be reviewed by experts in the field to ensure that this research addresses the phenomena adequately.

A focus group approach was used. This approach allows for two-way feedback and gathers valuable insight into the design of the questionnaire. It also allowed the researcher to explain the rationale for each question so that focus group participants clearly understood the aims of each question. This then allowed the researcher to

question the rationale being used and make subsequent revisions in a timely manner.

### **3.8.2 Who were involved and why?**

Two senior managers and two lean implementers were interviewed and requested to complete the questionnaires and provide comments in a focus group setting. The exercise took approximately two hours for a full feedback session on the questionnaire design and relevancy analysis. The individuals involved in the pilot study have the necessary industry experience in lean implementation and are familiar with barriers based on previous interventions where they were directly involved. The split between two senior managers and two implementers sought to ensure that biases were not prevalent in the group. Lean implementers provided the hands-on guidance to the questionnaire design and development and the senior managers provided strategic insight relating to the intentions with which each question was posed. The pilot study allowed the expertise of participants to critique the questions on the grounds of:

- i. Logical Flow – Do the questions flow seamlessly from the research questions?
- ii. Structure and style of the questionnaire – Is the language and writing style unambiguous and clear to understand? Is the questionnaire engaging to the respondent?
- iii. Ease of completion – Is the questionnaire easy to complete?
- iv. Relevance – Are the questions relevant to the research being done based on expert opinion?
- v. Additions – Are all the appropriate variables being considered?
- vi. Do the questions posed anchor certain responses?
- vii. Data analysis – Do completed questionnaires provide enough information to formulate the theories anticipated in the framework.

The responses from the focus group participants were collected and reviewed with all the comments being documented. The results of the pilot study were used to finalise the questionnaire to ensure high validity in the findings. The qualitative

aspects combined with quantitative aspects need to combine in such a way that they support each other.

Through the results, the illumination of data improved to ensure that findings were thorough enough and allow for respondent perceptions to be fleshed out. Establishment of a clear understanding of the interrelationships contained within the barriers affecting lean implementation success discussed in this chapter was also a key element and must be shown through the questionnaire results.

### **3.9 Results of the pilot study**

#### **Logical Flow – Do the questions flow seamlessly from the research questions?**

All the respondents agreed on the logical flow of the questions presented in the research instrument. The division of the questions into three sections afforded the respondents the ability to clearly define the reasoning for each section. The flow has no build up but maintains a steady pace asking pertinent and relevant questions. The focus group agreed that the questions are logical in that they seek to identify the opinions and also provide the necessary discriminatory responses required in order to draw conclusive information from the completed research questionnaire. The first section on the impact unions have on the implementation aspect of lean manufacturing was well received. Focus group members highlighted that the questions appear neutral and never seek to enforce an opinion on the topic. All the questions in this section were agreed on. Initially question three was debated as to whether culture must be stated to be impacted positively or negatively, however it was later agreed that this could contribute to bias and the next question (4) allows for the discrimination to flow naturally.

#### **Is the language and writing style unambiguous and clear to understand and is the questionnaire engaging to the respondent?**

A focus group member raised some concern about the ambiguity contained in questions 16 and 17. Question 16 relates to middle management and one of the focus group members required clarity as to why this variable only was considered.

Reference was made to the evidence presented in the literature review upon which agreement was reached that this variable was in fact valid as a potential contributor and needed to be posed in the manner presented.

Question 17 was made clear to the same focus group member as to the organisational structure being a barrier with too many levels and the central versus decentralised paradigm being under review in this question. Seventy-five percent of the respondents agreed that this question must be present. Small grammatical changes were made to ensure ambiguity was removed.

All focus group members agreed that the questionnaire was interesting to complete as it related to topical and current matters that affect lean within the South African context, which is core to the theme of this research.

### **Ease of completion – Is the questionnaire easy to complete?**

One hundred percent agreement was reached by members that the questionnaire was easy to complete. Simple scales and multiple choice answers are used that are clear and use simple language to convey each question. The division into sections supports this as does the length which was measured as approximately sixteen (16) minutes for all focus group members to complete the questionnaire. The question was posed by the group regarding the nature of respondents. Since the research is judgmental in its sampling, the respondents will be covered from high level down to shop floor to ensure that an accurate representation of responses is afforded to all stakeholders in the implementation process and to ensure that bias is counteracted in the process.

### **Are the questions relevant to the research being done based on expert opinion?**

Of cardinal importance in this research is the relevancy of questions posed. The relevancy was gauged based on the research questions designed from the central research question. Each question was tabled accordingly and various points surrounding firstly importance and then relevancies were discussed, especially the relevancy of questions thirteen (13), twenty-one (21), twenty-two (22) and twenty-three (23).

These questions were deliberately placed at the end of the instrument as they focus on some indirect barriers (investment in lean which may be affected by unions or past failures). Trust as measured through question twenty-one (21) is important as trust is often affected by unions. The open response below this question will allow for opinion based answering that will support theory development. Twenty-three (23) is more focused on how the unions respond; this will show their level of understanding of lean concepts within the manufacturing environment.

Question thirteen serves to identify a particular relationship but does not seek to link up certain barriers as they may be interconnected at some level that may require further research in future as to what causes the relationships to occur if present and why. The question still remains relevant and crucially important even though a relationship if present would be identified and also shown in terms of the related variables.

### **Additions – Are all the appropriate issues being considered in the questions of the instrument?**

An additional question has been added based on the focus group recommendations. The question will seek to determine whether respondents feel that lean manufacturing leads to job losses. Since this is central to unions, it will add to the importance of this research in terms of union and management opinions.

From the focus group changes were made to the use of certain words to avoid bias. Additionally, certain questions have been revised but still adhere to the central theme. The revisions are to ensure easier understanding on the part of respondents since the sample set is varied. All the research questions appear to be adequately covered.

Certain questions are anchored by other questions in the research instrument. This ensures further validity and greater flexibility in establishing relationships when formulating theories in the research conclusions.

The focus group agreed that the data analysis of the proposed thirty-two respondents would be enough to provide good results. The analysis tools used will need to focus on obtaining opinions to support the formulation of theories which all

group members agreed was achievable from the questionnaire presented in its final form.

Queries regarding how the data would be analysed were posed. This related to using the correct techniques to extract the information and to ensure that the analysis is also relevant. The use of the Microsoft Excel package was posed and agreed upon to present a graphical analysis of responses. Additionally the use of thematic analysis was used to establish relationships and theories that would prove useful and support the quantitative data.

### **Questionnaire layout**

The division of the questionnaire into three sections allowed for easier data analysis and linkages in order to establish themes and to crosscheck certain answers to questions with other answers that may have a relation.

- i. Section 1: This section seeks to determine the impact that trade unions in particular have on the organisation. The aim is to determine if they have a negative or positive impact firstly, then their current level of involvement from a lean implementation perspective. The culture of the organisation is also queried and how unions may influence this leading to certain other barriers such as employee attitude and trust within the organisation. It also seeks the opinion of suppliers who through constructive questioning indicate whether they want unions involved at all. This section is important as it would be used to establish the link between unions and lean and other barriers that will be defined through sections two and three.
- ii. Section 2: This important section seeks to define other contributing factors as it relates to lean implementation and also the stance of unions within the organisation. Leadership as identified through the literature review may have an influence on unions, where leaders who are more transformational in their leadership style may influence unions towards a common goal, whereas more autocratic style leadership only serves to spur on the military approach of unions. Communication also links in with leadership and the approach to the methodology employed through lean. The literature review served as basis for identifying the fact that the approach taken by implementers is not conducive to implementation due to communication issues (language barriers) and

cultural parities that may block susceptibility to change. The vision of the senior leadership is also queried. This joins up with the unions' view that because leaders are not visionary enough to consider sharing the benefits of lean (extrinsically through a share of the spoils) it serves only the higher structures who are not required to handle extra burdens. This section also seeks to establish if relationships exist where one indirect or direct barrier could result in another barrier. An example of this would be the assertion that companies do not invest enough financial and other resources in the lean effort (not enough days scheduled); after hours training without pay is also a contentious issue among unions as discussed in the literature review.

- iii. Section 3: Organisational structures are often heavy with staff in salaried positions contributing to costs. Unions claim that this should be the focus area for cost reduction where lean can be applied to greater effect. Literature studies also reflect on the effectiveness of decentralised organisations versus centralised organisations in facilitating communication among levels within the organisation. The methodology for lean is also queried further where simulation exercises have proven more effective in terms of communicating the essence of the lean initiative and allowing ownership that motivates the shop floor workers towards improving their working conditions through applying the newly taught lean techniques. This section also seeks to gain clarity on the impression by most unions that lean is the sole means to rationalise labour.

### **3.10 Qualitative and quantitative data analysis**

Earlier in this chapter, the use of aspects from phenomenology was identified as the means to interpret the qualitative issues contained in the research questionnaire. The thematic analysis process enabled the interpretation of data as it related to certain concepts that stem from the responses received in the questionnaire (open-ended questions only).

A theme identifies what the particular open-ended response is about and what it means. A theme may be identified at the underlying latent level or at the manifest level (Saldana, 2009).

Furthermore a theme may be described as an abstract entity that brings meaning and identity to a recurrent experience. In this case the experiences of the sample set (senior and middle managers, unions and shop floor personnel). Themes will be developed through the review of the questionnaires by the researcher. The phenomenological aspect aims at gaining a deeper understanding of the experiences. Through the collection, thematic analysis and interpretation of the open-ended qualitative questions, an overarching theme will be developed that will combine with the quantitative data and provide inputs in the researcher's theory development.

### **3.10.1 Thematic Analysis**

Thematic analysis allows categories to emerge from the data. These categories served as a means to place the defined themes. A theme book (Addendum 2) was developed to keep track of the themes defined and allowed for a more structured analysis of the qualitative section of this research. Comparative reflection on responses were employed by the researcher to generate the themes and narrow these themes down (theoretical constructs) (Saldana, 2009).

Themes were considered in the data by identifying the following as recommended by Saldana (2009):

- i. Repeating ideas in the open-ended responses
- ii. Respondent terms, metaphors and analogies
- iii. Transitions or shifts in topics
- iv. Similarities
- v. Differences
- vi. Linguistic connectors
- vii. Theoretical issues suggested by the data
- viii. Missing from the data (based on researcher experience).

The central purpose of the thematic analysis was to determine and analyse repeating ideas, cluster similar themes, describe behaviour and ultimately winnow down the themes to establish an overarching theme (Saldana, 2009).

### 3.10.2 Theory Formulation

As the research progressed and the research instruments were analysed, certain themes and ideas will become prevalent.

Further to the qualitative data analysis and interpretation process, a quantitative analysis was also completed on the results from the research instrument. This supported themes and ideas developed through the interpretation of the qualitative data and are in line with methodical triangulation. The quantitative data analysis was included in the data displays (bar charts and pie charts) and also a breakdown of the sample set responses based on the various respondent types. The Microsoft Excel software package was used to complete this task.

The combination of the two data analysis approaches were used to formulate theories on the phenomenon.

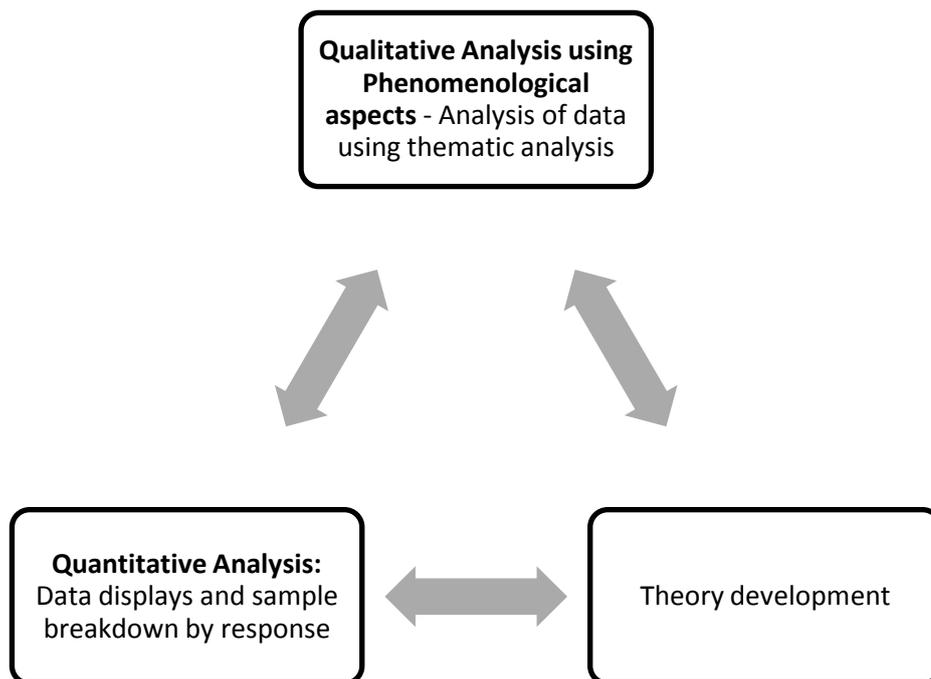


Figure 9: Researcher's own model illustrating methodical triangulation approach

The theories formulated were based on the thirty-two responses received from the sample set. Although responses will be consolidated, each individual subset of responses will also be analysed separately to provide a theory on each subset of the samples.

Once each subset has been analysed and theories formulated on these responses, a theory on the group of responses will be presented. Theories on whether the union is a barrier to lean or an enabler (or possibly both) will be important to this research as will the relationship that may exist between the prominent barriers outlined in Chapter Two and those that emerge through the exploratory analysis of the questionnaire.

The focus of Chapter Four will be to ensure that the data analysis focuses on addressing the theories which were not adequately addressed in the literature review and underscore the need for this research, but will also seek to ascertain whether theories evident in the literature reviewed are in fact pertinent within the South African context and in particular the Eastern Cape automotive component and assembly manufacturers.

The unique dynamic of race, gender, South African history and alleged militarised trade unions makes for an interesting discussion on the future of lean in the region. With the South African government addressing the needs of the sector through various initiatives, unions and other barriers may hinder this progress towards global competitiveness of suppliers rendering government support totally irrelevant.

### **3.11 Summary**

The research design employed seeks to identify the impact of the barriers discovered through literary sources within the South African environment. This was achieved through employing the use of an aspect from the phenomenological approach to identify emergent themes supported by open questions in the research tool that were analysed by identifying themes and patterns.

In addition to the thematic analysis, quantitative data analysis of the research questionnaire was used to illuminate the data and support the results.

The research questions that were used in this research sought to extract the information necessary to determine the severity of the barriers, their possible relationships and the underlying impact that trade unions may have on the sector's drive towards lean implementation.

The questionnaire was designed to test certain relationships and extract information that is pertinent and relevant to the central theme of this research. The validity testing done supported and ensured the questions were structured to adequately answer the research questions developed. The sample sets defined and described were a judgemental sample covering various levels of automotive component organisations in order to gain the insights and opinions that ultimately led to improved results that supported the research better.

The use of a focus group to test the questionnaire allowed for two-way feedback that sped up the process towards designing an effective data collection tool that is easy to use and applicable to the phenomenon under review. The next stage was to release the questionnaire to planned respondents and to gather the information over a period of time for subsequent analysis and results that will be discussed and reviewed in Chapter Four of this research document.

## **Chapter 4 – Presentation of Results**

## **Chapter 4 – Presentation of Results**

### **4.1 Introduction**

Chapter Three discussed the method of using a questionnaire to collect data from unions, middle managers, senior managers and shop floor representatives in automotive component suppliers. In total, thirty-two questionnaires were completed. The questionnaire (Addendum 1) employed various scales in the development of close-ended questions. Open-ended questions would be analysed thematically in order to extract themes from the various respondents.

The use of methodical triangulation through the research instrument would allow for certain responses to be anchored by comparing qualitative responses with quantitative responses in order to gain more depth from the answers to certain questions.

The questionnaire was designed and finalised after the completion of a pilot study among industry experts. The various inputs from the experts were considered and the questionnaire was deemed to be relevant to the research questions posed in Chapters One and Three of this report.

The ultimate aim of the research instrument was to determine the extent to which barriers impede or facilitate lean implementation, their level of involvement and other barriers that may create union resistance or be the result of union resistance. The study also looks at other barriers identified in the literature review in Chapter Two and tries to isolate their relevance in the Eastern Cape automotive component sector.

The results contained in this chapter will present the qualitative data in a graphical format, followed by the qualitative overarching themes as determined from theoretical constructs developed during the thematic analysis (Addendum 2) from the various subsets of respondents.

Sixty two (62) questionnaires were sent out and 32 questionnaires were received back.

## 4.2 Graphical presentation of results

### Question 2

Do unions view lean as a favourable practice in organisations?

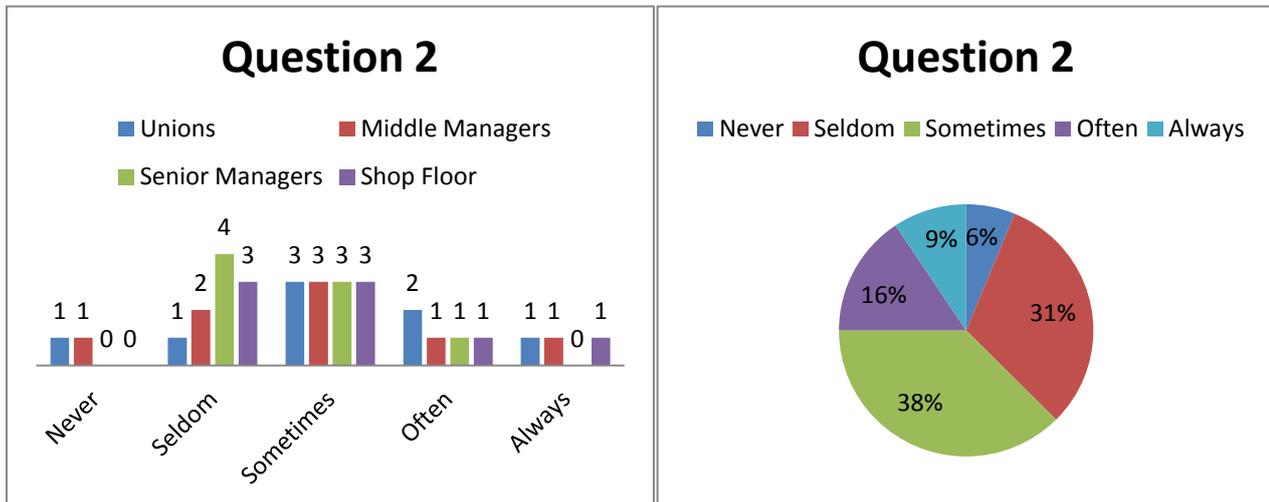


Figure 10: Response to question 2

The quantitative data collected for question two shows that the majority of respondents indicated that unions view lean unfavourably. In total 75% of respondents felt that unions did not fully accept lean in the organisation as a tool for positive change. Senior managers (87.5%) and shop floor representatives (75%) felt strongly about the negative perception unions have about lean. Middle manager responses were more evenly spread and unions (62.5%) did not view lean as a favourable practice for organisations.

### Question 3

Do unions affect the culture of the organisations?

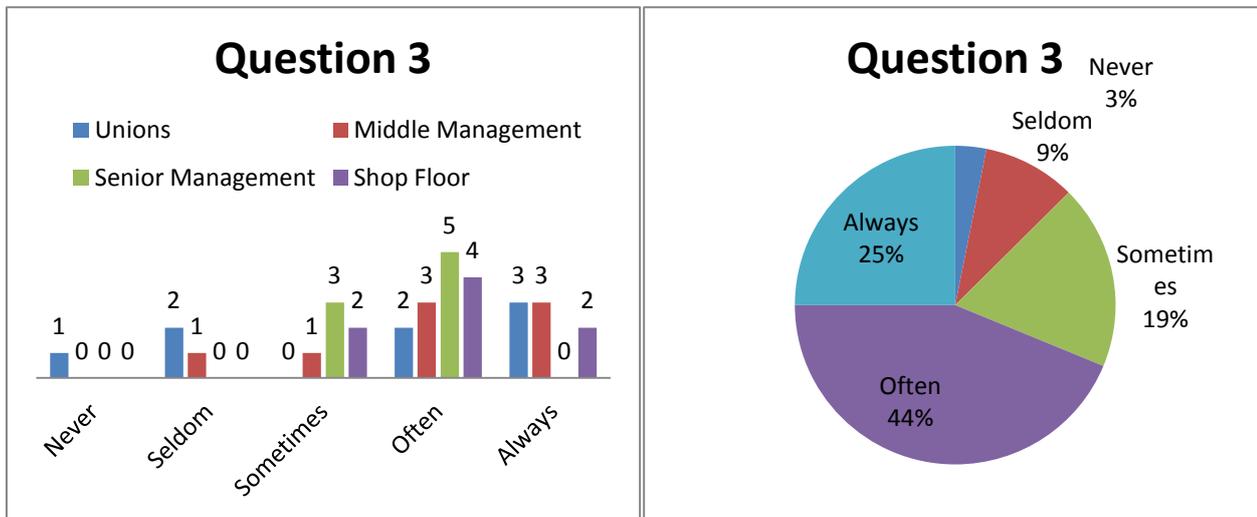


Figure 11: Response to question 3

From the above graphical analysis in Figure 2, it is evident with more than 88% of respondents agreeing that unions do exert some influence on the culture of the organisation. The unions' relevance to lean implementation can thus not be ignored.

All respondents (100%) in the senior manager group agreed with unions having an impact on culture. Middle managers shared the sentiment of senior managers with 75% agreeing with the statement that unions affect culture. The response from the union showed that they did not always feel they had an impact on culture but the majority (62.5%) felt that they did. Shop floor representatives were in agreement with the impact unions have on culture.

## Question 4

How do trade unions affect the attitude of employees towards lean?

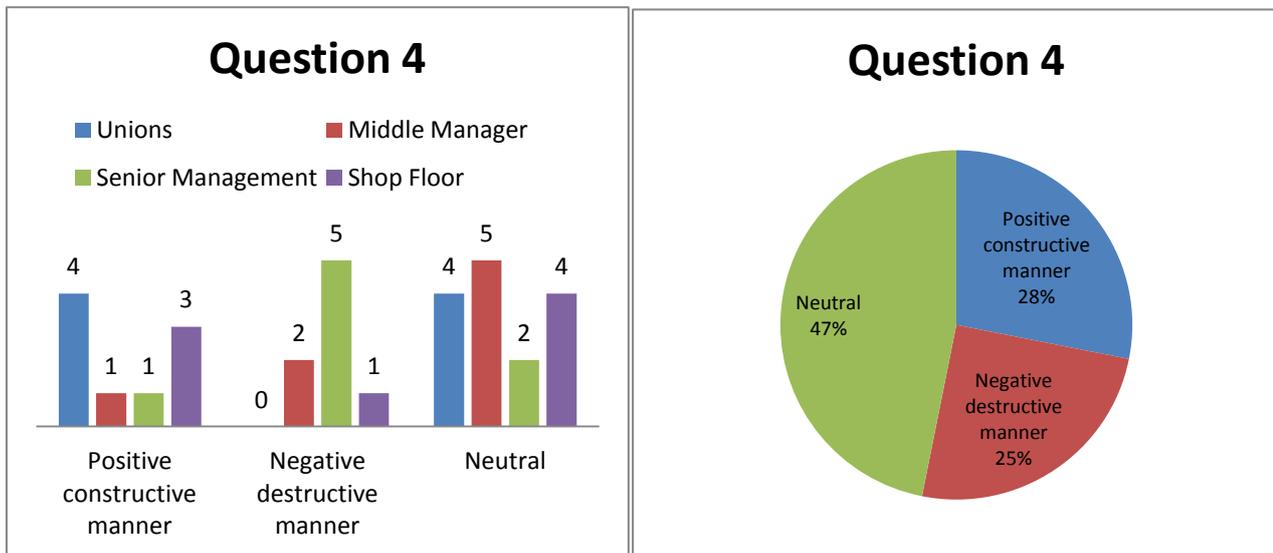


Figure 12: Response to question 4

The majority of respondents (47%) remained neutral in the decision on whether unions had a positive or negative impact on employee attitude towards lean. Slightly more respondents (3%) felt that union influence on attitude of employees was positive. Middle management were largely neutral in their response, senior managers viewed union influence as negative on employees and an almost even split between neutral and positive impact on employee attitude was expressed by the shop floor respondents. Unions however agreed (50%) with having a positive impact and others remained neutral (50%).

## Question 5

Are trade unions actively involved in lean implementation in your organisation?

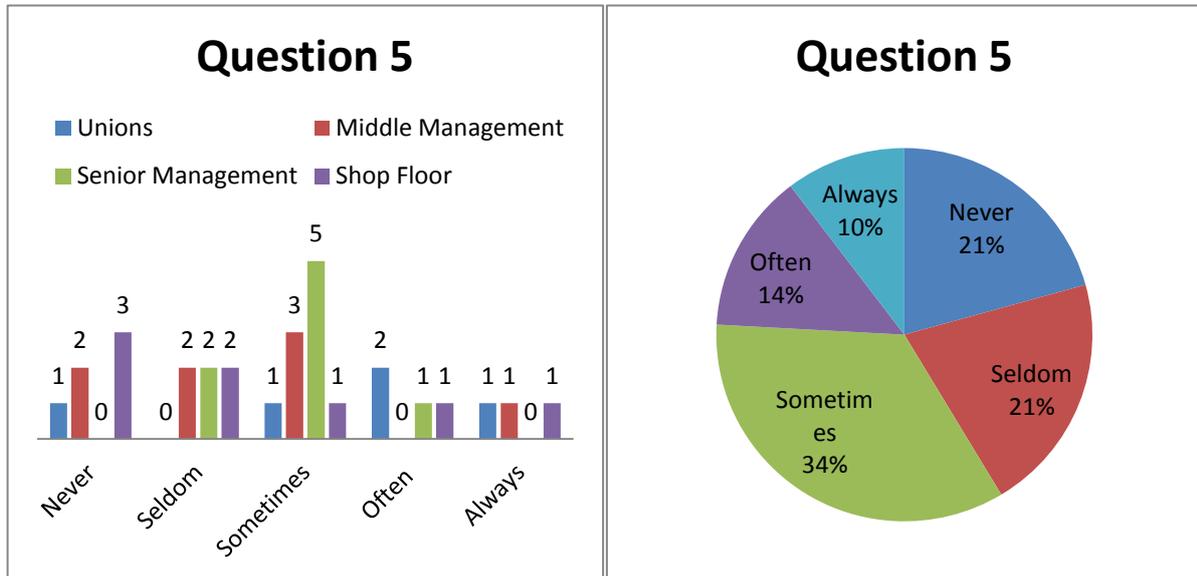


Figure 13: Response to question 5

Since unions are the voice of the people in many component suppliers, it is imperative that they have a high level of involvement in lean programs. The results presented here in Figure 13 allude to a lack of union involvement with 76% of respondents indicating 'sometimes' to 'never' involve unions in lean implementation. Based on the fact that unions affect the attitude and culture of their constituents, it is an absolute must for unions to be involved from the inception of a lean initiative. Senior managers felt that unions are sometimes (62.5%) involved and middle managers (75%) felt that unions were rarely involved ('sometimes' to 'never'). An even distribution for unions was shown in the responses to this question and shop floor representatives (62.5%) highlighted a lack of union involvement.

## Question 6

**Unions negatively affect the levels of training and development investment by companies in their employees.**

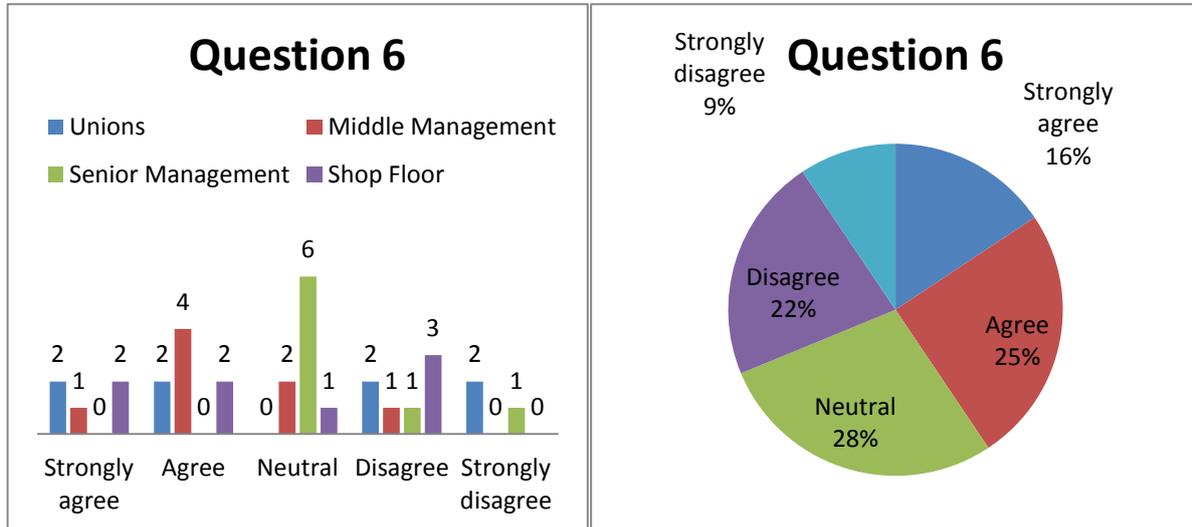


Figure 14: Response to question 6

The results presented in Figure 14 show an interesting paradox. Senior (100%) and middle managers' (50%) results highlight the contention that unions actually assist in promoting investment in the people. However 50% of the union respondents feel that they may have a negative effect on investment from suppliers.

## Question 7

**Lean implementation will be more successful and sustainable if the unions were involved.**

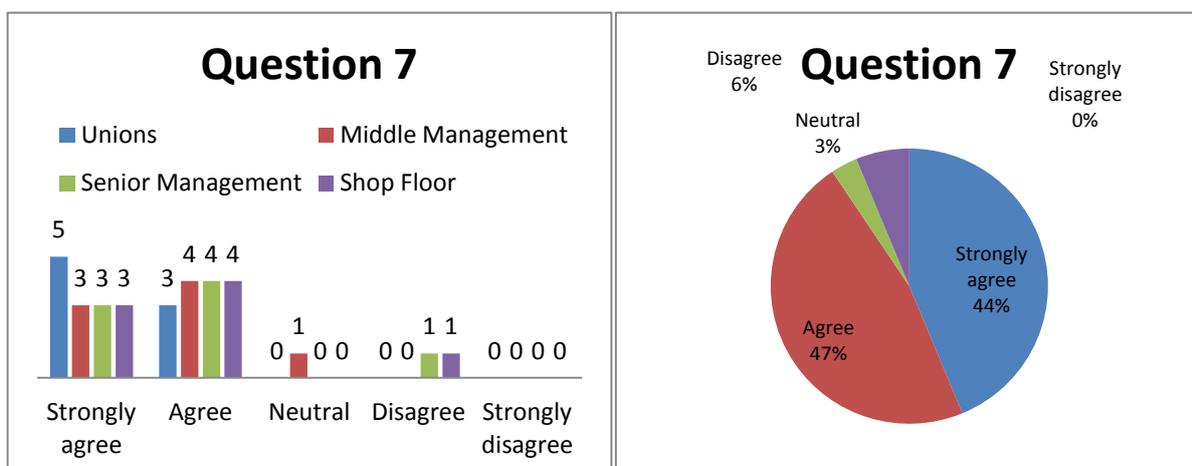


Figure 15: Response to question 7

The results for question seven display a strong agreement from all respondents that union involvement will lead to better implementation results that would be more sustainable if the union were involved.

### Question 8

How do trade unions affect lean implementation?

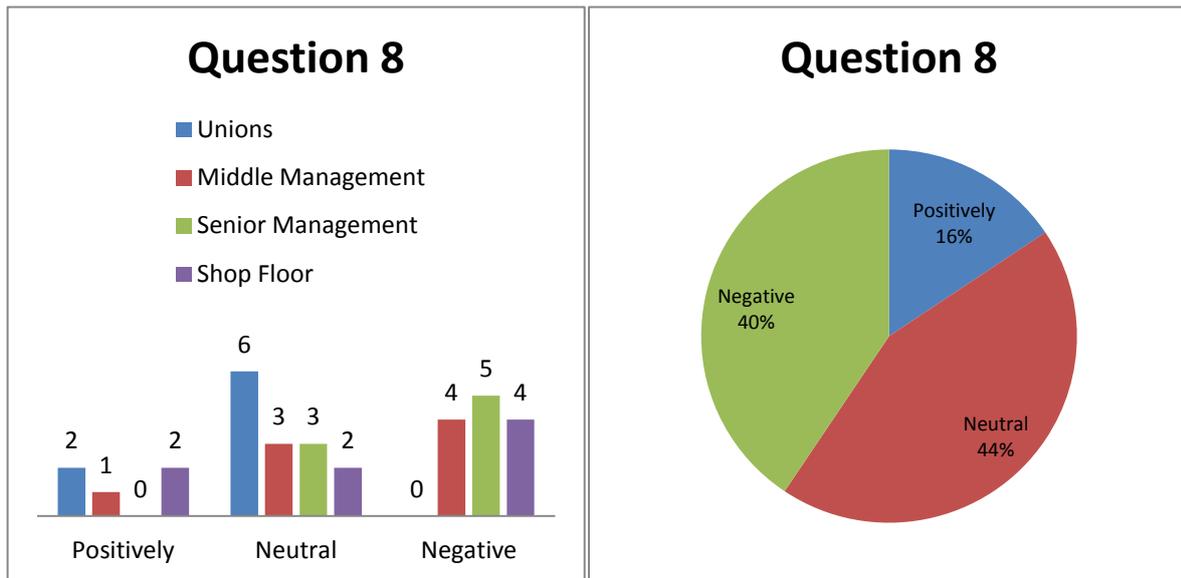


Figure 16: Response to question 8

Results for this question indicate that unions largely have a negative impact on lean implementation. The union response shows that 75% of union representatives felt that they had a neutral impact on lean implementation. Senior managers (62.5%) felt strongly about the negative impact unions had on lean. Middle managers (50%) expressed their perception of the union's negative impact. Interestingly 50% of shop floor workers agreed with management that unions simply impact negatively on lean with only 25% of unions and shop floor respondents indicating a positive impact by unions.

**Question 9**

**Would lean implementation be more successful with union involvement?**

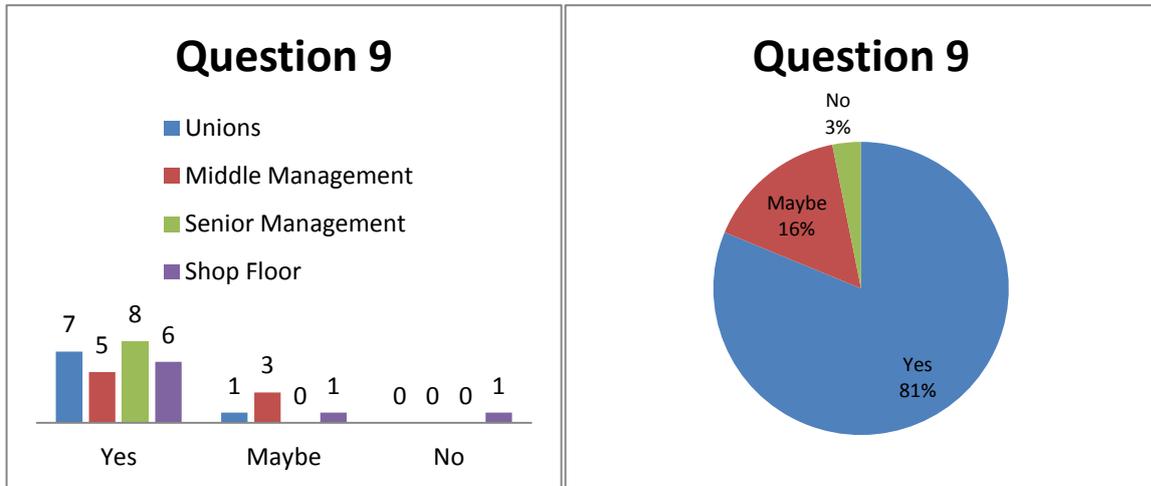


Figure 17: Response to question 9

Question nine confirms the results of question seven. A large majority (81%) of respondents across the sub-groups agree that lean implementation requires union involvement in order to be successful.

**Question 10**

**Poor leadership from middle and senior management affects union perceptions of lean in your organisation.**

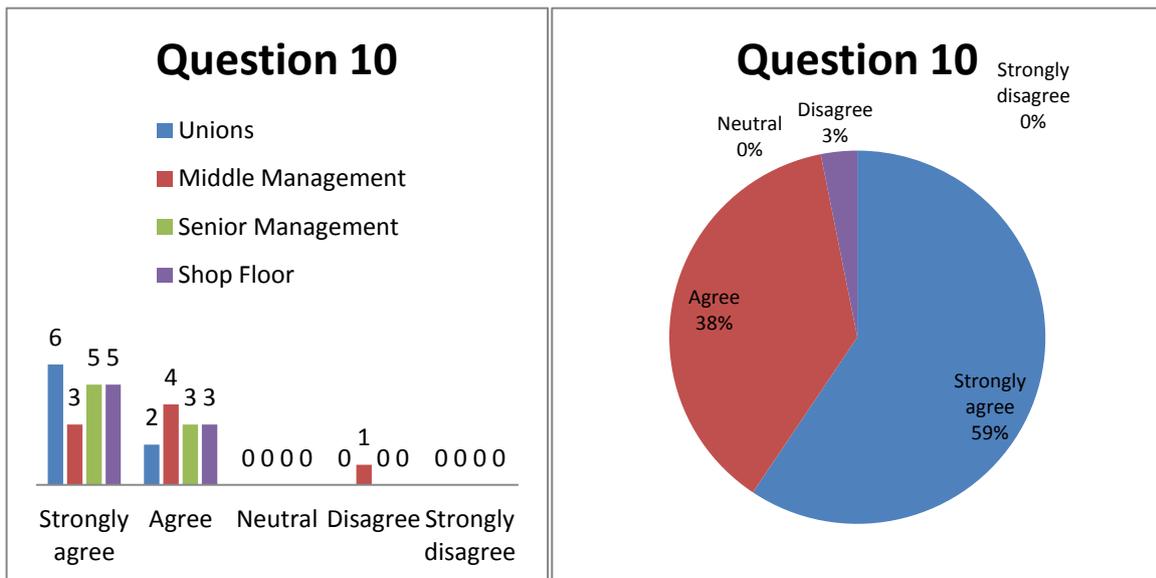


Figure 18: Response to question 10

Leadership has been identified as a barrier to lean implementation in the literature study. The interesting fact to point out here is that respondents agree largely that leadership can impact on union perception of lean. From question seven and nine it can now be established that union involvement and support are crucial to lean implementation success. What the results of question ten indicate is the equal importance of the correct leadership to create a favourable perception of lean among union representatives in order to garner support for the process. Responses from middle managers, senior managers, unions and shop floor representatives (96.87%) show that leadership in the organisation can have a counterproductive impact on the perceptions regarding lean from stakeholders involved in the process. Only one middle manager disagreed with the statement and in this instance can be considered an outlier.

### Question 11

Which potential barrier to lean poses the greatest risk in your organisation?

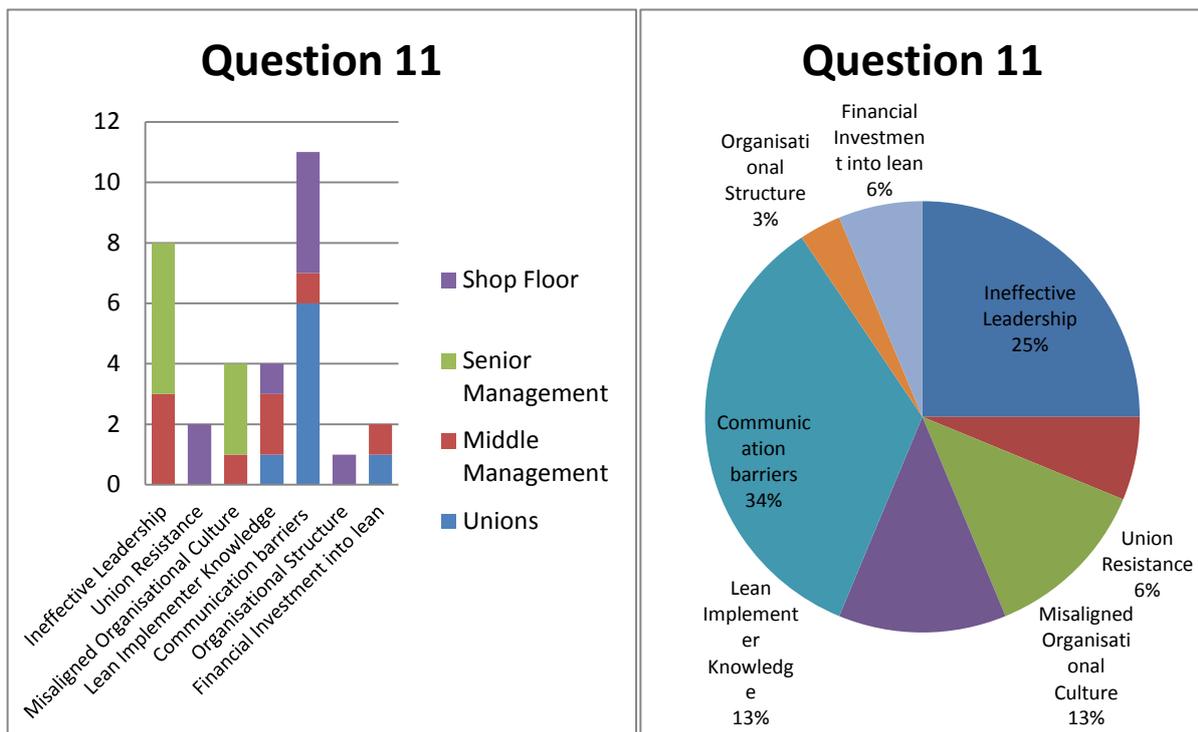


Figure 19: Response to question 11

A large portion of respondents indicated that communication barriers (34%) and ineffective leadership (25%) were the two barriers that posed the greatest risk. Union resistance (6%) and misaligned organisational culture (13%) were not as prominent

as potentials risks in suppliers as a barrier towards lean. Senior managers and middle managers contributed largely to ineffective leadership as their selection for this question. Union responses (75%) were focused largely on communication within the organisation as a major barrier to successful lean implementation. Middle managers (37.5%) and senior managers (62.5%) agreed that leadership was an important barrier and posed the greatest risk to lean implementation. The grouping of managers within the leadership barrier and unions and shop floor workers together in the communication barrier makes for an interesting discussion. Leadership as defined in the literature review focuses on communication. The two barriers are linked in this regard as effective leaders need to be effective communicators.

### Question 12a

**Two way communication between implementers and unions is important.**

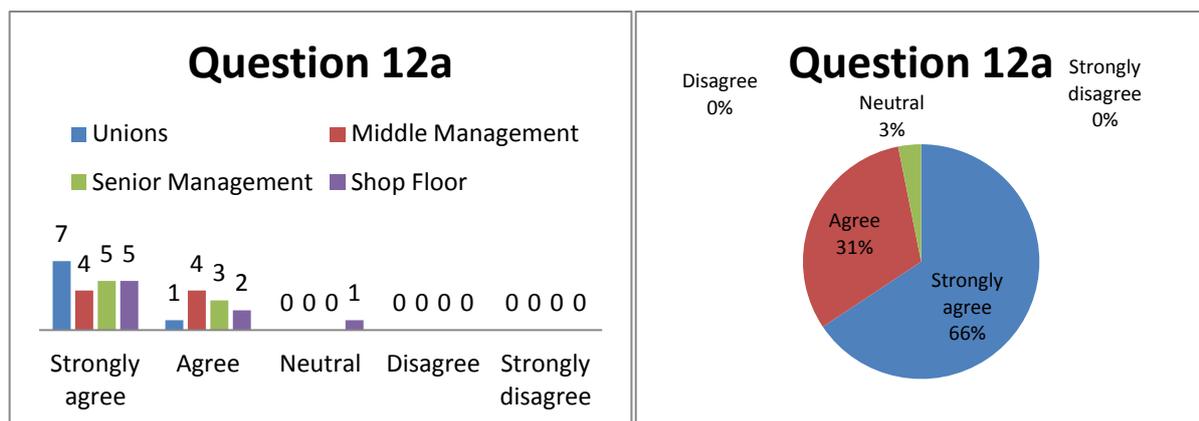


Figure 20: Response to question 12a

The response to question twelve supports the argument that two-way communication between unions and lean implementers is crucial to an effective lean implementation. Respondents from all sub-groups agreed 97% with the importance of the communication process in lean programs

## Question 12b

The implementation methodology employed impacts on lean implementation success.

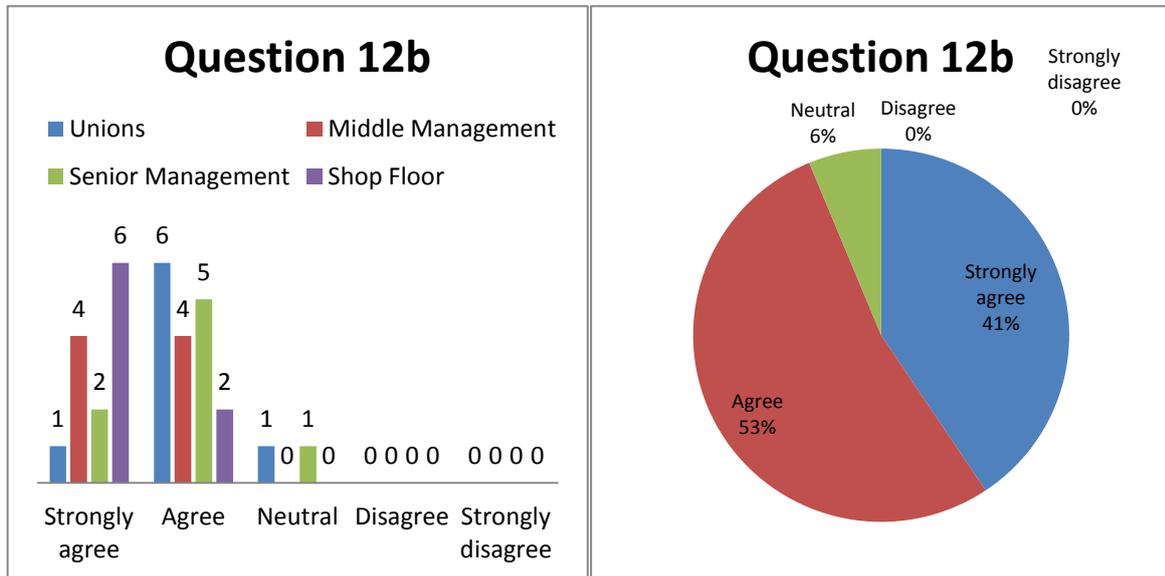


Figure 21: Response to question 12b

In this instance, the methodology employed by implementers in bringing lean to the company is considered important. Most respondents across sub-groups shared similar views with 94% of respondents agreeing to implementation methodology being a legitimate consideration in estimating success.

## Question 12c

Lean implementers require transformational leadership skills.

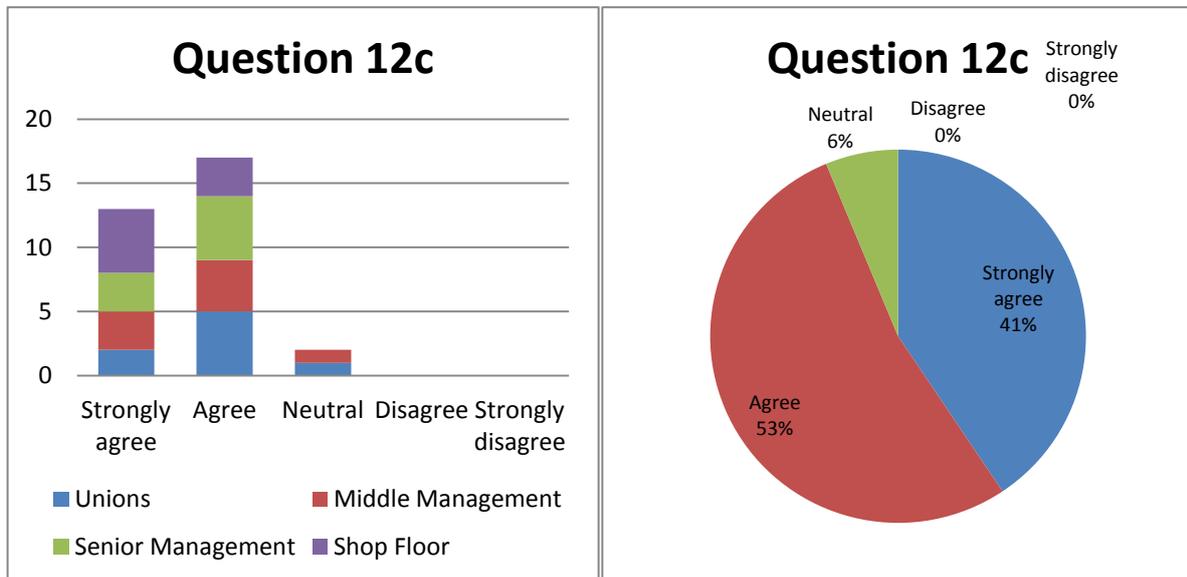


Figure 22: Response to question 12c

Leadership from implementers (middle management) can be important in gaining acceptance from key stakeholders and also the commitment and motivation towards the initiative from the shop floor workers. Leadership from senior managers is also important as derived from the response to question eleven. There was general agreement from most respondents (94%) on the important role leadership plays in lean implementation from the middle management level.

## Question 12d

**Top heavy organisational structures impact lean implementation negatively.**

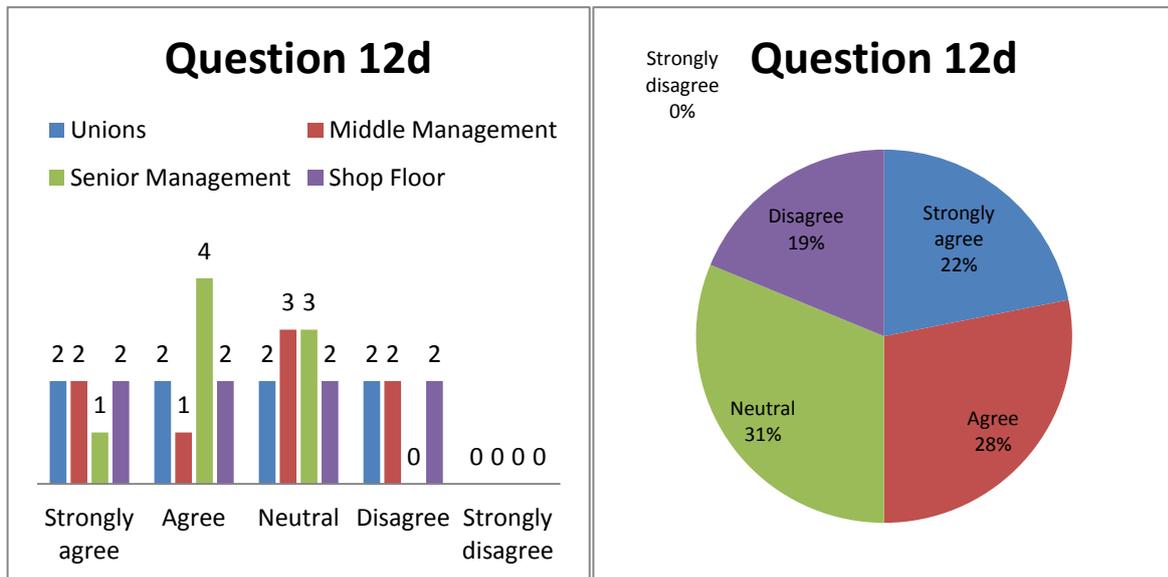


Figure 23: Response to question 12d

Top heavy organisation structures are a barrier to lean implementation according to the results for question twelve with only 19% of the respondents disagreeing. Senior managers (62.5%) agree with the statement. A small group (37.5%) of middle managers agreed with the statement. The spread of shop floor responses can be taken as evenly spread while the union's responses followed a similar pattern. The leadership of organisations thus views top heavy structures as an obstacle to lean. The shop floor and union responses appear evenly distributed and thus the thematic analysis would have to conclude on this statement in terms of the impact of organisational structures from this particular subset of respondents.

## Question 12e

**Strategic vision is required in the design of a lean initiative.**

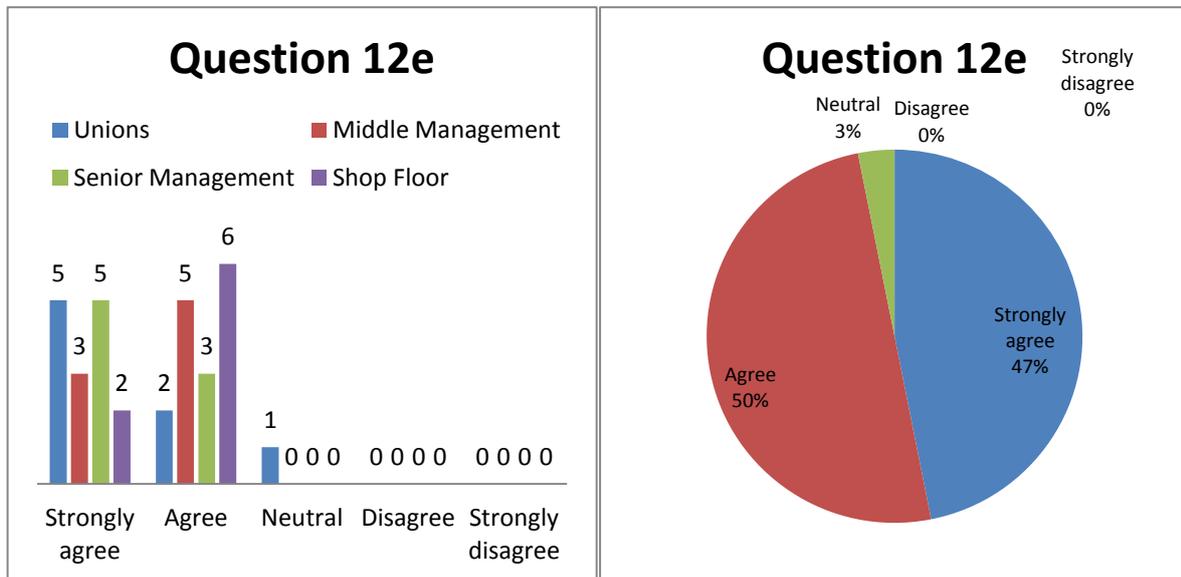


Figure 24: Response to question 12e

The unanimous agreement of all respondents on the importance of and need for strategic thinking in the design and implementation of a lean program is pronounced in the responses. This result supports the importance of leadership in the drive towards a lean culture as the vision is developed at senior levels and cascaded down throughout the organisation.

## Question 12f

Is lean designed to reduce labour inputs?

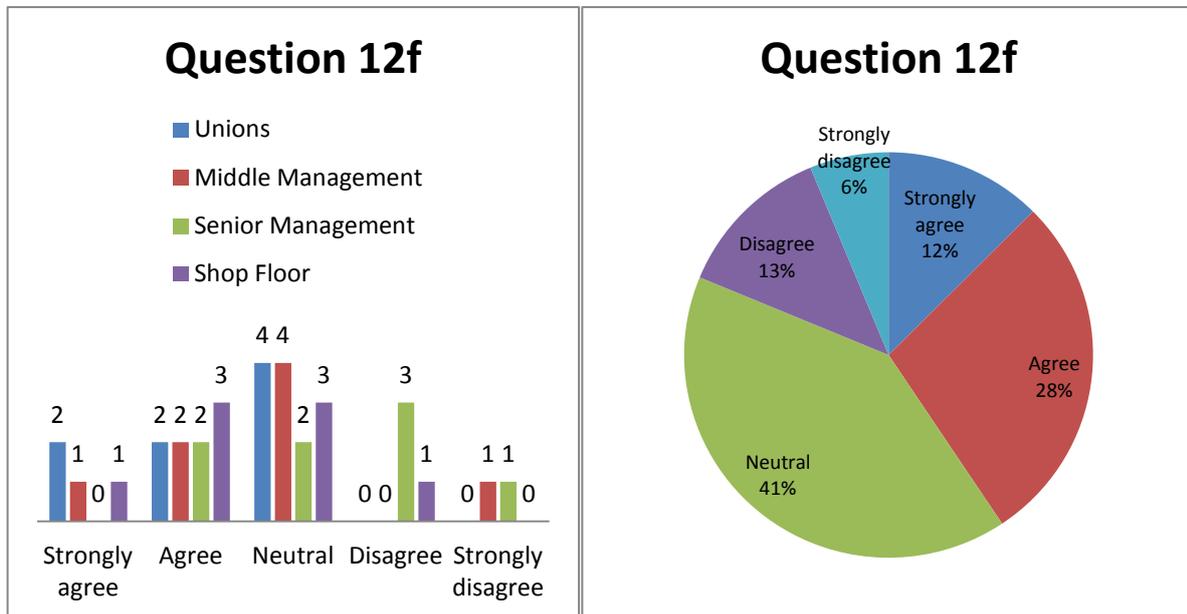


Figure 25: Response to question 12f

The majority of respondents (41%) remained neutral in their answers to this question; however 50% of union respondents believed that lean manufacturing as used in the Eastern Cape is specifically designed to reduce labour inputs. Middle management and senior management share to a certain extent the sentiments of the trade union with a total of 62.5% of the senior and middle managers combined agreeing that lean is designed to reduce labour inputs. These figures are quite high considering that this statement is in fact false and that lean is not solely designed to reduce labour inputs, but rather extend beyond this as discussed in the literature review. This misconception among management and unions will be discussed in greater detail in Chapter Five.

**Question 15**

**Delegation between levels in the organisation is affected by race or gender differences.**

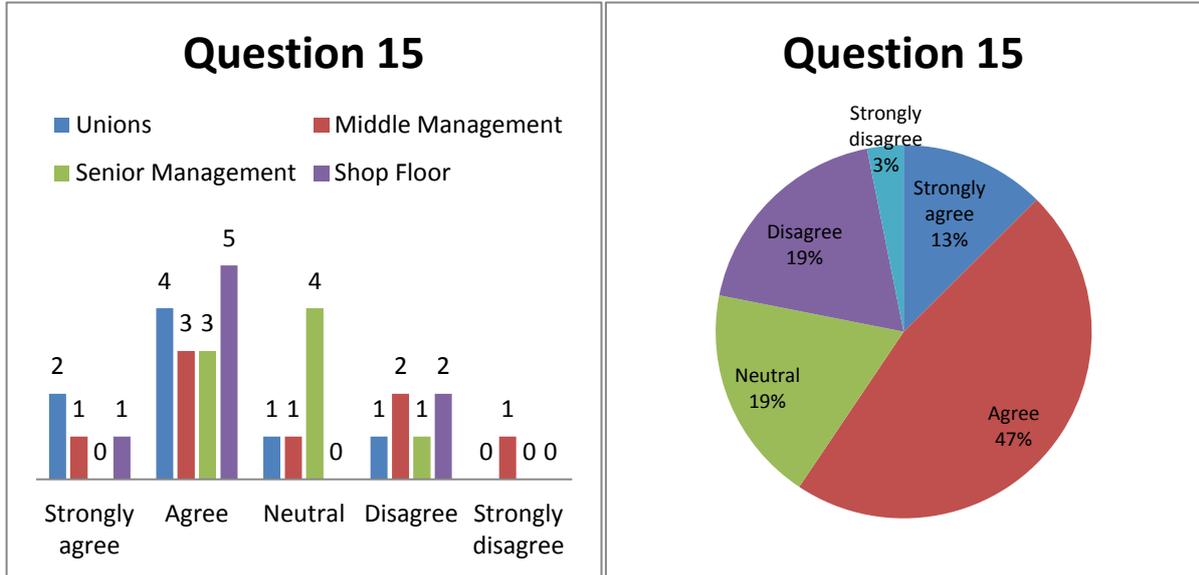


Figure 26: Response to question 15

Unions and shop floor representatives felt most strongly in their agreement with the statement that delegation effectiveness is affected by prejudices towards race and/or gender differences. Shop floor results point to a 75% agreement with unions also responding 75% in agreement. Middle management was 50% in agreement of this statement and senior management 37.5% in agreement. In total 59% of respondents agreed.

## Question 16

**Middle management is a barrier to lean implementation and may sabotage lean efforts.**

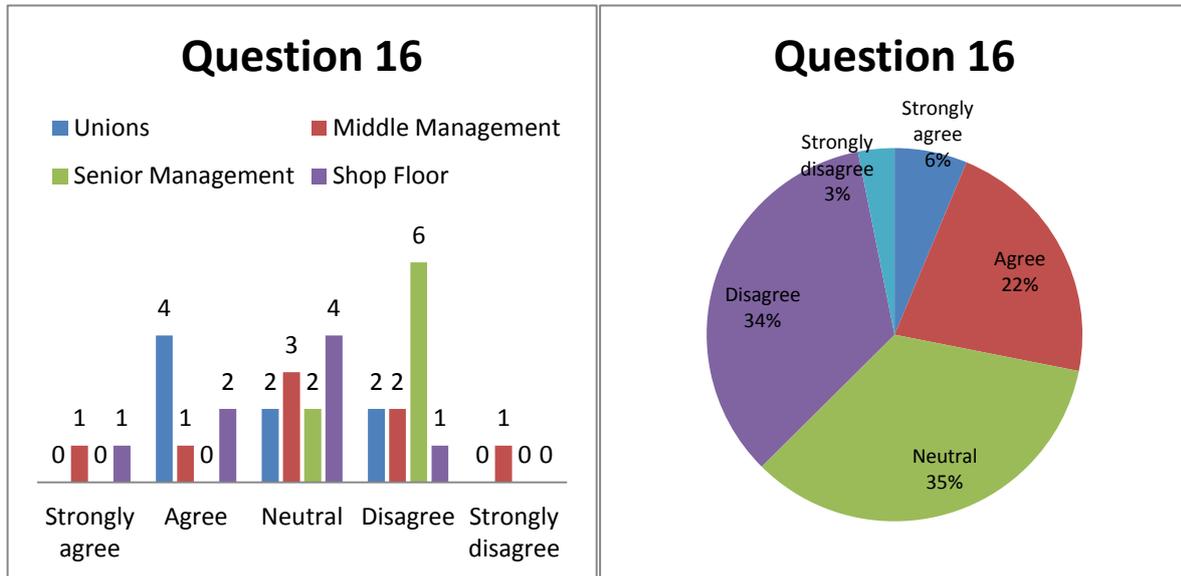


Figure 27: Response to question 16

Noticeable responses were made by unions, with 50% agreeing that middle management is in fact a barrier. Respondents who chose to remain neutral on the topic were 35% in total and 75% of senior managers chose to disagree. What can be derived from the responses to this question is that there are differing views on the role played by middle management in the success of a lean implementation between unions and senior management specifically. Middle managers remained neutral which means that they did not disagree with this statement entirely.

## Question 17

**A centralised organisational structure improves lean implementation.**

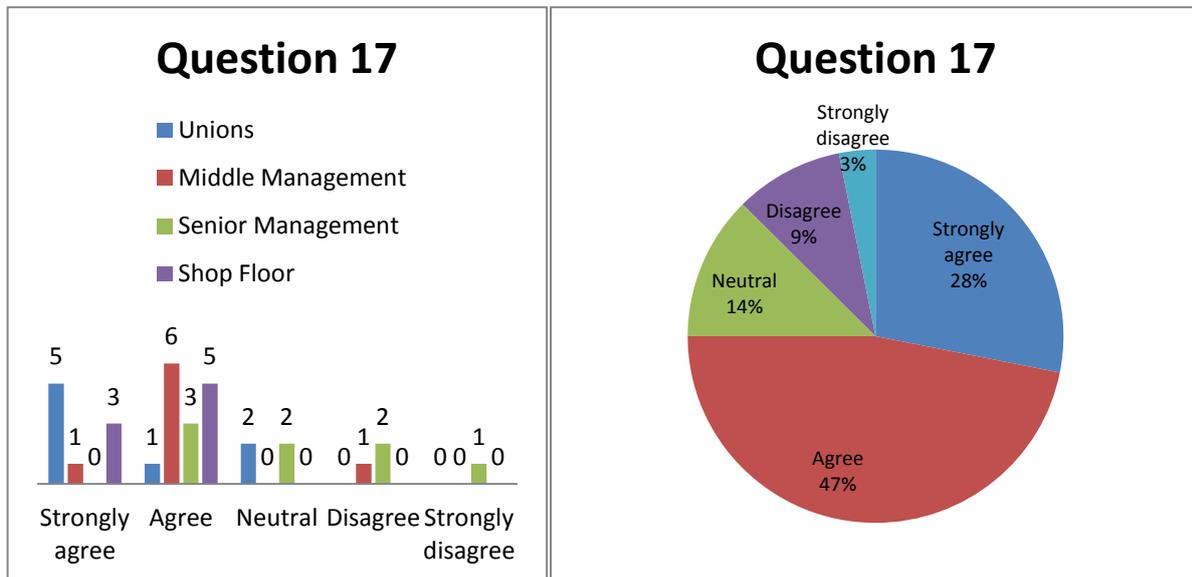


Figure 28: Response to question 17

One of the barriers to lean identified in the literature study was organisational structure. This barrier describes the manner in which organisational structures restrict information flow between stakeholders and do not allow for the empowerment of the shop floor to drive continuous improvement. A centralised organisational structure does not facilitate correct lean implementation with traditionally a lean implementer having certain authorities to change work flows etc without proper inputs from the shop floor. It is interesting to note that 87.5% of middle managers who completed the questionnaire agreed with a centralised approach. Unions (75%) also felt that a centralised approach was more suited to lean implementation as the workers are overburdened and simply do not have enough time to accommodate lean into their work routine. Senior management seemed to understand the implications of having this approach with 62.5% remaining neutral or disagreeing with centralising organisational structures. Overwhelming agreement (100%) from the shop floor agreed that a centralised structure improves lean manufacturing.

## Question 18

**Incentivised suggestion schemes would improve lean implementation success.**

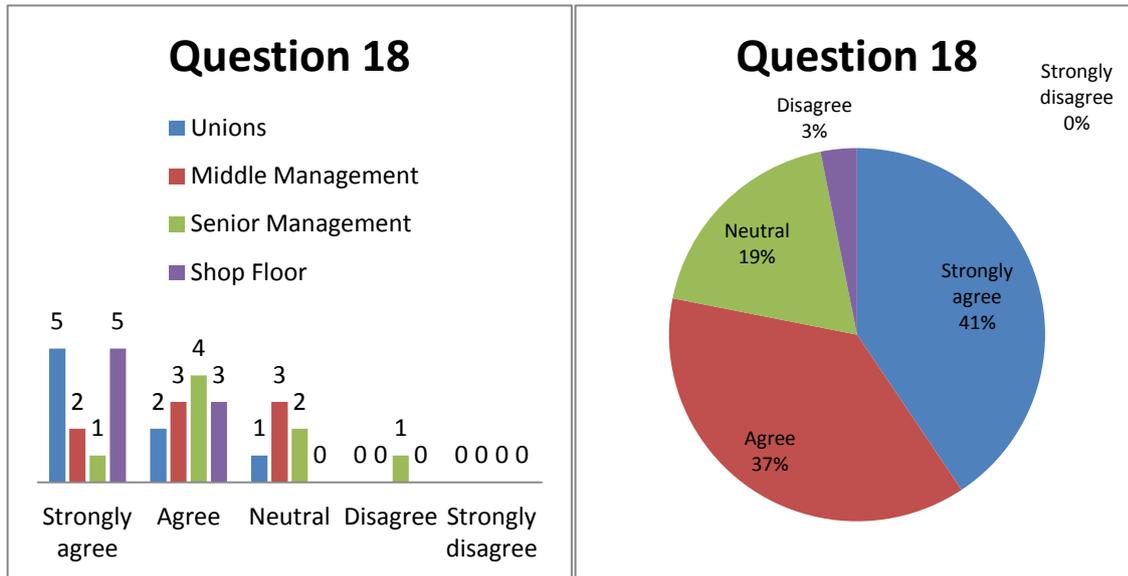


Figure 29: Response to question 18

This question had a 78% agreement from all respondents that if the lean project outputs were linked to a suggestion scheme offering participants a share of the savings etc, lean would be a more accepted and successful practice in companies. Only a few middle managers (37.5%) and senior managers (25%) chose to remain neutral when answering this question.

## Question 19a

**Incentivised suggestion scheme would improve lean implementation success.**

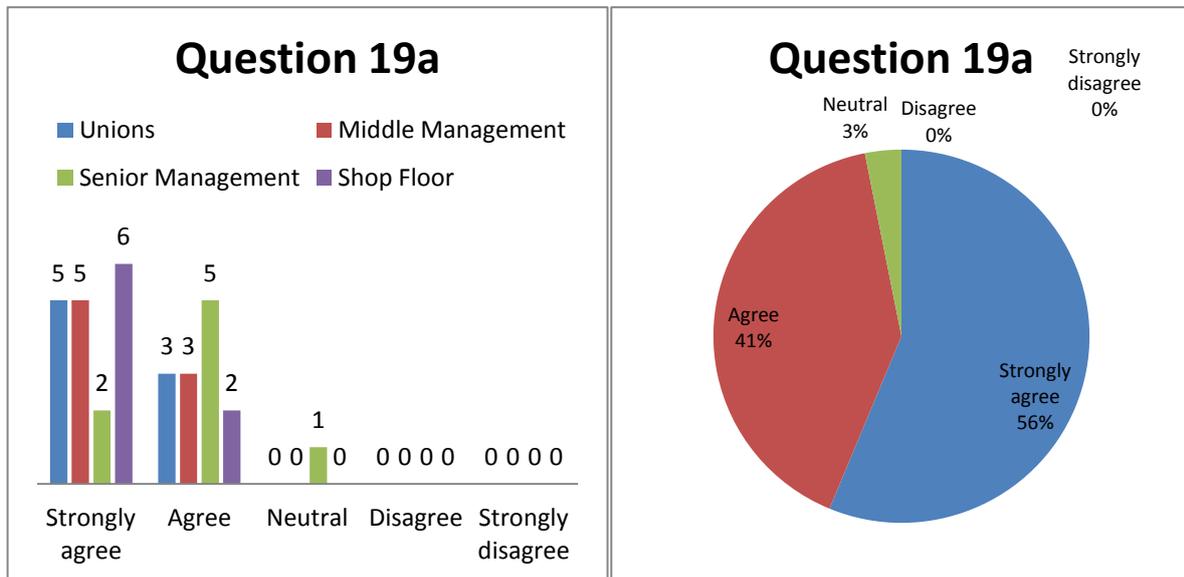


Figure 30: Response to question 19a

All but one respondent agreed that pre-implementation training of employees resulted in more successful implementation by potentially reducing barriers to lean programs. This suggestion to use incentives to motivate all stakeholders to actively engage in lean implementation has been trialed without success in many of the suppliers who participated in this research. The valence of the incentive is the deciding factor in the success of this type of initiative.

**Question 19b**

**Lean awareness campaigns impact on lean implementation.**

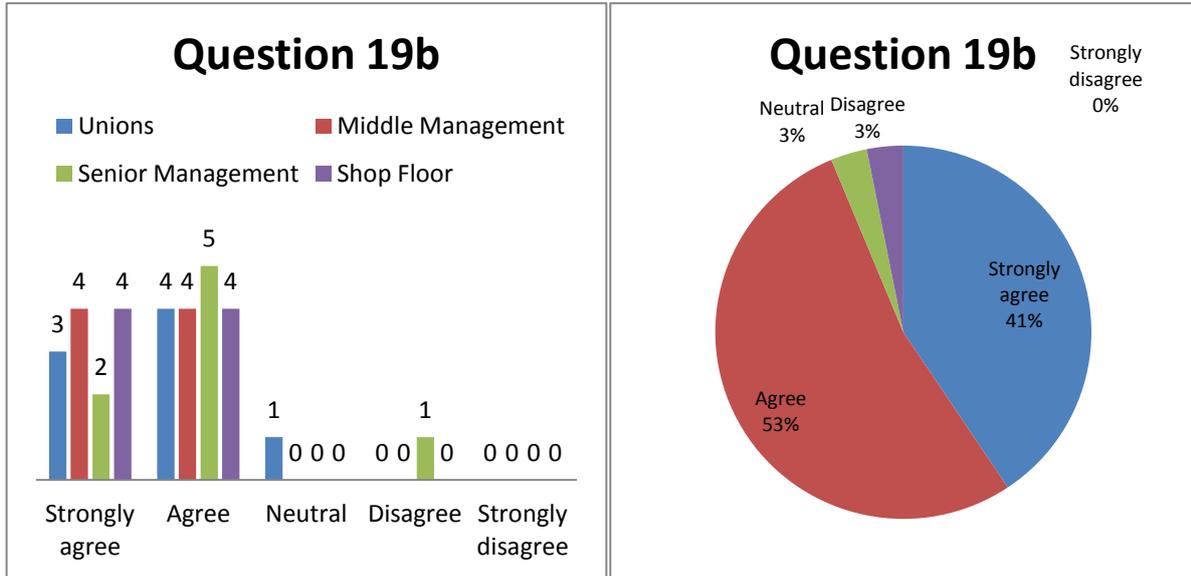


Figure 31: Response to question 19b

Respondents (93.75%) viewed awareness campaigns for lean as an important requirement in the implementation process.

**Question 19c**

**Employee ownership is important in lean sustainability and success.**

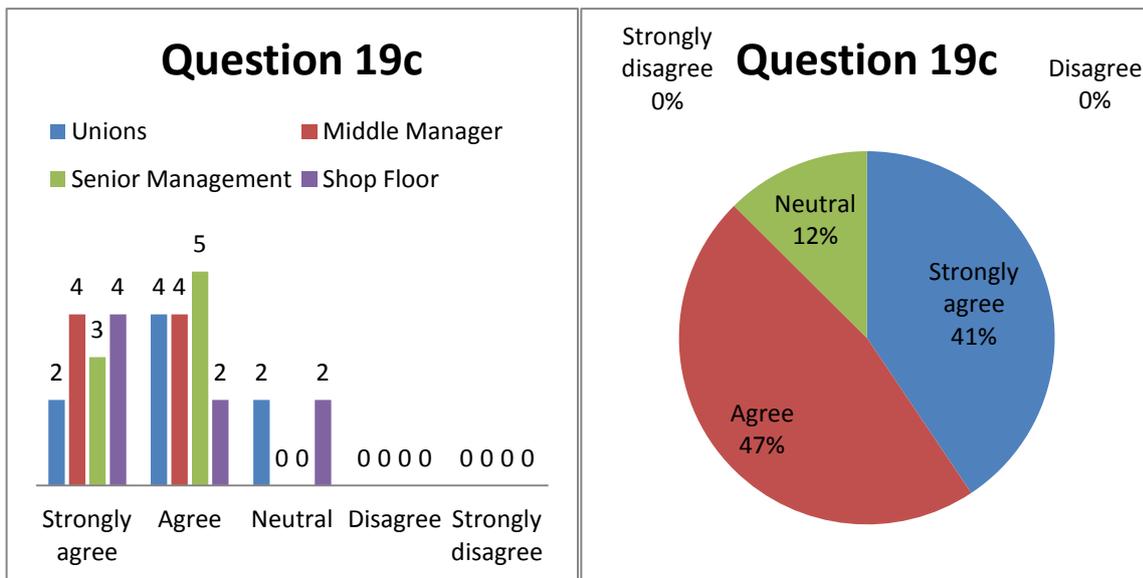


Figure 32: Response to question 19c

Marginal disagreement with this statement was recorded with 87.5% of respondents agreeing that this is in fact of vital importance to the sustainability of the lean initiative. Two union and shop floor respondents respectively remained neutral.

**Question 19d**

**Post-implementation audits assist in lean sustainability and results.**

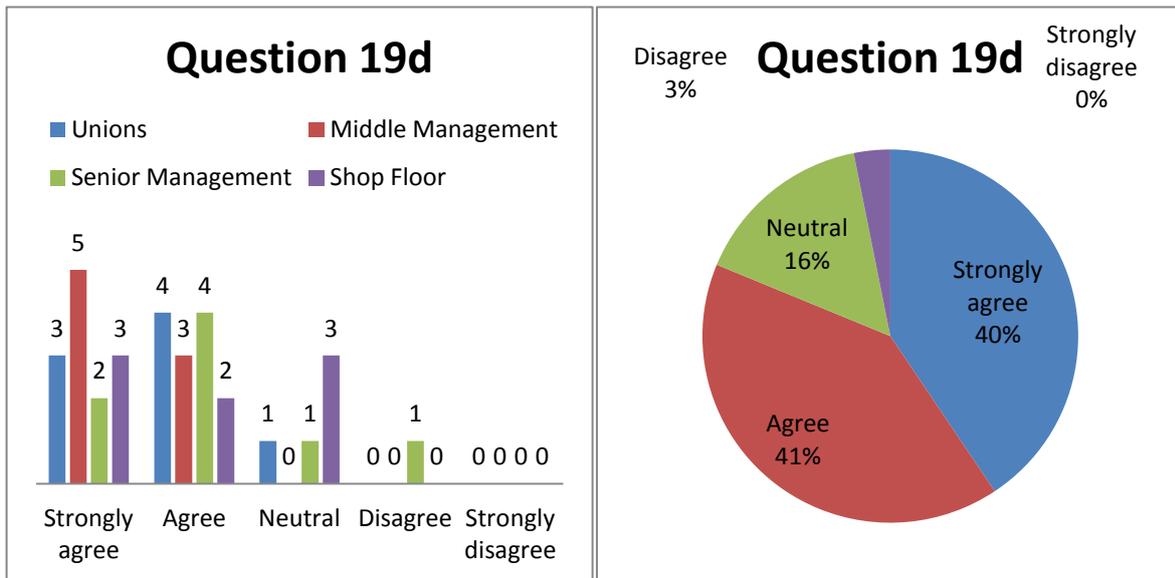


Figure 33: Response to question 19d

A majority result (81%) from respondents highlights general agreement that post-implementation audits would improve lean results. Their importance in post-implementation in Eastern Cape component suppliers is now accepted. Shop floor disagreement (37.5%) could be interpreted as a lack of trust from management.

### Question 19e

Simulation games followed by area specific workshops are important in lean programs.

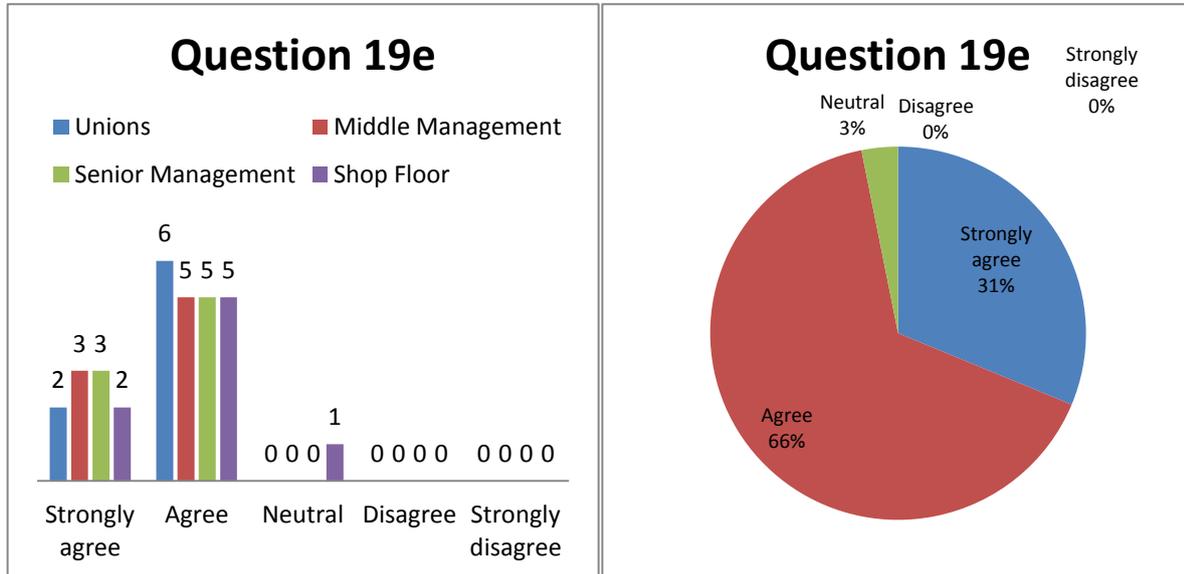


Figure 34: Response to question 19e

A positive response (97% in agreement) was obtained from the various groups which agreed that simulation games were important and could aid in the understanding and results of lean training programs.

## Question 20

A multilingual approach to training has a positive impact on lean implementation.

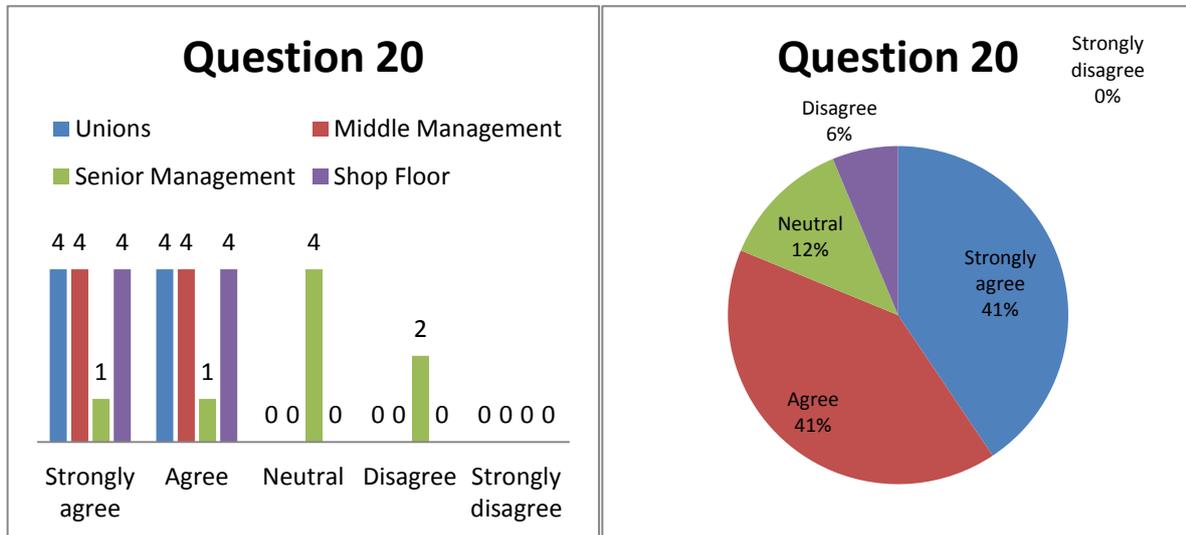


Figure 35: Response to question 20

There seems to be some polarity between the senior management group and the other groups that formed part of the study on this question. The majority (82%) of the respondents across subgroups agreed that a multilingual approach is essential for lean implementation. Some senior managers (50%) remained neutral and 25% of senior managers disagreed with the statement. The response thus indicates that senior management is not convinced of the relevance of using an approach that caters for the languages of the shop floor. Since South Africa has eleven official languages, training should be conducted in the most spoken language of the workforce and even changed (at times to clarify certain points) during training sessions to meet the needs of the target audience.

## Question 21

Is there a relationship of trust between South African employers and employees?

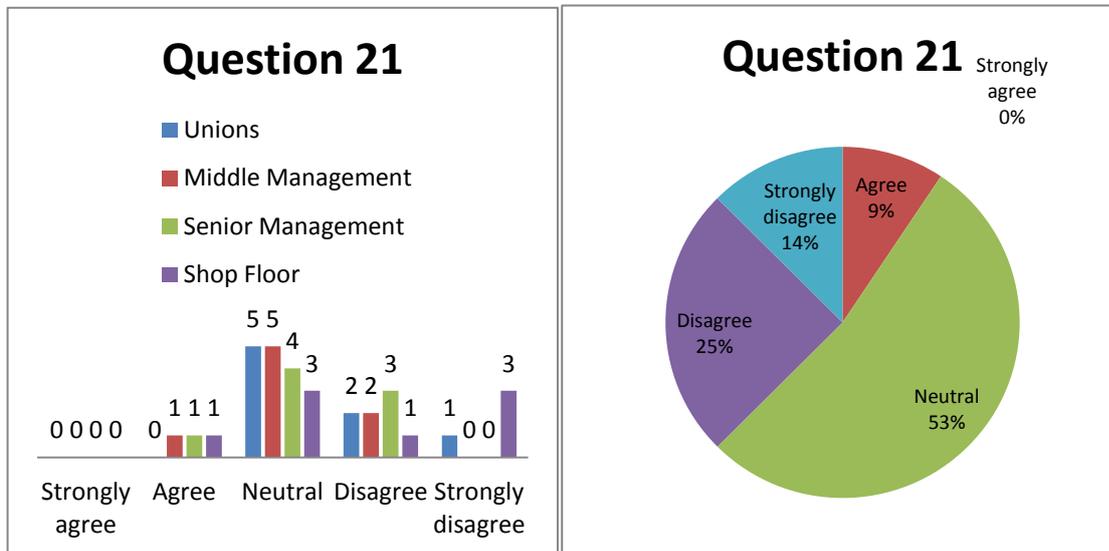


Figure 36: Response to question 21

In consultation with many of the respondents, the consensus was that this process of building a relationship was still in progress. The transition to a democratic society in 1994 began the process. The qualitative response provides greater clarity on the reason for the response being largely neutral (53%) and in some instances disagreeing (38%) that there are adequate levels of trust. Without trust, communication breakdowns occur more frequently, unions become more antagonistic towards employers and the industry suffers as a whole. This question holds the answer for many of the barriers facing lean programs in the Eastern Cape. A few isolated outliers presented responses that agree from each subgroup involved in the research. Highlights of these results are 50% of shop floor workers feeling that there is no relationship of trust among employers and employees. Union and senior management responses indicate a 37.5% disagreement response respectively with the statement.

## Question 22

Companies are reluctant to invest sufficiently in lean to achieve the desired results.

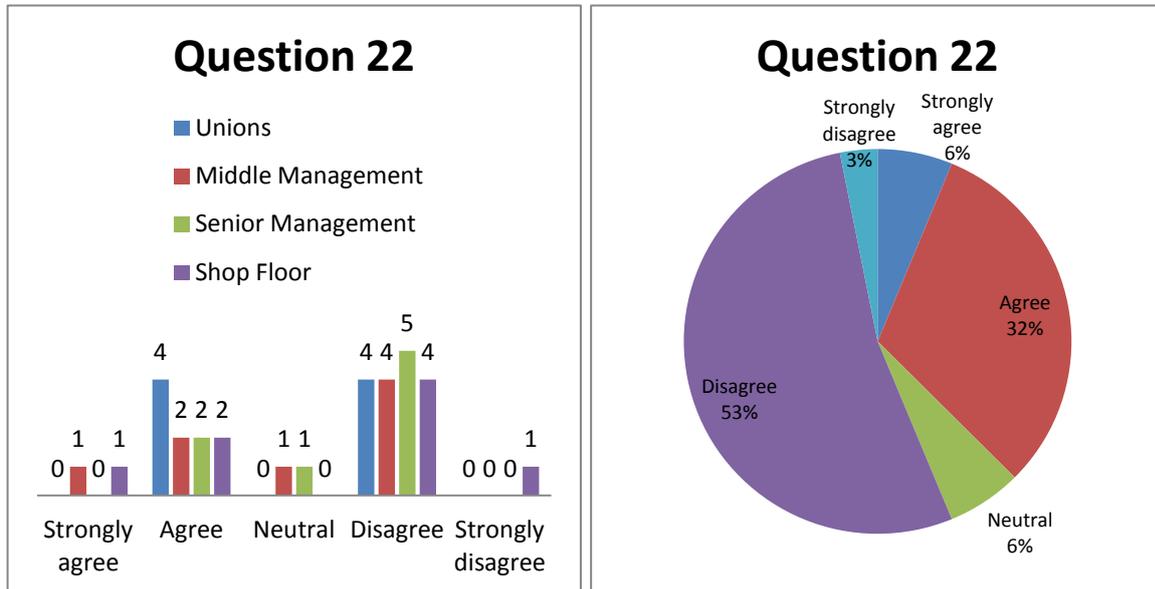


Figure 37: Response to question 22

By ignoring the neutral responses, 56% of respondents disagreed with suppliers not investing enough and 38% of respondents agreed. An analysis by subgroup highlights 62.5% of senior managers disagreeing with the statement and conversely 50% of unions agreed and the other 50% agreed. The majority of shop floor respondents (62.5%) disagreed with the statement. From these results it can be seen that there is an almost equal split in the sample of respondents on the amount of investment by companies in lean implementation programs.

### Question 23

**Lean manufacturing is hypocritical, it claims worker freedom in job design, but propagates standardisation through lean implementers.**

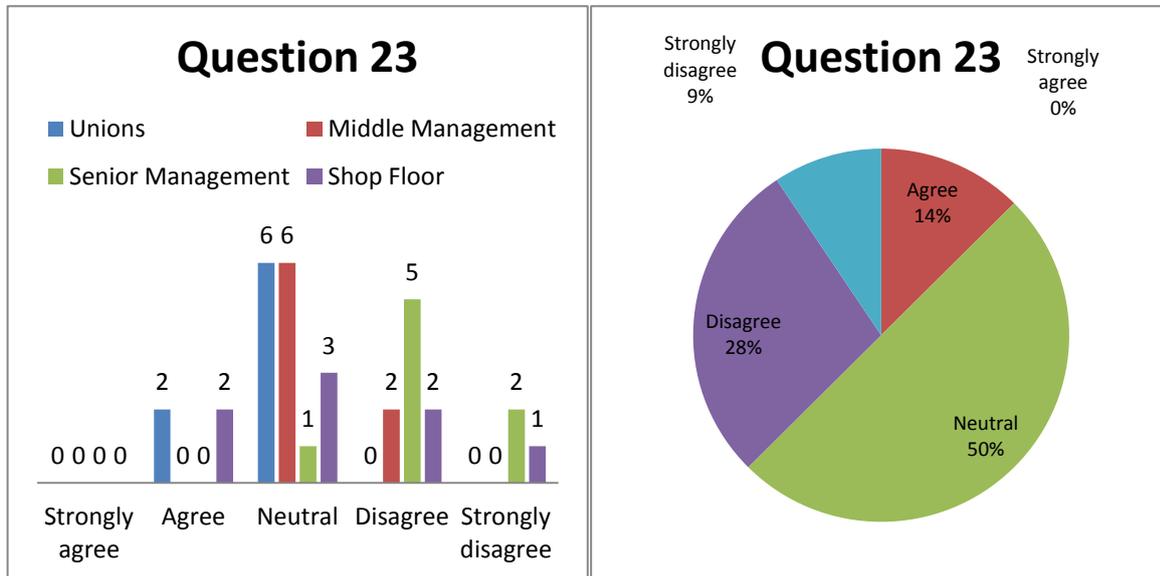


Figure 38: Response to question 23

The fact that 50% of the respondents are undecided and the remaining 50% disagree shows a distinct difference in opinion from certain subgroups. Unions remain largely undecided as do middle managers and shop floor staff. The senior management subgroup disagrees with 87.5% disagreeing with the statement. These results support differing vision with regard to the aim of lean. Although senior managers disagree, clearly those who do the work feel that they do not have control over their work design. This view of a lack of worker autonomy with regard to lean practices is supported by unions and more importantly even middle management. Unions and middle managers (75% for both groups) remained neutral on the statement.

## Question 24

Lean interventions contribute mostly to job rationalisation in the Eastern Cape.

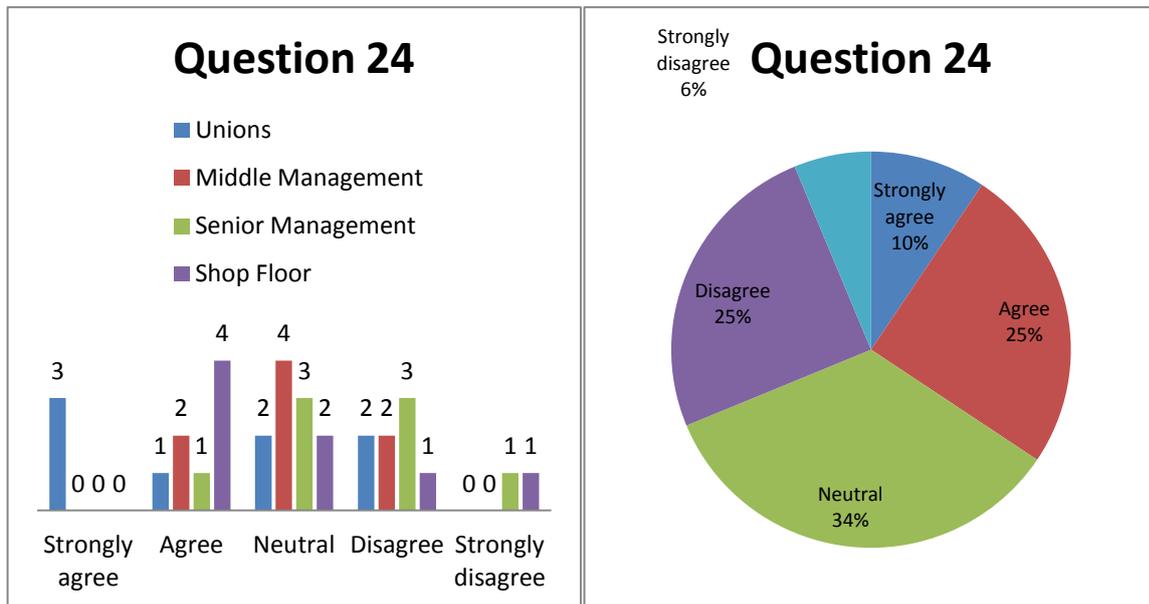


Figure 39: Response to question 24

More respondents agreed (35%) than disagreed (31%). Many respondents remained neutral. The neutrality of some of the responses could be based on the fact that lean can at times lead to job losses, but is most certainly not the core aspect of the philosophy. Unions (50%) and shop floor respondents (50%) formed the majority of those that agreed with the statement. This response could be based on company practices historically or the lack of trust established in question 21. Senior and middle management showed disagreement with the statement.

## Question 25

In your organisation, employees have the ability to change and standardise their work pattern.

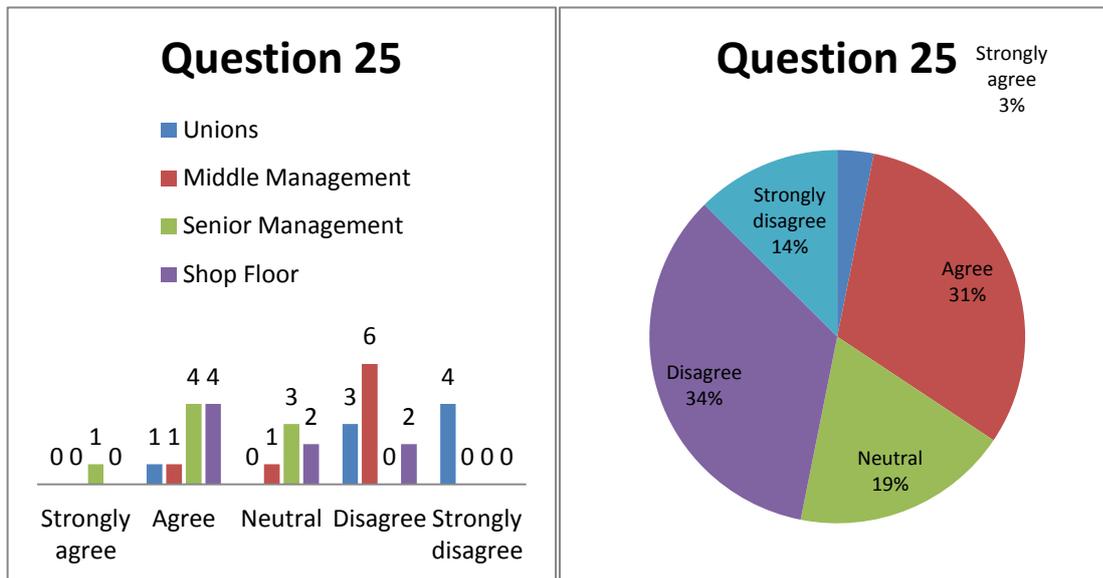


Figure 40: Response to question 25

The aim of this question was to anchor question 23. The results proved similar with unions and middle managers largely disagreeing with worker autonomy in the respective organisations that participated in this research. Once more, senior management believes that workers are allowed the freedom to change their work pattern as they feel fit. From these responses it is clear that workers do not have the authority to change their work pattern. It would thus be a deduction that senior management is not fully in touch with practices on the shop floor in this regard. This assertion made by unions and backed up by middle managers and shop floor staff has serious implications for the sustainability and results obtained through lean implementation.

### **4.3 Thematic analysis of open-ended questions**

The results of the qualitative open responses are provided below after completion of the development of various theoretical constructs for the responses from the various subgroups. The overarching theme provides a summation of the responses by subgroup in order to clarify and support certain quantitative responses. The complete thematic analysis with theoretical constructs may be found as Addendum 2 of this research treatise.

#### **Question**

*Would lean implementation programs be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process?*

#### **Union overarching theme**

The unions feel that their involvement will improve lean implementation sustainability and results by allowing more effective communication with shop floor members as a result. Unions are of the opinion that they have limited involvement currently. In addition to being able to bridge the gap in communication between management and staff, unions feel that they may be able to provide better direction to lean initiatives relating to the intended outcome that is beneficial for both parties (shop floor and management). This would ultimately, in conjunction with better communication, reduce resistance to change among employees and facilitate sustainability and obtain cooperation from employees regarding lean programs.

#### **Middle management overarching theme**

Sustainability and results of lean interventions are considered more successful with union involvement. The importance of the shop floor in lean implementation is emphasised in the answers from middle managers. The extent to which unions influence the shop floor through understanding and support for the initiative helps to motivate workers and assist with ideas to make the initiative more of a 'people on the floor idea'.

The speed at which the initiative is implemented is also impacted in a positive manner by union involvement. There is more of a barrier without involvement with

the overarching theme being that unions, who better understand lean, make it easier for the shop floor to accept and share their ideas regarding the implementation and concept itself. The potential for a negative impact is not identified in the response from the middle management sample.

### **Senior management overarching theme**

The trade union definitely impacts on the perception of the shop floor regarding the concept of lean and its benefits. Unions are able to impact on the culture of the organisation and be more willing and accepting of the principles of lean. Since unions act as the voice of the people, union involvement improves the results through communication and involvement of the voice of the people. Without the involvement of the shop floor and unions the exercise to introduce lean becomes difficult and fruitless as its purpose is designed to be driven by the shop floor supported by a culture of trust and acceptance.

Leadership is required to nurture the trust relationship with unions and inform them of the benefits present for all stakeholders. The culture of the organisation must further be supported by a vision defined and managed by a leader who allows all employees to share in this vision. The results and sustainability of such a lean initiative is thus improved and the leader acts as a conduit for empowerment of the people jointly with the unions. Union coercion of employees and resistance to accept the principles of lean are thus greatly reduced and lean implementation is successful.

The overarching theme is thus that leadership should engage unions to highlight the benefits, involve the unions and the people and create the shared vision. Without union support this becomes a difficult task.

### **Shop floor overarching theme**

The large majority of shop floor personnel are of the belief that union involvement in lean implementation will improve the success and sustainability of the initiative. The responses to the question show that shop floor workers firmly believe in the union's ability to act as the single voice of the people. The belief is that communication is improved through union representation. Organisational culture is also thought to improve through the involvement of unions in lean implementation.

## **Question**

*In your opinion, how do trade unions generally influence lean implementation?*

### **Union overarching theme**

Unions expressed their lack of involvement as a reason for their influence currently being neutral in terms of support for lean implementation. They admit to a lack of understanding because management does not include them in the planning of lean initiatives. Unions will support lean positively should layoffs not be the sole purpose of lean. The unions are willing to get involved, assist with implementation and communicate with employees if the intervention supports the well-being of employees.

### **Middle management overarching theme**

Middle managers were of the opinion that lean is influenced, at present, negatively by the trade unions. Union influence results in negative perceptions from the shop floor towards lean. In other instances, it leads to outright resistance to change.

Responses from middle managers take the theme further by proposing a neutral stance on the influence trade unions might have; the construct shows that factors that determine the influence include:

- The perception and knowledge of the shop steward involved in the lean drive
- Lack of involvement creates a negative perception. This may be attributed to trust issues between the implementers and the unions.
- The misconception of unions with regard to the purposes of lean.

This presents a paradox. Unions are at present negative in their opinion of lean manufacturing; however, the mix of factors present in any given organisation could assist with lean implementation. The factors that are necessary as determined from the quantitative responses are improved communication, transformational and inspirational leadership and an incentive scheme that holds importance for all stakeholders. The issue to consider now is what is required to ensure that the factors revealed in the responses are changed to allow a positive influence in future initiatives.

**Senior management overarching theme**

The themes from senior managers presented on this question highlight the perception issue facing lean manufacturing. Unions are incorrectly informed of the benefits. The general lack of understanding results in the negative attitude harboured towards lean implementation. The focus on monetary gain also relates to the leadership aspect where lean manufacturing gains are not shared equally amongst stakeholders. Shop steward alignment to and opinion on the goals of the lean initiative are integral in the acceptance by the people of the organisation of lean concepts and subsequent implementation. Leadership should inspire the people and unions and provide resources and training to inform the stakeholders of other more salient benefits of lean manufacturing to overcome the perception that lean is a means to effect job losses in the industry.

Based on the above qualitative responses, the negative impact unions are currently having on lean implementation is overwhelming from the perspective of senior management.

**Shop floor overarching theme**

The large majority of shop floor respondents believe that unions at present impact on lean negatively. This stems from the fact that union involvement is low in most regards in local suppliers. The consequent impact from unions is to affect the culture by steering the organisation towards resistance to the lean initiative. Furthermore, shop floor respondents believe that this lack of communication by the organisation through their trade union does not motivate them to participate as unions often have the interests of the people as a priority. The overarching theme is thus that limited involvement by unions leads to the union influence being negative towards the concept by creating a culture of resistance towards lean.

**Question**

*Would lean implementation be more successful with union involvement?*

**Union overarching theme**

Union respondents agree that they can assist with lean implementation. However, success of lean implementation is relative depending on which stakeholder group you represent. Union involvement in the planning stages could ensure a win-win situation for all. Through the employment of an incentive mechanism, and shift of focus away from labour rationalisation as a primary focus of South African lean initiatives, unions believe their involvement could create a unified vision for the company toward lean. According to the unions, through their involvement, improved communication, working relations and reduced resistance to change will certainly enhance lean as a concept driven from the shop floor levels.

**Middle management overarching theme**

The thematic analysis for this question comprises 87.5% of the responses that union involvement would benefit lean implementation. This benefit is based on the unions' understanding of the reason for the initiative and subsequent support. Furthermore, one respondent highlighted an important point. Unions in most instances will not offer their support should the lean initiative result in head count reduction.

However, should there be a market downturn; unions may support the initiative by supporting the sacrificing of the few to save the many.

Based on the identified theoretical constructs, it is clear that union involvement is crucial to implementation success as it creates support from unions and thus the shop floor by improving communication, reducing implementation costs and eliminating resistance to change.

**Senior management overarching theme**

Timing of involvement of unions determines the impact they may have on successful implementation. In general the response alludes to involvement as an aid to successful implementation. Involving unions from the start allows for the sharing of information and acceptance. It shows good faith and fosters a culture of open communication. The other aspect of timing refers to when the initiative is being

undertaken as this could impact on the aim of lean. Companies experiencing downswings in profits and slow down of growth tend to have a culture and union that are less facilitative of lean. Those organisations that are in the growth stages have an energised work force more willing to embrace lean.

The skills of the shop steward (knowledge of lean) and those of the leadership of the organisation define ultimately the success of the initiative from a senior management point of view. Involving a union with a shop steward who has little or no knowledge of lean concepts could be counterproductive. Conversely, leadership which encourages an incorrect approach of 'selected' union involvement could impact on trust and allow unions to derail lean efforts.

The overarching theme for these responses is however in favour of union involvement as a definite factor that affects lean implementation success. It is also interesting to note that this involvement is dependent on the culture and leadership of the organisation. The relationship found in these responses alludes to a combination of organisational lifecycle, skills of leadership and shop stewards as the factors that determine whether union involvement would enable implementation.

### **Shop floor overarching theme**

Shop floor workers generally believe that union involvement can change the perception of the shop floor to be more accepting of lean. This is achieved through the integration of ideas and opinions from the people through the unions and back to the people. The unions can also gauge with management the extent of training investment required and work with people to identify the need requirements. The element of trust required for successful implementation is also a key component of lean implementation. The overarching theme is thus that an informed union, which is knowledgeable about the benefits offered through lean manufacturing, is one that can assist with the implementation efforts resulting in a more successful implementation.

**Question**

*Do you feel that there may be a relationship between the barriers identified in question 11 where one barrier may influence another barrier?*

**Union overarching theme**

Unions assert that the issues of poor leadership affecting communication, organisational culture and even the approach of inexperienced lean implementers have a direct relationship. Ineffective leadership, however, appears to be the main barrier seen to be the root cause of other barriers. Leadership in this instance does not appear to be restricted to senior leadership but the leadership of middle management (production supervisors, lean implementers etc).

**Middle management overarching theme**

The overarching theme emerging from the respondents for middle managers shows that there is definitely a relationship between the barriers. All respondents agree with this statement. Overwhelmingly, though, fifty percent (50%) of the respondents agree that leadership shares a relationship with all other barriers. Ineffective leadership in the opinion of half of the respondents selected is the starting point of all other barriers. It thus stands to reason that effective leadership breaks down barriers and results in sustainable implementation of lean. Union resistance is seen as the result of poor leadership.

**Senior management overarching theme**

The thematic analysis of the open responses from senior managers clearly shows that there definitely exists a relationship between various barriers. In some instances one barrier may lead to a few other barriers either directly or indirectly as gathered from the responses. All eight of the respondents confirmed their understanding that there is a definite relationship between barriers to lean implementation. All respondents mentioned leadership as the start of most barriers, although this does not mean that barriers will not exist with effective leadership. The overarching theme is thus that there exists a relationship among the barriers to lean implementation. Furthermore, the extent to which these barriers impact on the success of the lean initiative is determined by the level of effectiveness of leadership for mitigating the impact of them.

### **Shop floor overarching theme**

There is a definite sentiment among workers that barriers to lean are related. Respondents in most instances highlight the importance of leadership when it comes to the elimination of barriers. Lack of the correct leadership style or approach creates a plethora of other barriers that cascade through the organisation. From the responses, ineffective leadership can affect organisational structures, poor communication, union perception and trust among employees. All of these are perceived to be barriers although the root cause appears to be ineffective leadership in some instances.

Leadership however should not be perceived to be the only “initial” barrier. Union resistance as a result of poor communication could affect the culture of the organisation and this could in turn lead to resistance from the work force to the lean initiative.

### **Question**

*What other barriers would affect a successful lean implementation in an organisation?*

### **Union overarching theme**

Unions highlight four barriers that have a major impact on lean implementation. Poor planning from management, low motivation levels for the lean program, lack of transparency relating to lean outcomes and lack of team work among the various members of the organisation.

### **Middle management overarching theme**

Middle managers highlight the importance of training. The manner and extent of training is a key focus area that concerns middle management. The lack of training leads to low morale, poor motivation and consequently additional barriers which may include but are not limited to:

- Resistance to change
- Union resistance
- Increased investment costs as a result of failed implementation.

### **Senior management overarching theme**

The most prominent barriers that appear through the themed data for this question indicate that training on lean concepts is at present a major barrier in component suppliers. This training issue could relate to the content, the approach or the total absence thereof. Each factor in training would have a legitimate impact on the quality expected from the outcome of lean implementation. Further supporting this theoretical construct is theoretical construct two. This construct highlights the methodology employed with particular focus on how the lean implementation is planned and how this impacts on the ability of the shop floor to own the process given current work commitments. The team concept could be emphasised which would allow for ownership of the lean process through work distribution and team meetings. Failure to plan the lean implementation effectively whilst considering the stages required in developing the lean culture could lead to a key aspect being left out. Based on the response, the overwhelming overarching theme is lack of or poor training on lean concepts. This is interesting since unions lack the general understanding of lean implementation and a relationship may be assumed between union resistance and training of all relevant stakeholders.

### **Shop floor overarching theme**

The literature study conducted in Chapter Two identifies most of the barriers except supplier and customer requirements. These requirements by customers relate to certain standards (e.g. bin quantities, just in time supply) which may result in operating practices that do not allow for lean manufacturing to be adopted. Foreign management style was also identified as having a sub-optimal impact on communication and trust levels among workers. The approach and style adopted by the lean implementer occurred frequently through the research, it appears again in the shop floor qualitative data as having a major impact on lean success. The personality of the implementer is often rejected on the basis of ineffective communication and lack of trust from the shop floor of the implementer. Training and investment in lean are also prominent barriers echoed in the literature study.

The overarching theme is that there are many barriers that affect implementation that are as a result of different direct and indirect factors which include:

- Available budgets

- Organisation size
- Strategic vision
- Support levels in the organisation
- Methodology and approach to lean implementation

These factors/barriers are thus deemed applicable within the Eastern Cape automotive context.

### **Question**

*In your opinion, is there a relationship of trust between employees and employers?*

### **Union overarching theme**

Unions perceive a major gap in the levels of trust required to ensure lean sustainability. Leadership failure from management at all levels in the view of unions creates a debilitating environment where there is very little trust. However, through greater transparency and transformation the process of enhancing trust is in progress and there is a sentiment of hope among union representatives that trust can be restored among component suppliers. Unions also place the lack of trust on poor transparency with hiring and firing practices and the use of incentives. Race and gender prejudices further complicate matters in the view of unions with racial divides and gender inequality still presenting a barrier towards greater trust levels within organisations. This is a complex problem that requires further study. The dynamic between trust and the various barriers presented here extends beyond the intention of this research. It is sufficient to state that at present the view from unions is that there is a definite lack of trust and that this contributes towards other barriers to lean manufacturing implementation.

### **Middle management overarching theme**

The stance of middle management on the relationship of trust that exists between employers and employees remains mixed. Its importance to lean implementation is crucial to its success. The involvement of unions becomes evident in its importance of fostering this trust as the spokesman of the people. However, the situation remains mixed. In some instances there is a relationship of trust and working together. In other instances, the legacy of the apartheid era results in an 'us versus them' mentality.

**Senior management overarching theme**

The responses from senior managers point to a relationship and trust dilemma resulting in failed lean attempts within organisations. The trust issue is historical and the relationships between organisational leadership and the workforce are affected negatively by unions. The union's affiliation with the ruling power provides them with a sense of power over the people and a positive working relationship would result in a union without use or purpose. Unions use racial differences as a basis for creating the divide between the workforce, traditionally between blue collar and white collar workers, the purpose being to derail efforts that may actually benefit the people the unions are trying to protect. The perception that there is an "us and them" is fostered by the union and creates the distrust in anything suggested by the organisational leadership. Attempts to thus change organisational culture and effect change are exacerbated by an unwilling union.

**Shop floor overarching theme**

The relations and trust issues highlighted by the shop floor staff are related to other factors. Most notable is the lack of effective communication between the various levels in the organisation. Employees feel detached from the organisation and this is brought on by certain employment practices that shop floor workers claim are favoured for the white minority. This guides them to seek the services of the union in order to ensure transparency, better communication and honesty from management. However, since all of the suppliers that took part in this research are unionised and the problem is still present as shown by the shop floor responses, the union's effectiveness has to be called into question in terms of solving these issues between the shop floor and management.

**Question**

*Any additional comments, statements or opinions?*

**Union overarching theme**

Unions are of the opinion that lean manufacturing is of critical importance to the sustainability of the auto sector. They do however object to the method and intended outcome of certain lean practices geared at job rationalisation. This is propagated as expressed by unions through a lack of understanding by management. This is further

exacerbated by a lack of a unified vision from senior leadership. A mechanism to share the financial spoils of a successful lean program will develop shop floor interest and boost motivation levels as the stakes for implementation success are raised.

The win-win situation needs to be clearly defined and transparent with all stakeholders involved in the planning and implementation of the scheme.

### **Middle management overarching theme**

The additional comments afforded through the questionnaire summarise the stance of middle management on the impact of unions on lean implementation success. Simply stated, it is critical, but what is even more important is the leadership approach that determines the union perception and thus shop floor agreement to lean. Leadership style results in a certain stance by unions. The absence of unions in key decisions which affect workers could be met with resentment fuelling distrust in the organisation. The trust issue present among employees and employers is a leadership issue. Middle managers agree that without effective leadership, organisation competitiveness will remain a challenge and union resistance will ensue and be seen as the cause, when in fact it is a symptom of ineffective leaders.

### **Senior management overarching theme**

Senior managers did not complete this open-ended question as it was optional.

### **Shop floor overarching theme**

Shop floor representatives did not complete this open-ended question as it was optional.

## 4.4 Summary

The results of the questionnaire highlight its effectiveness in gathering the relevant qualitative and quantitative data required to arrive at informed conclusions and formulate theories on the research problem. The results show a strong impact by unions on the success of any lean intervention among the Eastern Cape component suppliers. Unions are aware of the benefits of lean; however there is an overarching theme of lean being predominantly used to reduce labour inputs.

What emerges as of major importance from the results presented here, is the relationship other barriers have on the perception of lean. Leadership plays a pertinent role in union perception. The lack of involvement from unions does in fact lead to other barriers such as communication issues, lack of trust and the concern of the methodology and leadership displayed by all levels of managers in the sector.

There are many disparities in opinions on the intention of lean manufacturing, the investment currently channelled into lean and the expected outcomes of the initiatives. Many respondents understood the role unions play, and the current limitations of how lean is executed by isolating the benefits to the company and excluding the employees from the potential monetary savings. Unions and shop floor representatives advocate this as a necessary incentive to motivate the ownership aspect required by lean manufacturing. The general consensus relating to ownership of process changes on the job highlights a centralised approach to changes that is simply not conducive to lean culture.

The conclusions assimilated from this chapter will be extrapolated in Chapter Five and from these conclusions, recommendations made for improving lean sustainability and results in the automotive component sector in the Eastern Cape.

## **Chapter 5 – Conclusions and Recommendations**

## **Chapter 5**

### **5.1 Introduction**

Chapter Four of this research treatise focused on the presentation of the results collected through the research questionnaire. The questionnaire allowed for both closed and open-ended responses which would allow for an interesting cross referencing of information between the qualitative and quantitative data gathered for the questions concerned.

The questions covered would allow for the development of various conclusions and formulation of theories that would lead into the recommendations. This would secure an approach that would see greater union support and sustainability of lean programs in the Eastern Cape automotive component sector.

The graphical analyses for the closed ended questions highlighted each subgroup's response and in certain instances focused on collective responses. The combination of certain responses will be considered in theory development and also to establish the relationships that exist between the various barriers considered in this research.

The thematic analysis in Chapter Four affords an opportunity to understand the responses in greater detail and to determine from the overarching themes presented how certain barriers may impact on each other. The development of categories through theoretical constructs is a mechanism used with which to analyse the qualitative responses.

The drawing of conclusions from Chapter Four will determine the theories presented. These theories will then be used to answer the research questions. Following on from this, various recommendations will be made for the Eastern Cape auto component sector that will result in the final presentation of a model approach to mitigate the impact of barriers and convert potential threats from unions into opportunities for a joint journey of continuous improvement.

## **5.2 Conclusions**

### **5.2.1 Unions as a barrier to lean implementation and sustainability**

The results compiled for question 2 show that unions view lean in an unfavourable way. Naturally, since question 3 shows that unions do affect culture, the culture required for lean is affected negatively. Since culture is affected negatively due to an inappropriate union perception, the subsequent change management processes are impeded upon.

Since question 4 highlights the fact that unions may have a variety of impacts on lean, it can be asserted that other barriers and/or factors play a role in the union's perception and thus impact on organisational culture.

One of the factors that affect union perception is the fact that unions at present are rarely actively involved in the implementation process. When the unions are involved, their involvement is usually limited to information and sometimes a few suggestions without actually understanding the outcomes of the lean initiatives, as determined from the responses to question 5. Questions 7 and 9 support the fact that unions could have a greater and more positive impact on lean manufacturing in component suppliers.

Union involvement in planning and implementation is important, since unions are the voice of the people. Any factor which has an influence on the perception of the shop floor workers should be considered an important element in lean implementation. Shop floor workers are critical in lean implementation as shown by the literature review which highlights their importance in sustainability and ownership of the processes required to drive lean.

Question 6 shows that unions drive investment in the people; unions however feel that this investment should not be their sole purpose and at times may prove to have negative consequences. The possibility of acquiring a certain salary increase or training investment from the management could lead to additional workloads not manageable by the shop floor. Unions view this as an unfair practice as companies sometimes place unreasonable expectations on feeble investments in necessary training and development.

Currently, unions appear to have a negative impact on lean implementation. This poses a serious threat to the sustainability of the auto component sector as lean manufacturing directly relates to competitiveness. With increasing global competitiveness pressures, a workforce that is de-motivated and negative towards the philosophy that could ultimately secure their jobs makes it an urgent matter to change this negative perception of lean held by unions and the workforce.

### 5.2.2 Poor leadership creates other barriers

The single most important factor that affects this perception held by unions and the workforce is that of inconsistent and poor leadership. The responses to questions 10 and 11 highlight this as a major factor contributing to poor communication and consequently poor implementation practices. This ineffective leadership stems from the practices employed by organisational leaders that show deficiencies in their ability to promote and sell lean to the workforce using the unions as their conduit. This oversight is often viewed with mistrust from the shop floor and unions leading to questions regarding the true intentions of lean which most view as job rationalisation.

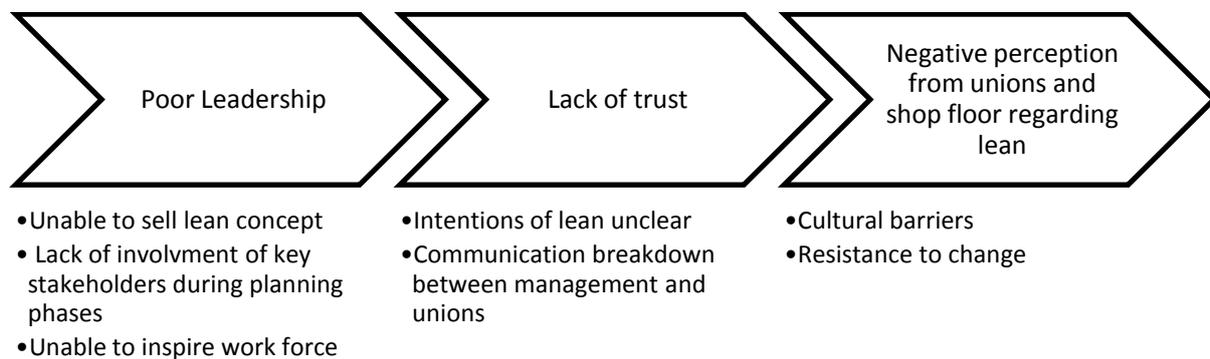


Figure 41: Researcher's own model showing the relationship between leadership, trust and the perception of lean among component suppliers

The ineffective use of communication and involvement by leaders in suppliers directly impacts on the approach taken by the unions in their support for these initiatives which could result in direct disagreement or subtle sabotage of initiatives leading to various forms of lean program failure either early on or later in the implementation phase.

The methodology employed by lean implementers is another important factor in the Eastern Cape. The way lean is presented to the workforce and the use of work

teams and ownership highlight gaps in the current approach. Workers feel that they do not have enough autonomy and this is demonstrated in the sustainability of lean in the region. Lean implementers and senior managers lack the following in their approach:

- Multilingual training approach not being used
- Absence of simulation games to aid understanding
- Centralisation of shop floor changes
- Lack of involvement by lean implements of key stakeholders
- Creation of a shared vision is often lacking in suppliers
- Absence of an interest alignment lever (incentivised approach).

Leaders are not creating a convincing case for the work force and their trade unions to embrace lean as a philosophy. The perception is still that lean results in additional work and reduced labour inputs (question 12f). This cascades down the ineffective communication from senior leadership through to middle management. Through an inspirational, people-centred approach, organisational leaders should be able to gain commitment and motivate staff towards a common vision (question 12e) that is agreed upon by all stakeholders. This vision need not be a broad macro vision, but one centred on the lean philosophy. The lack of racial transformation among management in organisations also supports the general lack of trust among the various levels in the organisation that is often manipulated by unions to win favour with their constituents.

### **5.2.3 Trust issues in Eastern Cape component manufacturers**

The lack of trust between management and the shop floor in organisations is further intensified by gender and racial differences as supported by the responses to question 15. The fact that these differences are still considered an impediment can be attributed to a combination of poor leadership and a trade union that antagonises management with their influence over the people. Leadership in this regard goes both ways. From a union standpoint, leaders are required to embrace management practices and accept attempts to engage and overcome prejudices when they occur. Management should provide evidence of their commitment to transformation through the practices of recruitment that reflect the move towards a transformed organisation. Question 21 however shows that the situation is not without hope.

Many respondents agreed that trust is a process that is ongoing and is in fact getting better. Currently, the trust issue permeates lean quite aggressively and impacts on a number of barriers to lean which include but are not limited to:

- Communication ineffectiveness
- Misaligned organisational culture
- Union and employee resistance to change
- Financial investment in lean.

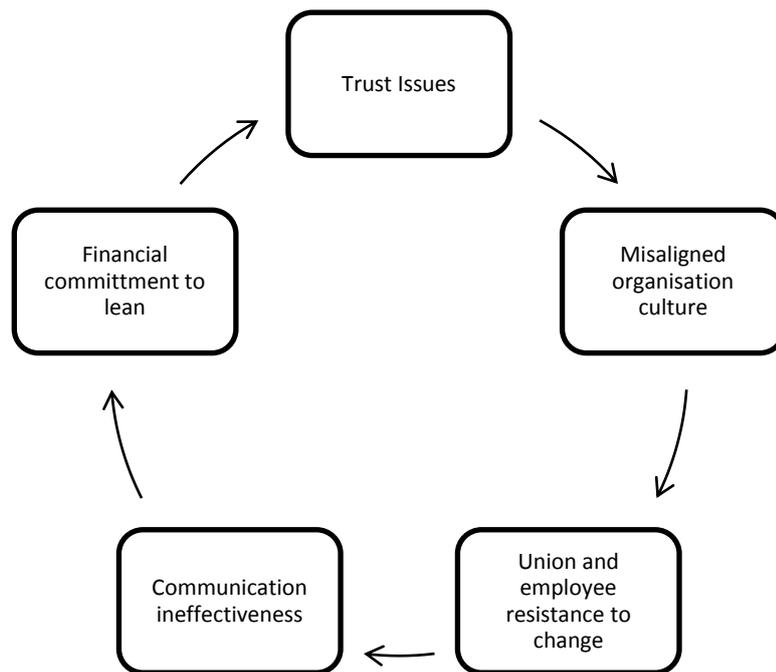


Figure 42: Researcher's own model showing the lean barriers reinforcing cycle that impedes progress towards sustainable implementation.

#### 5.2.4 Middle management is a barrier to lean implementation

Middle management forms an integral part of lean implementation. It is evident though that they may present a barrier to lean implementation and sustainability. This fact is highlighted in the responses to question 16. The cause of this barrier can be attributed to other barriers. Communication and organisational structure barriers appear to be related to middle management performance in implementing lean. Leadership by middle management and the methodology applied in the implementation used by middle managers also contribute to their role in impeding lean implementation.

It appears that shop floor workers and unions prefer the centralisation of lean activities. This however is not the ideal approach and goes against the tenets of lean. The decentralisation of lean implementation activities and ownership of the concept from the shop floor determines the success and sustainability of lean. The current format of lean implementation requires heavy middle management involvement. Although involvement by middle management is necessary, there needs to be a point in a lean program where the shop floor drives the activities. Unions and shop floor workers as expressed in the responses feel this to be additional work. This perception must be counteracted by senior leadership in order to progress to a proper culture conducive to lean sustainability.

### **5.2.5 Suggestion Schemes**

Question 18 highlights the importance of an incentivised suggestion scheme. The importance of sharing the savings made from lean in monetary form was expressed by the unions in the literature review. The response in this research echoes this sentiment with both unions and shop floor workers agreeing that such a mechanism would assist in lean implementation as an interest alignment lever.

The lean (continuous improvement) suggestion scheme is pivotal for suppliers should they wish to embark on a lean program. The lack of such a program places the interest of the very audience required to embrace the philosophy at risk.

By adopting a well structured and communicated suggestion scheme that has been designed and developed with all stakeholders, lean manufacturing in the Eastern Cape automotive sector will be more successful. Some suppliers have attempted such suggestion schemes linked to lean; however the valence of outcomes has not appealed to the shop floor in some instances.

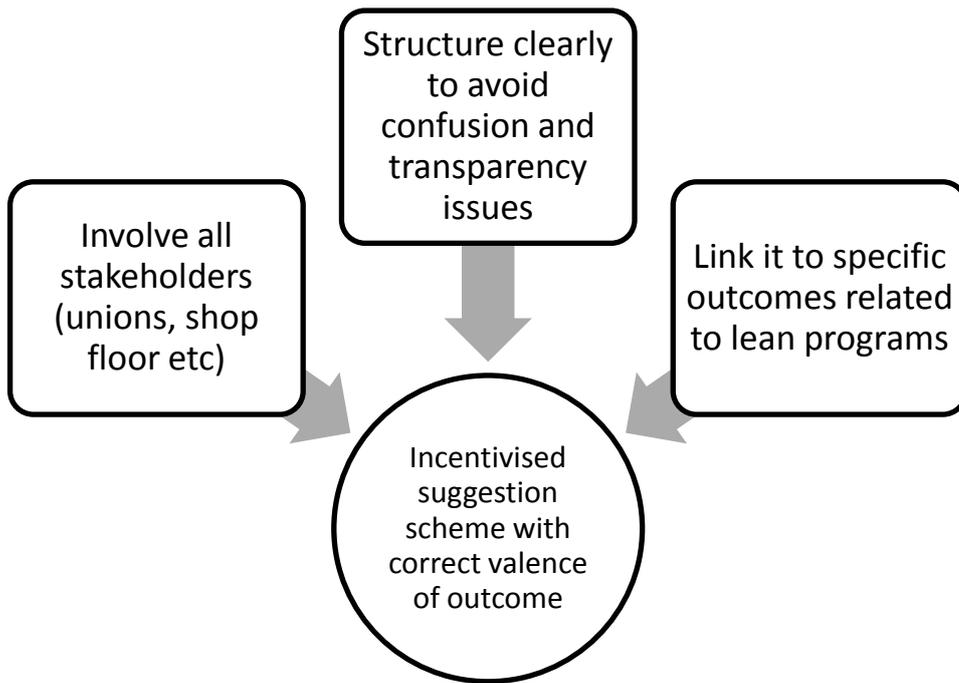


Figure 43: Researcher's own model showing the approach to incentivise lean activities through a suggestion scheme

Once all stakeholders notice the attractive benefits that can be realised through lean, ownership from the shop floor will begin to take place and a lean culture will permeate through the organisation. The issue of extra work required by some lean practices or outcomes mentioned by unions would be addressed as well.

### 5.2.6 Methodology for lean implementation

The responses to question 19 allow for the following conclusions to be made regarding the methodology required for successful implementation:

- i. Training of employees before lean implementation is important and has the potential to reduce other related barriers. It is important as part of the change management process.
- ii. Awareness of the outcomes and philosophy of lean has been gauged as important as it reduces resistance to change from employees in the organisation.
- iii. Decentralising lean and providing employees with ownership of the process is crucial to lean sustainability.
- iv. Post-implementation audits help pick up roadblocks to lean progress and identify areas where support is required. This is not a mechanism to create

distrust but should be seen and communicated by leadership as a means to ensure progress towards a lean culture.

Currently though, the methodology employed by lean implementers in suppliers use some of the best practice approaches, but not all the techniques are used that could yield better results.

### **5.2.7 Multilingual approach to training**

South Africa is home to eleven official languages. The diversity of the workforce requires an approach to training that would allow employees to understand the concepts in their own language. It is relevant and important that language barriers be addressed as employees who undergo training in a language they do not understand often make it a futile exercise. Realistically though, not all languages can be catered for, but certainly the most popular languages can be used in both training material and the spoken word. At present training is often given in one language and the workers in the suppliers engaged do not necessarily understand the concept of various lean initiatives as clearly as they should.

### **5.2.8 Investment in lean implementation and sustainability**

Even if the level of investment in lean is adequate at present, in certain instances the spend on implementation is misdirected towards irrelevant activities and unnecessary resources. The investment in lean is an ongoing investment that does not often yield returns in obvious ways. The earlier expression of the benefits of investment schemes can be seen as one such opportunity to re-direct investment in lean. At present though, stakeholders questioned in suppliers are neither pleased nor disappointed with current levels of investment. It is sufficient to conclude that enough investment is made in implementation but not enough in sustainability.

### **5.2.9 Worker ability to change work flow and work patterns in line with lean principles**

The responses to questions 23 and 24 form the basis of the conclusion discussed here. These questions sought to identify if workers have the right to change their work patterns. The conclusion though will be made considering the level of lean currently residing in the companies. At present, workers are not allowed enough freedom to change their work patterns and flow. Based on the results obtained

through this research, the work of the shop floor is often defined through group discussions and meetings based on supervisor and manager preferences.

Understandably, workers are not at the level of lean thinking required to understand the extent of their actions on the various elements of the work required by their standard operating procedure. In many of the suppliers, the basic standard operating procedures lacked detail or were so complex that they confused rather than illuminated the understanding of the workers. It therefore stands to reason that lean implementers in their methodologies and together with stakeholders should change operating practices relating to implementation in order to allow workers this freedom only after a sound foundation of lean implementation has been incorporated into the organisation.

### **5.3 Theories on the barriers to lean in the Eastern Cape**

The thematic analysis presented in Addendum 2 of this research treatise allowed for some exploratory concepts to emerge from the open-ended question responses. The theories presented below will allow for the answering of the research questions and will form the basis for the recommendations to the automotive sector in the region.

#### **5.3.1 Unions are not a direct barrier but the result of some other related barrier**

Unions by nature are protective of their constituents. Their desire to gain the trust of the people is essential to their existence as an organised entity. The facts presented in this research lead to a theory that leadership from management in organisations shapes the perception held by unions and therefore the shop floor.

The unions only exist because the shop floor requires them to. The lack of trust brought on by activities happening within organisations that are not transparent creates discord and speculation often resulting in fear and resentment between all those involved in the organisation. It is the separation of the people in an organisation into factions (us and them) that ultimately leads to the design within which unions operate.

If the leadership gains the trust of the people and the unions are made to understand the implications of various activities such as lean through clear goal-orientated

discussions and planning sessions, many of the trust issues, union and employee resistance and communication concerns will dissipate.

### **5.3.2 Ineffective leadership is the source of many other barriers**

The importance of leadership from senior members in the suppliers and unions is a factor that will determine the success of the industry in the years to come. The use of the correct leadership style and employment of appropriate vision are core requirements to mitigate the impact of incorrect perceptions of lean.

The plans for organisational growth start at the top but are dependent on the buy-in from the people below. With ineffective leadership, trust issues form. These trust issues lead to communication concerns and ultimately permeate the organisation in the form of a resistance to change from unions and shop floor workers.

### **5.3.3 Incentive suggestion schemes will create trust and interest alignment**

Employees and trade unions are open to lean concepts. The adoption of lean concepts needs to have specific benefits for all stakeholders concerned in the initiative. By adopting an incentive suggestion scheme linked to lean activities, the outcomes of which are relevant to the parties' concerned, lean adoption and sustainability will improve.

The role of middle management and leadership in controlling the process with the greatest transparency in how rewards are dealt out is important. The opposite effect (resentment and distrust) could occur if communication and transparency are absent.

### **5.3.4 Unions and management are open to collaboration**

Unions are willing to work with management and vice versa for the goal of employee satisfaction and organisational competitiveness. This is clear from the responses as both parties agree that trust, although at present an issue, is slowly reaching a point where it is no longer an issue. This will become clear as growing global pressures force companies to find innovative ways to keep employees employed and work against low cost producers who have to a large extent embraced lean practices more successfully.

The competitiveness of a company is measured through its ability to react to change. Through collaboration with unions, managers may find that change is easier than previously thought.

### **5.3.5 A lack of skills among union shop stewards and middle management impedes lean progress**

The level of knowledge required to fully understand the lean concepts is of paramount importance to success. The maturity levels of middle management and shop stewards need to be addressed by the leadership of the trade union and the respective organisation.

Without the correct level of maturity and knowledge, lean becomes nothing more than a paper exercise for the middle managers and the people who are influenced by shop stewards who lack the ability to consider the best interests of their constituents.

Through team work and proper training in order to ensure the level of understanding of lean is there, implementation success is enhanced from the shop floor level.

## **5.4 Implications for the research questions**

### **Main research question**

**What is the impact of unions and other contributing factors resulting in the sustainable implementation of continuous improvement programs within the Eastern Cape automotive component suppliers?**

The main contributing factors, both direct and indirect as related to sustainability and implementation of lean programs are:

- Union resistance to lean principles
- Ineffective leadership practices
- Lack of involvement of key stakeholders in the planning and implementation of lean concepts
- Erroneous perception of lean outcomes by unions and the shop floor
- Absence of an interest alignment mechanism for shop floor workers
- Incorrect lean implementation methodology applied by middle managers

- Ineffective communication between organisational levels
- Lack of trust within organisations
- Lack of employee ownership of lean concepts
- Lack of buy-in relating to company strategy and vision.

These barriers all share relationships with each other, where one factor could influence and result in another factor. These barriers do not occur in isolation but are dynamic in their ability to impede the successful implementation of lean concepts in organisations. Depending on organisations, some barriers impact directly on success, while other factors have a more indirect impact on the success of lean implementation and its subsequent sustainability.

➤ **Sub-question 1**

**To what extent do trade unions influence the success of the implementation and subsequent sustainability of lean manufacturing?**

Trade unions have a major influence and thus impact on the success and subsequent sustainability of lean manufacturing in the Eastern Cape. The ability to influence shop floor workers is evident throughout component suppliers. The negative perception by unions is impeding lean implementation progress in the region.

➤ **Sub-question 2**

**What other contributing factors are dominating unsuccessful implementation and is there a relationship between these factors and unions?**

Factors that contribute the most to unsuccessful implementation are:

- Leadership ineffectiveness to motivate and inspire staff
- Leadership ineffectiveness to create a culture conducive to change
- Leadership ineffectiveness to create an environment of trust and cooperation between staff and management
- Trust issues permeating the organisation
- Lack of effective communication

- Absence of an interest alignment lever (incentivised suggestion schemes linked to lean)
- Poor implementation approach adopted by lean implementers and middle management in the organisation

There is a definite relationship between the factors mentioned above and the potential for unions to be resistant to the acceptance of lean philosophy.

➤ **Sub-question 3**

**How can structures and approaches to implementation be optimised to be more conducive to successful implementation?**

The structure for lean implementation requires shop floor ownership. This has been found to be lacking; however it must be stated that this is a process that requires a foundation for lean in the organisation. The approach to involve unions in lean implementation is also absent from suppliers. This must be addressed in order to ensure buy-in and transparency of objectives. This would lead to reduced resistance from unions and shop floor workers.

The use of simulation games, post-implementation audits and a multilingual approach in lean training are all factors that are mostly absent in suppliers in the Eastern Cape. Adding these to the training approach would ensure improved grasping of lean concepts and a middle and senior management lean focus that is participative.

➤ **Sub-question 4**

**Will union involvement in the implementation of lean lead to more success in terms of sustainability of lean programs?**

The involvement of unions in lean implementation should be a prerequisite in all automotive component suppliers. The fundamental failure of lean implementers to accept this as a critical step is an oversight that needs immediate correction. Unions are the voice of the people and their involvement simply cannot be ignored. Their buy-in and subsequent sale of lean concepts to the shop floor are vehicles for lean implementation success.

## **5.5 Recommendations for industry**

The recommendations provided are based on the conclusions and theories derived from the quantitative and qualitative information that has been collected and analysed. The recommendations seek to provide a model for mitigating the impact of barriers by installing certain mechanisms and practices in place to allow for a seamless implementation.

### **5.5.1 Recommendation to improve the strategic intent and vision for lean among suppliers**

The strategy to use lean as a means solely to improve bottom line profits has long been a contentious issue. This misguided approach taken thus far has seen the buildup of trust issues and lean failure throughout the Eastern Cape region.

A strategy must rather seek to benefit all stakeholders with the aim of a continued and successfully sustainable business in the future. The strategy itself should inspire and motivate all parties involved to vehemently pursue the goals of the strategy.

### **5.5.2 Recommendation to involve unions at all levels of planning and implementation**

Union engagements should allow for equal voices from all levels in the organisation. The aim of their involvement is to gain commitment, assist them in understanding the intentions of a particular program and familiarise them with the intended outcomes of each lean initiative. Union involvement is the key to communication with the shop floor and reduces both overt and covert resistance experienced in any lean program. The collective ownership should be made clear with the strategic intent being the drive of competitiveness to ensure long-term survival of the respective organisation. Union support for lean would see the fast tracking of implementation throughout the organisation.

Involving unions from the early planning stages is thus a recommendation that would yield many benefits for any lean program.

### **5.5.3 Recommendation to select the correct leadership to drive lean in the organisation**

The involvement of senior and middle management from trade unions and organisations is critical in implementation programs. A balance between task and relationship orientated leadership is required to ensure goals are met and the intended outcome achieved. Leadership is found in this context to impact the large majority of other barriers and in doing so becomes the pivotal requirement for lean. Leaders should be charismatic in their approach to inspire and motivate the people. The integrity and the honesty required by leaders are of paramount importance in overcoming the trust issues both from the union and company management points of view.

There is tremendous scope for improvement in this area that would have positive spillover effects in all areas of the organisation. Unions should ensure their leadership is tolerant and open minded to the concept of lean by educating their constituents and leaders in the true intentions of lean. This will ensure the stigma attached to lean practices is removed from the minds of the people and replaced with the view of lean as the philosophy to improve the lives of all involved.

Managers should employ transparency and be fully committed to the entire basket of outcomes lean has to offer and steer clear of the focus on bottom line profits. Profit improvement is an aspect of lean, but it is most certainly not the overarching theme of the philosophy.

The recommendation is thus to find the correct type of leader based on their style that would see the success of implementation. The move from management focus on planning, organising and controlling in isolation should shift to planning, leading, organising and controlling together.

### **5.5.4 Recommendation to select the correct methodology when implementing lean**

The methodical approach taken to implement a lean program is currently lacking in that the language barrier is largely overlooked. The following recommendations for the approach towards lean implementation would favour improved understanding and acceptance from all stakeholders concerned:

- Awareness training on the intended outcomes of lean manufacturing
- Training sessions and material in the most prominent languages in the organisation
- Basic (class room exercises) and advanced (pilot areas) simulation exercises to clarify the various lean tools used
- Planning of intended outcomes to be evaluated later in the implementation
- Post-implementation audits to monitor and evaluate shop floor knowledge and performance against intended outcomes defined in the planning workshop.

#### **5.5.5 Recommendation for improving the investment focus of lean implementation**

The investment in lean is viewed by many organisations as a once-off cost that would see long-term benefits. The cost however is ongoing and the benefits often outweigh the costs. The focus for investment should be spread over key elements of implementation relating to the following:

- Training investment
- Infrastructure investment (training material, machinery and basic equipment for lean improvements)
- Incentive scheme investment cost to ensure sustainability.

Suggestion scheme costs should be viewed as a cost that is paid for through lean benefits. A successful idea linked to a lean practice would be rewarded to the team and/or individual based on a particular valence that is relevant and important to the individuals involved.

The approach to suggestion schemes should be transparent and allow for a rigorous review and support for projects identified by a committee established to oversee the suggestion scheme. This committee should consist of all the necessary stakeholders involved such as management, shop floor workers, unions and implementers.

A model identifying key actions required to mitigate the barriers identified in this research as core to implementation success is presented below.

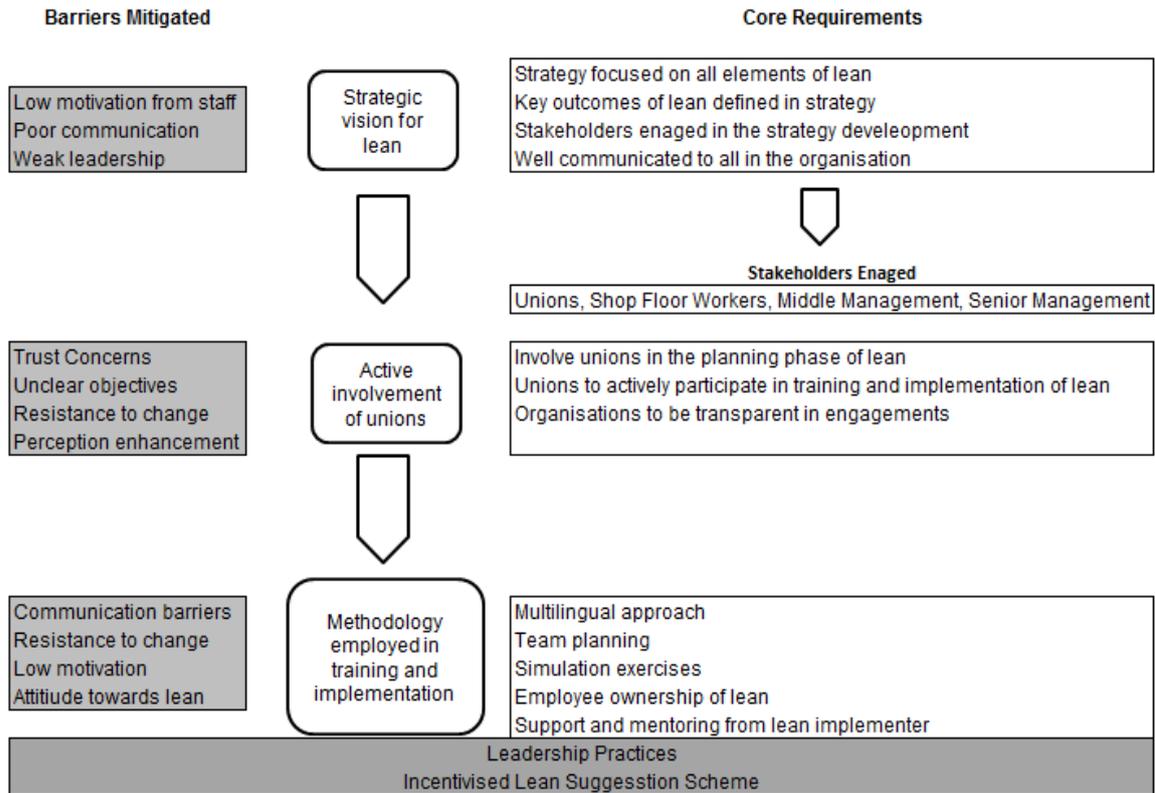


Figure 44: Researcher's own model to mitigate lean implementation barriers in the Eastern Cape

Strategic vision allows for the motivation of staff by creating a shared vision of the future. The vision allows for common goals that contribute to the improvement of all involved in the organisation. The vision would ensure that the correct leaders are present within the organisation thus allowing the inspiration of people towards shared goals. This vision should be well communicated regularly to all in the organisation.

The involvement of the trade union as an important stakeholder and voice of the shop floor presents an interesting opportunity for organisations to improve the implementation process. The fundamental improvement gained by this approach would be better communication and understanding of the challenges faced by the shop floor. The ability to garner meaningful inputs from the trade unions rests on the ability of organisational management to provide the necessary awareness to the unions in anticipation of their involvement. With trade unions involved in the process of implementation, the trust issue from the shop floor would be mitigated as unions have in fact participated in the planning of the outcomes of the lean initiative during

the planning phases and also provided inputs during lean implementation workshops and training sessions.

The perception of lean thus converts from one that is incorrectly associated with job rationalisation to one of job enrichment. Consequently, the resistance to change often initiated by unions and executed through the shop floor is mitigated as a potential barrier.

The methodology to employ lean focuses on a multilingual approach that allows for greater employee interaction through simulation exercises. These exercises could take on the form of class room exercises that allow for team games and progress to more advanced shop floor practicals through pilot areas.

## **5.6 Concluding Remarks**

The role of unions within Eastern Cape automotive component suppliers cannot be ignored. The pivotal role played by trade unions in voicing the concerns of shop floor constituents and their awareness of issues in the organisation allow for greater focus on lean programs. The emphasis unions place on communication serves to enhance implementation and sustainability of programs.

The move away from management to leadership in organisations is a business imperative where leaders serve the needs of their entire organisation and inspire the members towards common goals in an organisation that prides itself on transparency in its day-to-day operations. This leadership goes both ways where union leaders need to understand the full ramifications of their actions and the implications for the job security of their constituents if they do not embrace the true philosophy of lean. Organisational management should allow employees the freedom to make changes with the correct sense of ownership and reward for performance not only conformance to standard but improvement on existing standards.

There is a definite shift towards greater cooperation with both management and trade unions understanding the dynamics between them more clearly. The

implications of omitting unions from lean implementation is a common pitfall most suppliers face but one that is easily solved.

The competitiveness of local component manufacturers depends on their ability to work harmoniously on value adding activities that ensure their long-term survival and also ensure South Africa's role as a viable investment destination.

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## **Addendum 1 – Research Questionnaire**



## **Assessing the impact of unions and related barriers in lean manufacturing implementation in automotive component suppliers**

Dear Respondent,

I am a final year MBA student currently completing my treatise. I have selected you based on the experience and merit I believe you could offer to this important research. The objective of this research would be to develop theories for overcoming these barriers to lean implementation and offer various recommendations to the sector in order to allow greater competitiveness within South African automotive suppliers.

I will ensure that your response is treated with the strictest confidence. Should you be interested in a completed copy of this research treatise, I will be more than willing to afford you a copy upon completion.

### **Instructions**

Kindly complete all the sections from one to three by simply marking the appropriate selection with a pen or electronically with an "x". Certain answers require a written response for further explanation. Please entertain these open-ended questions by providing critical commentary as it relates to the question. I thank you for taking the time to complete this questionnaire with the hopes of a valued contribution towards the success of the Eastern Cape automotive supplier sector.

### **Please indicate your organisational type with an "x"**

Union

Supplier

### **Please indicate your role**

**Senior Manager (e.g MD, CEO, General Manager etc)**

**Middle Manager (e.g Lean Implementer, Production Manager etc)**

**Union Representative**

**Shop Floor Representative (Team Leader, team member etc)**

Student Name: Zahier Ebrahim (20224825)

Research Supervisor: Professor K. Pieterse

**SECTION 1 - This section seeks to determine the impact trade unions may have on the implementation of lean programs.**

**1. Do you have any of the following qualifications, training or experience?**

*(Please place an "X" in the applicable box)*

- a) Degree or diploma in Industrial Engineering or any other lean manufacturing related qualification?
- b) Do you have previous exposure to lean manufacturing implementation?
- c) Do you have a qualification or training pertaining to leadership? (Business or management related)


*Please specify any other qualifications or training.*

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**2. In your opinion, does the trade union view lean manufacturing as a philosophy that improves the competitiveness of the auto industry?**

Never	Seldom	Some times	Often	Always
1	2	3	4	5

**3. Do trade unions affect the culture of the organisation?**

Never	Seldom	Some times	Often	Always
1	2	3	4	5

**4. Trade unions affect the attitude of employees towards lean manufacturing in the following way: (Please mark with in "X")**

- a) In a positive and constructive manner.
- b) In a negative and destructive manner.
- c) In a neutral way.


**5. Trade unions are actively involved in lean manufacturing implementation efforts in automotive companies.**

Never	Seldom	Some times	Often	Always
1	2	3	4	5

**6. Unions negatively affect the levels of training and development investment in the people by the respective organisation.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**7. Lean implementation programs will be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

*Please provide a reason for your answer.*

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**8. In your opinion, how do trade unions generally influence lean implementation?**

- a) *Positively*
- b) *Neutral*
- c) *Negatively*


*Please provide a reason for your answer.*

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**9. Would lean implementation be more successful with union involvement?**

- a) *Yes*
- b) *Maybe*
- c) *No*


*Please provide a reason for your answer.*

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**SECTION 2 - This section seeks to determine other contributing and related factors that affect lean implementation**

**10. Poor leadership/management of the lean implementation by middle and senior management affects union perception of lean negatively.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**11. Which potential barrier to lean poses the greatest risk to implementation success?**  
 (Please place an "X" in only one box)

- a) Ineffective leadership
- b) Union resistance
- c) Misaligned organisational culture
- d) Lean implementer knowledge and experience
- e) Communication barriers between staff
- f) Organisational Structure
- g) Financial investment in the lean initiative


**12. Do you agree with the following statements regarding lean implementation?**

- a. Two-way communication between implementers and the union is crucial to lean implementation success.
- b. Methodology in lean implementation impacts on implementation success.
- c. Lean implementers require transformational leadership ability to implement lean programs.
- d. 'Top heavy' organisational structures affect lean implementation negatively.
- e. Strategic vision is always required when designing a lean implementation plan.
- f. Lean is designed to reduce labour inputs.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1

**13. Do you feel that there may a relationship between the barriers identified in question 11 where one barrier may influence another barrier?**  
 (Please provide a good reason for your answer)

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14. What other barriers would affect a successful lean implementation in an organisation (maximum three)?

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15. Delegation between organisational levels (top down and bottom up) in the organisation is affected by race or gender prejudices at times.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

16. In your organisation middle management is resistant to change and may sabotage lean efforts.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**SECTION 3- This section deals with the structure and approach to lean implementation that may either impede or facilitate lean implementation**

17. A centralised organisational structure leads to a more successful lean implementation.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

18. Continuous improvement suggestion schemes linked to incentives lead to more successful and sustainable implementation of lean programs.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

19. The following implementation processes/aids have the greatest impact on lean acceptance and subsequent sustainability.

- Pre-implementation training on lean concepts*
- Lean awareness campaigns*
- Employee ownership through continuous improvement team development*
- Post-implementation audits of implemented lean programs*
- Simulation games followed by area specific workshops*

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1
5	4	3	2	1

**20. Having a multi-lingual approach results in a positive impact on lean company training within organisations.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**21. In your opinion, is there a relationship of trust between South African employees and employers?**

Never	Seldom	Some times	Often	Always
1	2	3	4	5

*Please provide a reason for your answer*

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**22. Companies are reluctant to adequately invest in lean to achieve the desired results.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**23. Lean manufacturing is hypocritical as it claims to give workers ownership of their task yet propagates standardisation.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**24. Lean interventions contribute to job rationalisation/loss.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**25. In your organisation, employees through lean, have the authority to change and standardise their work pattern and flow.**

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

**26. Any additional comments, statements or opinions?**

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Thank you for completing this questionnaire.

## **Addendum 2 – Thematic Analysis**

## Thematic Analysis

### Middle Management

#### Question:

Would Lean implementation programs will be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process?

Response	Theme
1. If workers understand the reasons behind lean (business principles), when they apply it in their own lives but don't duplicate it in their work scenario (union support to carry over into work environment).	<i>Sustainability and results can improve through unions by <b>helping workers understand</b> the reasons for lean</i>
2. Trade unions are hardly actively involved for feedback or any other internal issue.	<i>Results and sustainability will <b>improve with union involvement</b></i>  <i>Unions are not involved, difficult to determine impact</i>
3. Lean implementation does not start at the top levels, rather ideas come from the shop floor and that is where our trade unions play a vital role.	<i>Sustainability and results can improve through <b>ideas brought about through unions</b></i>
4. May assist the company by motivating the benefits of lean amongst its constituents.	<i>Sustainability and results can improve through <b>motivating the workforce</b></i>
5. Unions need to understand the reason behind the implementation. This will gather support for it.	<i>Sustainability and results will improve <b>through union support for it</b></i>  <i>Sustainability and results will improve as a result of <b>shop floor understanding</b></i>
6. The more the unions understand lean implementation and productivity compared with global manufacturing systems, the better the support from them will be.	<i>Sustainability and results of lean will improve <b>only if unions understand lean better</b></i>  <i>Sustainability and results can be improved through union support</i>
7. The union would not be surprised by the sudden implementation of a lean project and they will work with the new implemented system more readily and thus feel part of the implementation.	<i>Sustainability and results improve through union involvement</i>  <i><b>Union assistance</b> with implementation improves results</i>
8. Trade union support would speed	<i>Sustainability and results would improve</i>

up implementation and the effectiveness thereof, workers believe that unions have their best interest at heart for the workers.	<i>through quicker implementation</i>
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### **Overarching Theme:**

Theoretical Construct 1: Sustainability and results improve through union support

Supporting Themes:

- Sustainability and results can improve through 'motivating' the workforce
- Sustainability and results would improve through 'quicker' implementation
- Sustainability and results will improve through 'union support' for it.

Theoretical Construct 2: Sustainability and results improve through the shop floor brought on by union involvement

- Sustainability and results can improve through 'ideas' brought about through unions
- Sustainability and results can improve through unions by helping workers' 'understanding' of the reasons for lean.

Sustainability and results of lean interventions are considered more successful with union involvement. The importance of the shop floor is brought through in the answers from middle managers. The extent to which unions influence the shop floor through understanding and support for the initiative helps to motivate workers and assists with ideas to make the initiative more of a 'people on the floor idea'.

The speed at which the initiative is implemented is also impacted in a positive manner. There is more of a barrier without involvement with the overarching theme being that unions, who better understand lean, make it easier for the shop floor to buy in and share their ideas regarding the implementation and concept itself. The potential for a negative impact is not identified in the response from the middle management sample.

**Question:**

In your opinion, how do trade unions generally influence lean implementation?

<b>Response</b>	<b>Theme</b>
1. Not well informed on their role in this instance.	<i>Trade union influence with regard to lean is not understood</i>
2. Lack of communication between organisation and union creates problems.	<i>Trade union <b>influence could improve communication</b> that could improve lean (positive)</i>
3. Trade unions in world class organisations sit on steering committees with top management to discuss the role of lean. This should happen locally (as a norm) and will improve implementation in South Africa. Due to their non-participation, it's hard to get support from the shop floor.	<i>Trade unions <b>have little influence in the positive sense</b> due to lack of involvement (steering committees)</i>  <i>Trade union <b>influence is negative</b> on the shop floor</i>
4. Concerned that it may influence or reduce headcount, therefore negatively.	<i>Trade union <b>influence affected by misconception</b> regarding lean intentions</i>
5. Depends on the type of shop steward in the organisation.	<i>Trade union <b>influence dependent on the understanding</b> and quality of the elected <b>shop steward</b></i>
6. They influence team members. The participation of members in lean is affected by the attitude of employees (caused by the unions to be negative). This hampers the progress of implementation.	<i>Trade unions <b>influence team members</b></i>  <i>Trade unions <b>impact shop floor perception negatively</b> towards lean</i>  <i>Trade union influence <b>hampers lean progress</b></i>
7. In some instances if there is a project in regard to reducing the number of operators, then the unions would definitely make this a difficult task. If the project being implemented will help the operator do his job, then the union would support this implementation.	<i>Trade unions <b>influences lean negatively</b></i>  <i>Trade unions at times <b>may enable lean</b></i>
8. Lean implementation is carried out for process improvement in some regards, this often requires staff to do more work faster and to reduce the waste or alternatively they could be laid off. Unions strive to keep every employee's well-being their top priority that leads to resistance to change because the unions fear they could lose	<i>Trade union <b>influence results in resistance to change</b></i>  <i>Trade union influence is <b>negative due to</b></i>

control.	<i><b>fear of loss of control of people</b></i>
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### **Overarching Theme:**

Theoretical Construct 1: Trade union influence is negative

Supporting Themes:

- Trade union influence is 'negative' on the shop floor
- Trade unions impact shop floor 'perception negatively' towards lean
- Trade union influence 'hampers' lean progress
- Trade union influence 'leads to resistance' to change.

Theoretical Construct 2: Trade union influence is dependent on factors

- Trade union influence could 'improve communication' that could improve lean (positive)
- Trade unions at times may 'enable' lean
- Trade union influence dependent on the understanding and quality of the elected shop steward
- Trade union influence affected by 'misconception' regarding lean intentions.

Theoretical construct one asserts the opinion of the respondents that lean is influenced, at present, negatively by the trade unions. Union influence results in negative perceptions from the shop floor towards lean. In other instances, it leads to outright resistance to change.

Theoretical construct two takes the theme further by proposing a neutral stance on the influence trade unions might have; the construct shows that factors that determine the influence include:

- The perception and knowledge of the shop steward involved in the lean drive
- Lack of involvement creates a negative perception. This may be attributed to trust issues between the implementers and the unions.
- The misconception of unions with regard to the purposes of lean.

This presents a paradox. Unions are at present negative; however, depending on the mix of factors present in any given organisation they could assist. The issue to

consider now is what is required to ensure that the factors revealed in the responses are changed to allow a positive influence in future initiatives.

**Question:**

Would lean implementation be more successful with union involvement?

<b>Response</b>	<b>Theme</b>
1. Improves communication within the organisation and helps gain commitment from all stakeholders.	Union involvement <b>improves communication</b>
2. Communication could improve as a result.	Union involvement <b>improves communication</b>
3. Lean costs money and the involvement of trade unions makes it easier for an organisation to apply for a loan from banks or DTI because of BEE.	Union involvement <b>reduces lean costs</b>
4. It may actually lead to head count reduction and this is where the unions play a role.	Union involvement <b>would (in certain instances) be counterproductive</b>
5. To assist with the motivation of employees towards lean implementation success.	Union involvement <b>improves the motivation</b> of employees to accept lean
6. Some of the union's members become very positive after involvement. Some still remain negative. More than 30% of employees' don't change their attitude even after unions have accepted the intervention.	Union involvement <b>changes perception to positive</b>
7. The union would feel as if they were part of the decision and this would assist in gaining the agreement of the union leading to a working together atmosphere and improved implementation success.	Union involvement <b>results in a positive perception of lean</b> (through greater understanding)
8. Union involvement would most definitely reduce resistance to change and encourage business improvement.	Union involvement <b>reduces resistance to change.</b>

**Overarching Theme:**

Theoretical Construct 1: Union involvement improves the success of implementation

Supporting Themes:

- Union involvement 'improves communication'
- Union involvement 'reduces lean costs'
- Union involvement results in a 'positive perception' of lean (through greater understanding)
- Union involvement 'reduces resistance to change'.

Theoretical Construct 2: Union involvement is counterproductive

- Union involvement would (in certain instances) be 'counterproductive'.

Theoretical construct one comprises 87.5% of the responses that union involvement would benefit lean implementation. This benefit is based on the union's understanding of the reason for the initiative and subsequent support. Furthermore, one respondent highlighted an important point. Unions in most instances will not offer their support should the lean initiative result in head count reduction.

However, should there be a market downturn, unions may support the initiative by supporting the sacrificing of the few to save the many.

Based on both theoretical constructs, it is clear that union involvement is key to implementation success as it creates support from unions and thus the shop floor by improving communication, reducing implementation costs and eliminating resistance to change.

**Question:**

Do you feel that there may be a relationship between the barriers for lean implementation where one barrier may influence another barrier?

<b>Response</b>	<b>Theme</b>
1. Misaligned organisation culture remains because of ineffective leadership.	<i>There is a relationship between the barriers (ineffective leadership and organisational culture)</i>
2. Yes, both parties, organisation and union must get together and plan, then work together to achieve goals.	<i>There is a relationship between the barriers (union resistance and organisational culture)</i>
3. Yes, especially between financial investment and the methodology taken to implement lean. The relationship between the two is simple, if you don't invest in the set up of lean, then surely you will fail, for example, shop floor needs training, consultants need to be hired, awareness campaigns need to start and all these activities cost money.	<i>There is a relationship between the barriers (financial investment and methodology)</i>
4. Yes, definitely all the mentioned barriers pose a risk to implementation success and may directly or indirectly influence one another.	<i>There is a relationship between all barriers</i>
5. Yes, communication is the most important aspect. Everyone needs to understand why it (lean) is done.	<i>There is a relationship between all barriers (communication being the solution)</i>
6. Yes, poor leadership affects the perception by unions for example of the intentions of lean implementation. This in turn creates the resistance from unions.	<i>There is a relationship (poor leadership affects unions' perceptions leading to resistance)</i>
7. Yes, if there is no leadership support, other segments of the project team will lose interest and motivation.	<i>There is a relationship (ineffective leadership results in other barriers)</i>
8. Yes, ineffective leadership can influence/cause a misaligned organisational culture and communication barriers between staff.	<i>There is a relationship between the barriers (Ineffective leadership leads to misaligned organisational culture)</i>

**Overarching Theme:**

Theoretical Construct 1: There is a relationship between the barriers

Supporting Themes:

- There is a relationship between the barriers (ineffective leadership and organisational culture)
- There is a relationship between all barriers (communication being the solution)
- There is a relationship between the barriers (financial investment and methodology).

Theoretical Construct 2: There is a relationship between leadership and all other barriers

Supporting Themes:

- There is a relationship (ineffective leadership results in other barriers)
- There is a relationship between the barriers (ineffective leadership leads to misaligned organisational culture)
- There is a relationship (poor leadership affects union's perceptions leading to resistance).

The overarching theme emerging from the respondents for middle managers shows that there is definitely a relationship between the barriers. All respondents agree with this statement. Overwhelmingly though, fifty percent (50%) of the respondents agree that leadership shares a relationship with all other barriers. Ineffective leadership in the opinion of half of the respondents selected is the starting point of all other barriers. It thus stands to reason that effective leadership breaks down barriers and results in sustainable implementation of lean. Union resistance is seen as the result of poor leadership.

**Question:**

What other barriers would affect a successful lean implementation in an organisation?

<b>Response</b>	<b>Theme</b>
1. a) Insufficient training of workers.	<i>Insufficient training</i>
2. a) Sustaining a specific workload.	<i>Workload demands</i>
3. a) Only training certain individuals to become lean implementers. b) Having a lean concept but not using it, lean on visual aids for example but not using it in practice. c) Inadequate involvement of shop floor on lean initiatives.	<i>Insufficient training</i>  <i>Lack of shop floor involvement (methodology)</i>
4. a) Misaligned company vision b) Staff motivation levels. c) Lack of resources	<i>Poor motivation</i>
5. a) Morale of employees	<i>Low morale</i>
6. a) Communication barrier, b) culture, c) gender differences	<i>Gender differences</i>
7. a) Deviation from planned specifications (poor planning)	<i>Poor planning</i>

**Overarching Theme:**

Theoretical Construct 1: Insufficient training is a barrier to lean implementation

## Supporting Themes:

- Insufficient training
- Lack of shop floor involvement (methodology).

Middle managers highlight the importance of training. The manner and extent of training is a key focus area that concerns middle management. The lack of training leads to low morale, poor motivation and subsequently additional barriers which may include but are not limited to:

- Resistance to change
- Union resistance
- Increased investment costs as a result of failed implementation.

**Question:**

In your opinion, is there a relationship of trust between South African employees and employers?

Response	Theme
1. In our organisation there is a lot of respect towards each other and most of the time we work and get along, even on a personal level, very well.	<i>There is a relationship of trust</i> <i>Working together</i>
2. Employers are not honest, they predominantly see cost saving as reducing labour inputs.	<i>There is no relationship of trust</i>
3. Lack of job security, South Africa's history of apartheid, "us versus them" approach.	<i>There is no relationship of trust</i> <i>'Us versus them' mentality</i>
4. Employees still hold the happenings of apartheid as a reason for not trusting management.	<i>There is no relationship of trust</i> <i>Apartheid era</i>
5. There are still trust issues (between employees and employers), but it's getting better.	<i>There is no trust relationship</i>
6. Yes, in some instances	<i>There is a relationship of trust</i>
7. Sometimes, yes	<i>There is a relationship of trust</i>

**Overarching Theme:**

Theoretical Construct 1: There is no relationship of trust

Supporting Themes:

- There is 'no relationship of trust'
- 'Apartheid' era
- 'Us versus them' mentality.

Theoretical Construct 2: There is a relationship of trust

Supporting Themes:

- There is a relationship of trust
- Working together.

The stance of middle management on the relationship of trust that exists between employers and employees remains mixed. Its importance to lean implementation is crucial to its success. The subsequent involvement of unions becomes evident in its importance of fostering this trust as the spokesman of the people. However, the situation remains mixed. In some instances there is a relationship of trust and working together. In other instances, the apartheid era results in an 'us versus them' mentality.

**Question:**

Any additional comments, statements or opinions?

<b>Response</b>	<b>Theme</b>
1. I feel that lean manufacturing can be viewed from two perspectives. The success of lean manufacturing depends on the approach taken by management and how well management and employees agree on the intent of the lean initiative.	<i>Two perspectives to lean</i>  <i>Management approach</i>  <b><i>Employee agreement</i></b>
2. If lean manufacturing wants to be a success in an organisation, its top structure must be able to run a successful steering committee which includes shop stewards, team leaders, managers and other shop floor personnel. It will not work if top and middle management wants to enforce it.	<b><i>Top structures are important</i></b>  <i>Involvement of all stakeholders</i>
3. Lean needs to benefit the business and the people and contribute to South Africa as a whole.	<i>Lean should benefit all stakeholders</i>
4. Unions have to understand that	

<p>there is a global stance towards competitiveness through productivity improvement. Employers have to ensure that workers have to be part of the 'family'. Benefits must be present for both parties. Ethics is important.</p>	<p><b><i>Union understanding</i></b> needs to be enhanced</p> <p><i>Lean benefits should include all parties concerned</i></p>
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### **Overarching Theme:**

Theoretical Construct 1: Union understanding is crucial

Supporting Themes:

- Union understanding needs to be enhanced
- Employee agreement.

Theoretical Construct 2: Leadership approach is key to successful lean implementation

Supporting Themes:

- Top structures are important
- Management approach.

The additional comments afforded through the questionnaire summarises the stance of middle management on the impact of unions on lean implementation success. Simply stated, it's critical; however, what's even more important is the leadership approach that determines the union perception and thus shop floor agreement to lean. Leadership style results in a certain stance by unions. The absence of unions in key decisions which affect workers could be met with resentment fuelling distrust in the organisation. The trust issue present among employees and employers is a leadership issue. Middle managers agree that without effective leadership, organisation competitiveness will remain a challenge and union resistance will ensue and be seen as the cause, when in fact it is a symptom of ineffective leaders.

## Thematic Analysis

### Senior Management

#### Question:

Lean implementation programs will be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process.

Response	Theme
<p>1. In order to sustain and ensure results, it is imperative that the vision of lean implementation is supported by the unions as a key stakeholder. This (implementation) needs to be discussed and agreement reached prior to the roll out of lean manufacturing. This will ensure a successful roll out. It's also important that the teams involved need to be passionate with clear alignment with the end goal of a sustainable business.</p>	<p><i>Sustainability and results <b>will</b> improve with union involvement</i></p> <p><i>Sustainability and results of Implementation of lean must be <b>discussed 'prior' to roll out</b></i></p> <p><i>'Passion' from the teams is a pre-requisite</i></p> <p><i><b>Alignment</b> of 'vision' for sustainability and results</i></p>
<p>2. In my dealings with the OEM's and component manufacturers, union's primary focus is remuneration for all its members, which I believe is culturally driven. Long-term implications and sustainability of the industry is secondary. Job creation will only improve if South Africa provides a competitive, cost effective and stable environment to trade with. Lean implementation is one such tool that can provide the South African industry the competitive edge. Lean implementation requires a certain culture that allows it.</p>	<p><i>Sustainability <b>not a priority</b> for unions</i></p> <p><i><b>Remuneration is the 'primary' focus</b> not lean implementation sustainability and results</i></p> <p><i>Unions impact on culture</i></p> <p><i>Lean implementation is '<b>culturally driven</b>', therefore unions <b>can impact</b> on lean implementation in a <b>positive manner on sustainability and success</b></i></p>
<p>3. Unions that understand the importance of continuous improvement are perceived as being in touch.</p>	<p><i>Sustainability and results are based on unions that understand the concept of lean</i></p>
<p>4. Leadership implies the inclusion of</p>	<p><i>Sustainability and results of lean are</i></p>

<p>all stakeholders. It is the fear of job losses (linked to lean) that causes resistance. If the leadership are trusted and investment in people becomes a tradition, it will be supported.</p>	<p><i>dependent on <b>leadership</b></i>  <i>Poor leadership impacts union's perception</i></p> <p><i><b>Trust</b> by the people required to support lean (sustainability and results)</i></p> <p><i>Unions must first trust leadership</i></p> <p><i>Unions <b>can impact</b> on sustainability and results</i></p>
<p>5. It can only get better with their involvement. Majority of the problems stem from their "non-involvement".</p>	<p><i>Sustainability and results of lean <b>improve</b> through union involvement</i></p> <p><i><b>Non-involvement</b> by unions leads to <b>problems</b> with lean implementation.</i></p>
<p>6. Unions often paint lean initiatives in a bad light. Lean is seen as anti-employment (by the unions). If unions are on board from the beginning (of a lean program implementation), employees can commit to lean without fear of union coercion. Lean must be seen to benefit all. Employers for results and employees for sustainability of employment.</p>	<p><i>Sustainability and results dependent on union perception of lean</i></p> <p><i>Union <b>coercion reduced</b> through their involvement</i></p> <p><i>Acceptance of lean and better results with union <b>involvement and acceptance</b></i></p> <p><i>Lean must <b>benefit all</b> in order to achieve union <b>buy-in</b></i></p>
<p>7. Lean is a concept that must be sold to all employees, not imposed on them. It is a concept that they must believe in and willingly apply for better, tangible results. A concept that each person must adopt and apply as their own. If not, it may be policed, defeating its purpose.</p>	<p><i>Sustainability and results <b>determined</b> by the <b>people</b> on the shop floor</i></p> <p><i><b>Unions may assist</b> in selling concept to employees</i></p> <p><i>Absence of union resistance leads to <b>willingness</b> to accept lean as a culture</i></p> <p><i>Lean implementation without shop floor <b>buy-in</b> is fruitless</i></p>
<p>8. Unions actively influence morale and support levels.</p>	<p><i>Unions influence morale and support levels which influence sustainability and results</i></p>

**Overarching Theme:**

Theoretical Construct 1: Sustainability and results are impacted by unions

Supporting Themes:

- Unions can 'impact' on sustainability and results
- Lean implementation is 'culturally driven'
- Sustainability and results determined 'by the people'
- Unions may assist in 'selling concept' to shop floor
- 'Non-involvement' from unions leads to problems with implementation.
- Unions influence 'morale and support levels' which influence sustainability and results.

Theoretical Construct 2: Sustainability and results are improved through effective leadership

Supporting Themes:

- Sustainability and results are achieved through 'effective leadership'
- 'Poor leadership' impacts the perception of unions
- 'Trust' by the people is required to support lean implementation
- 'Alignment' of vision
- 'Passion' from the teams is a pre-requisite.

Unions' impact on the perception the shop floor has regarding the concept of lean and its benefits. Unions are able to impact on the culture of the organisation to be more willing and accepting of the principles of lean. Since unions act as the voice of the people, union involvement improves the results through communication and involvement of the voice of the people. Without the involvement of the shop floor and unions the exercise to introduce lean becomes difficult and fruitless as its purpose is designed to be driven by the shop floor supported by a culture of trust and acceptance.

Leadership is required to nurture the trust relationship with unions and inform them of the benefits present to all stakeholders. The culture of the organisation must further be supported by a vision defined and managed by a leader who allows all employees to share in this vision. The results and sustainability of such a lean

initiative are thus improved and the leader acts as a conduit for empowerment of the people jointly with the unions. Union coercion of employees and resistance to accept the principles of lean is thus greatly reduced and lean implementation is successful.

The overarching theme is thus that leadership should engage unions to highlight the benefits, involve the unions and the people and create the shared vision. Without union support this becomes a difficult task.

**Question:**

In your opinion, how do trade unions generally influence lean implementation?

Response	Theme
1. I indicated negatively as this generally is the impression in the minds of the unions and the people that it (lean manufacturing) leads to job losses. It (the influence of unions on lean) depends on how engaged you are with the unions in defining the heart of the process and ensuring we remain competitive in a global market.	<p><i>Trade unions affect lean implementation <b>negatively</b></i></p> <p><i>Unions <b>perceive</b> lean to lead to <b>job losses</b></i></p> <p><i>Union engagement key to change negative influence into positive one</i></p>
2. No interactions with unions that are specifically negative or positive. Mixed influences depending on scenario.	<i>Influence <b>depends on scenario</b></i>
3. Trade unions do not want to improve since they are of the firm belief that it only always results in job losses.	<p><i>Unions <b>do not want to improve</b></i></p> <p><i><b>Perception</b> that lean leads to job losses</i></p>
4. It is a factor of confidence in the company's leadership and whether they are serious about people and the social responsibilities. If the record of accomplishment is positive and leadership style is inclusive, they tend to support it positively. It is also a factor of job protection.	<i><b>Leadership</b> depends how unions influence lean</i>
5. I think their focus is more monetary and personal gain than making South Africa more competitive.	<i>Union <b>focus is more on monetary aspect</b> and personal gain (negative influence)</i>
6. People often believe so much in their shop steward, hence they	<i>Union <b>lack of understanding on lean</b> creates the <b>negative perception</b> and</i>

vote him in. Shop stewards, in turn, have little to no understanding of what lean is about, thus sending a contrasting message of what lean is to their constituents.	<i>influence they have</i> <i>Union representatives (shop stewards) have <b>no understanding of the purpose of lean</b></i>
7. Definitely negatively.	<b>Negative influence on lean implementation</b>
8. Can play a greater role through participation in implementation. At present they (the unions) have limited involvement.	<i>Unions have limited involvement, therefore they <b>have no impact.</b></i>

### Overarching Theme:

Theoretical Construct 1: Unions affect lean negatively

Supporting Themes:

- Trade unions affect lean implementation 'negatively'
- 'Negative influence' on lean implementation
- Unions 'do not' want to improve
- 'Perception' lean implementation leads to job losses.

Theoretical Construct 2: Unions have a lack of understanding of lean concepts

Supporting Themes:

- No understanding of the 'purpose' of lean
- Union representatives have 'no understanding' of lean
- Unions have limited involvement, therefore they have no impact.

Theoretical Construct 3: Leadership is required to change union perception regarding lean

Supporting Themes:

- Leadership 'determines how unions impact' on lean implementation
- Unions 'do not want to improve'
- Focus is on 'monetary gain' and personal gain.

The themes presented on this question highlight the perception issue facing lean manufacturing. Unions are incorrectly informed of the benefits. The general lack of

understanding results in the negative attitude harboured towards lean implementation. The focus on monetary gain also relates to the leadership aspect where lean manufacturing gains are not shared equally amongst stakeholders. Shop steward alignment and opinion are integral to the acceptance by the people of the organisation of lean concepts and subsequent implementation. Leadership should inspire the people and unions and provide resources and training to inform the stakeholders of other more salient benefits of lean manufacturing to overcome the perception that lean is a means to effect job losses in the industry.

Based on the above qualitative responses, the negative impact unions are currently having on lean implementation is overwhelming from the perspective of senior management.

**Question:**

Would lean implementation be more successful with union involvement?

Response	Theme
<p>1. It is important that unions and operators get involved since they have key inputs considering the process (key team members). They work in the environment on a daily basis and have important inputs (knowledge) in any continuous improvement initiative.</p>	<p><i>Lean manufacturing would be <b>more successful with involvement</b> from unions and operators</i></p> <p><i>Unions and operators have <b>key inputs</b> regarding lean implementation</i></p> <p><i>Unions provide <b>important inputs</b> and are <b>necessary</b> in lean implementation</i></p>
<p>2. The success of lean implementation is dependent on all organisational levels' involvement (lean culture towards implementation).</p>	<p><i>Lean implementation success is dependent on the involvement of unions</i></p>
<p>3. Yes</p>	<p><i>Union involvement leads to more <b>successful</b> implementation</i></p>
<p>4. Business is about execution and the people that do the work physically and mostly they would be represented by the unions. Secondly, the level and skills of the shop stewards, define the position of the approach the unions tends to take towards such initiatives (lean). The leadership culture within the organisation is the first and foremost factor that</p>	<p><i><b>Shop steward skills</b> define the impact union involvement could have</i></p> <p><i><b>Leadership</b> affects the impact of union involvement in either assisting lean implementation or hindering it</i></p>

<p>affects the willingness for the unions to embrace or not. I would also emphasise the following: The stage of the organisational life cycle significantly defines its objectives. If the organisation is in a growth period, the unions tend to embrace more aggressively, if in a decline the impression is a cost reduction.</p>	<p><b>Organisational lifecycle</b> (growth or decline) determines union impact on success (either negatively or positively, depending on cycle stage)</p>
<p>5. Only if unions are involved from the start. Win-win situation for employer and employee.</p>	<p>Union involvement from the <b>start</b> leads to implementation success</p> <p><i>Beneficial to both parties</i></p>
<p>6. If the wind pushes in the same direction of a moving vehicle, the progress achieved is greater than if it pushed against it. If the union supports it, they may actively participate in lean events to support the course.</p>	<p>Union involvement leads to their <b>acceptance of the initiative</b></p> <p>Union support <b>aids implementation</b> and therefore success</p>
<p>7. Involve all parties to obtain their buy-in and allow for a win-win scenario.</p>	<p>Win-win scenario required</p>
<p>8. Have a direct impact on work behaviour, attitude and motivation.</p>	<p><i>Lean implementation would be more successful</i></p>

### Overarching Theme:

Theoretical Construct 1: Union involvement aids implementation success

Supporting Themes:

- Union support 'aids implementation' and therefore success
- Union involvement leads to more 'successful' implementation
- Lean manufacturing would be 'more successful' with union involvement.

Theoretical Construct 2: Union involvement aids implementation depending on when they are introduced into the initiative

Supporting Themes:

- Union involvement from the 'start' leads to implementation success
- Organisational 'lifecycle' (growth or decline) determines union impact on success (either negatively or positively, depending on cycle stage).

Theoretical Construct 3: Union involvement and leadership as an enabler or disabler of successful implementation is dependent on skill of union representative/leader

Supporting Themes:

- 'Shop steward skills' define the impact union involvement could have
- 'Leadership' affects the impact of union involvement in either assisting lean implementation or hindering it.

Timing of involvement of unions determines the impact they may have on successful implementation. In general the response alludes to involvement as an aid to successful implementation. Involving unions from the start allows for the sharing of information and acceptance. It shows good faith and fosters a culture of open communication. The other aspect of timing refers to when the initiative is being undertaken as this could impact on the aim of lean. Companies experiencing downswings in profits and slow down of growth tend to have a culture and union less facilitative of lean. Those organisations that are in the growth stages have an energised work force more willing to embrace lean.

The skills of the shop steward (knowledge of lean) and those of the leadership of the organisation define ultimately the success of the initiative from a senior management point of view. Involving a union with a shop steward who has little to no knowledge on lean could be counterproductive. Conversely, leadership that encourages an incorrect approach of 'selected' union involvement could impact on trust and allow unions to derail lean efforts.

The overarching theme for these responses is however in favour of union involvement as a definite factor that affects lean implementation success. It's also interesting to note that this involvement is dependent on the culture and leadership of the organisation. The relationship found in these responses alludes to a combination of organisational lifecycle, skills of leadership and shop stewards as the factors that determine whether union involvement would enable implementation.

**Question:**

Do you feel that there may be a relationship between the barriers for lean implementation where one barrier may influence another barrier?

<b>Response</b>	<b>Theme</b>
<p>1. Ineffective leadership is often the key reason why lean implementation fails. As leaders, they should break barriers and ensure the organisational culture is aligned.</p>	<p><i>Ineffective leadership leads to <b>other barriers</b></i></p> <p><i>Leaders should <b>break all barriers</b> to implementation</i></p> <p><i>Leaders should ensure the correct culture exists</i></p>
<p>2. Yes, if you start at the top of the food chain, ineffective leadership will affect other barriers (the complete implementation process).</p>	<p><i>Ineffective leadership <b>affects</b> other barriers</i></p>
<p>3. Absolutely. All systems are interrelated and independent. Example, a poor org structure leads to ineffective leadership.</p>	<p><i><b>All barriers are related</b> as an organisation is a system</i></p> <p><i>Poor organisational structure may lead to ineffective leadership</i></p>
<p>4. Yes, each factor stands in relation to another and the reasons are simple. Lean is more about a cultural change in habits, which must be based on a value system. If leadership is ineffective, they will be ineffective in transcending the value system and purpose.</p>	<p><i>There is a <b>relationship between the various barriers</b></i></p> <p><i>Ineffective leadership contributes and creates barriers</i></p>
<p>5. Organisations' union members and staff need to understand the benefits and implications of lean programs in order to be competitive globally, it is crucial for all parties to participate and management needs to lead the process and create the 'change' required to gain acceptance of the lean principle.</p>	<p><i><b>Leadership and management impacts on culture and therefore perception</b></i></p> <p><i><b>Leadership impacts on culture and therefore union perception/involvement</b></i></p>
<p>6. Employers and employees need to share common vision and objectives. Alignment of interests in a team approach. Communication and leadership are easier to achieve if everybody</p>	<p><i><b>Leadership affects vision</b></i></p> <p><i>Communication and leadership required to <b>create a team approach</b></i></p>

feels they are on the same team trying to achieve common outcomes. Barriers, by nature, exist by nature when parties are perceived to be opposed.	
7. A good foundation of organisational values and culture, starting from the top to the bottom can help make leadership more effective, facilitate good communication, mitigate union resistance and thus create a good basis for lean culture.	<p><i>Organisational culture sets the platform for the leader</i></p> <p><i>Leadership has a <b>relationship</b> with union resistance</i></p>
8. Unless consistent leadership and a shared vision exist, lean would fail. Complete alignment between organisational leaders, union and lean must co-exist.	<i>Leadership impacts on all other barriers</i>

### **Overarching Theme:**

Theoretical Construct 1: There is a relationship among barriers

Supporting Themes:

- Leadership has a 'relationship' with union resistance
- Leadership 'affects vision'
- Leadership and management 'impact on culture' and therefore perception
- All barriers are 'related' as an organisation is a system
- Poor organisational structure may lead to ineffective leadership
- Leadership impacts on all other barriers.

From the above it becomes clear that there definitely exists a relationship between various barriers. In some instances one barrier may lead to a few other barriers either directly or indirectly as gathered from the responses. All eight of the respondents confirmed their understanding that there is a definite relationship between barriers to lean implementation. All respondents mentioned leadership as the start of most barriers, although this does not mean that barriers will not exist with effective leadership. The overarching theme is thus that there exists a relationship among the barriers to lean implementation. Furthermore, the extent to which these

barriers impact on the success of the lean initiative is determined by the level of effectiveness of leadership for mitigating their impact.

**Question:**

What other barriers would affect a successful lean implementation in an organisation?

Response	Theme
1. a) Individual workloads (not available due to other requirements) b.) Poor training on the principles of lean c.) Lean is not driven from the top.	<i><b>Workloads affect implementation</b></i> <i>Poor <b>training</b> on lean</i> <i><b>Top down approach</b> to implementation</i>
2. a) Incorrect implementation - production only (taking a silo view and not considering for example logistical impacts). b) Attention to detail - thinking big picture only, excluding the small detail first can be detrimental. You must crawl before you walk. c) Ineffective training.	<i>Not involving all stakeholders</i>  <i><b>Loss of focus</b>, step by step approach not employed</i>  <i><b>Poor training</b> on lean</i>
3. a) Methodology of implementation b.) Support (project management and resources).	<i><b>Methodology</b> not conducive to effective implementation</i>  <i><b>Lack of support</b> from all stakeholders</i>
4. a) Lack of investment in training. b)The personality profile of the implementer leading to the process needs to have the ability to take theory to practice; c) Once confidence is lost people lose focus (confidence in leadership).	<i><b>Lack of training</b> investment in lean</i>  <i><b>Knowledge and personality</b> of lean implementer</i>  <i><b>Leadership abilities</b></i>
5. a) Poor communication. b) Negative uninformed perceptions of lean. c) Lack of adequate change management process.	<i>Communication problems</i>  <i>Lack of change management process</i>
6. a) Operator training is ineffective in the application of lean. b) Operator ownership of the lean concept is absent.	<i><b>Poor training</b> on lean</i>  <i>Operators don't own the process</i>
7. a) Ineffective change management.	<i>Change Management</i>

## **Overarching Theme:**

Theoretical Construct 1: Training is a prominent barrier

Supporting Themes:

- Lack of 'training investment' in lean
- 'Poor training' on lean
- 'Loss of focus', step by step approach not employed (absence of training as part of approach).

Theoretical Construct 2: Approach to implementation

Supporting Themes:

- 'Methodology' not conducive to effective implementation
- 'Workloads' affect implementation.

Prominent barriers that appear through the themed data on this question present training on lean concepts as a major barrier. This training could mean the content, approach or total absence thereof. Each factor on training would have a legitimate impact on the quality expected from the outcome of lean implementation. Further supporting this theoretical construct is theoretical construct two. This construct highlights the methodology employed with particular focus on how the lean implementation is planned and how this impacts on the ability of the shop floor to own the process given current work commitments. The team concept could be ignored which would allow for ownership of the lean process through work distribution and team meetings. Failure to plan the lean implementation effectively considering the stages required to develop the lean culture could lead to a key aspect outstanding. Based on the response, the overwhelming overarching theme is lack of or poor training on lean concepts. This is interesting since unions lack the general understanding of lean implementation and a relationship may be assumed between union resistance and training of all relevant stakeholders.

**Question:**

In your opinion, is there a relationship of trust between South African employees and employers?

<b>Response</b>	<b>Theme</b>
1. There is still an issue of 'them' and 'us', referring to the employee and employer relationship.	<i>Relationship and trust issues persist</i>
2. Cultural barriers exist.	<i>Relationship and trust affected by <b>cultural barriers</b></i>
3. There still exists a cultural barrier between white collar and blue collar workers. This is often driven by the unions.	<i>Relationship and trust affected by cultural barriers</i>  <i>Relationships and trust in the organisation <b>affected by unions</b> (white collar vs. blue collar workers)</i>
4. I think the ANC role in still holding onto the past 20 years after apartheid implies that South Africans in general do not trust easily and think negatively by nature. If this is true for our SA culture and political climate, it would be unwise not to assume it still exists in the organisation. The ANC allowing Malema to make statements against whites and the level of farm killings tells that there is still a trust issue and lack of 'ubuntu'.	<i>Relationships and trust impacted by the apartheid history of South Africa</i>  <i>Relationship and trust affected by the link between the <b>unions and the ruling party</b> (power struggle between organisation and unions)</i>  <i>Relationship and trust affected by <b>racial divides</b></i>
5. Race issue and cultural differences e.g. The Western Cape Scenario is different from Eastern Cape and KZN.	<i>Relationship and trust affected by <b>racial differences</b></i>  <i>Relationships and trust affected by <b>cultural differences</b></i>
6. South Africa is beset by an "us and them" mentality. Societal stereotyping also occurs in the workplace. Effort is required to overcome the stereotyping.	<i>Relationships and trust affected by <b>societal stereotyping</b></i> <i>Relationships and trust affected by the <b>"us and them" mentality</b></i>
7. Disputes and strikes often experienced are proof that there is no trust between the two parties (employers and employees). Unions often view lean as an instrument of retrenchments.	<i>Proof of relationship and trust strain found in <b>strikes and disputes</b> between workers and organisations</i>
8. Whilst it is a developing economy, circumstantial evidence suggests good trust relationship exists, due	<i>There exists a good relationship</i>

to organised labour and leadership.	
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**Overarching Theme:**

Theoretical Construct 1: Relationships and trust (in the organisation) are affected by cultural differences

Supporting Themes:

- Relationships and trust affected by ‘cultural differences’
- Relationship and trust affected by ‘racial divides’
- Relationships and trust affected by the “us and them” mentality.

Theoretical Construct 2: Relationships and trust (in the organisation) are affected race differences

Supporting Themes:

- Relationship and trust affected by ‘racial differences’
- Relationships and trust affected by ‘societal stereotyping’.

Theoretical Construct 3: Relationships and trust (in the organisation) are affected by the unions

Supporting Themes:

- Proof of relationship and trust strain found in ‘strikes and disputes’ between workers and organisations
- Relationship and trust affected by the ‘link between the unions and the ruling party’ (power struggle between organisation and unions
- Relationships and trust in the organisation ‘affected by unions’ (white collar vs. blue collar workers).

The responses point to a relationship and trust dilemma resulting in failed lean attempts within organisations. The trust issue is historical and the relationships between organisational leadership and the workforce are affected negatively by unions. The unions’ affiliation with the ruling power provides them with a sense of power over the people and a positive working relationship would result in a union without use or purpose. Unions use racial differences as a basis for creating the

divide between the workforce, traditionally between blue collar and white collar workers, the purpose being to derail efforts that may actually benefit the people that the unions are trying to protect. The perception that there is an “us and them” is fostered by the union and creates the distrust in anything suggested by the organisational leadership. Attempts to thus change organisational culture and effect change are exacerbated by an unwilling union.

## Thematic Analysis

### Shop Floor

#### Question:

Lean implementation programs will be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process.

Response	Theme
1. Trade unions must work hand in hand with management in order for the voice of the people to be heard. This will result in better communication and implementation.	<i>Sustainability and results will <b>improve through unions acting as the voice of the people</b></i>
2. Yes, unions amplify the voice of the shop floor. It's not useful if only a few stakeholders make a decision on behalf of the majority.	<i>Sustainability and results <b>will improve through the inclusion</b> of the people through union representation</i>
3. Unions will improve implementation by deciding on the benefits of lean for the people.	<i>Sustainability and results <b>will improve through unions advising the shop floor</b> of the benefits of lean</i>
4. There will be more communication between employers and employees.	<i>Sustainability and results will improve through <b>better communication</b></i>
5. Because workers listen to unions and that could assist in implementation.	<i>Sustainability and results will improve because <b>workers listen to unions</b></i>
6. Motivation (involvement) is required from the union and will have a positive effect on the worker.	<i>Sustainability and results will improve <b>through motivation afforded through the union</b></i>
7. Unions have a bigger impact on employees than managers and thus influence their acceptance and levels of effort towards lean.	<i>Sustainability and results will improve due to the <b>influence unions have over shop floor employees</b></i>
8. I believe the unions play a very influential role when it comes to changing the culture of an organisation. Employees trust decisions made by unions, and therefore would be more accepting of change if the unions actually participated.	<i>Sustainability and results will <b>improve through unions positively affecting the culture</b> of the organisation</i>

**Overarching Theme:**

Theoretical Construct 1: Union involvement allows for improved sustainability and results.

## Supporting Themes:

- Sustainability and results will improve through unions acting as the voice of the people
- Sustainability and results will improve through unions positively affecting the culture of the organisation
- Sustainability and results will improve through better communication
- Sustainability and results will improve because workers listen to unions

The large majority of shop floor personnel are of the belief that union involvement in lean implementation will improve the success and sustainability of the initiative. The results of the question show that shop floor workers firmly believe in the union's ability to act as the single voice of the people. The belief is that communication is improved through union representation. Organisational culture is also thought to improve through the involvement of unions in lean implementation.

**Question:**

In your opinion, how do trade unions generally influence lean implementation?

<b>Response</b>	<b>Theme</b>
1. Trade unions and management need to communicate more frequently. Unions and management don't communicate well and this could give rise to issues that slow down implementation.	<i>Negatively, <b>lack of communication to blame</b></i>
2. Sometimes it forces people to lose their jobs; it works better when unions are involved to guard against this; however this is not always the case.	<i>Unions influence lean <b>positively</b></i>
3. Without union involvement, lean manufacturing will not be a success.	<i>Union influences lean <b>positively</b></i>
4. Most problems coming from workers trade unions arise and	<i>Unions influence lean implementation <b>negatively</b></i>

they do not assist in implementation.	
5. Most of the time unions come in when workers have issues towards the implementation and they inconvenience employers to allow people to do as they please. This leads to resistance to change.	<i>Unions influence implementation <b>negatively by promoting resistance to change</b> among their constituents</i>
6. No involvement of unions.	<i><b>Neutral</b> influence from unions</i>
7. There is no involvement from unions in the implementation of lean manufacturing	<i><b>Neutral</b> influence from unions</i>
8. Unions mostly get involved if lean implementation affects the well-being and security of the employees' jobs, directly or indirectly. Otherwise they do not stand in the way.	<i><b>Neutral</b> influence from unions</i>

### **Overarching Theme:**

Theoretical Construct 1: Unions influence lean negatively

Supporting Themes:

- Unions influence lean implementation 'negatively'
- Negatively, 'lack of communication' to blame
- Unions influence implementation negatively by 'promoting resistance to change' among their constituents.

Theoretical Construct 2: Unions influence lean positively

Supporting Theme:

- Union influences lean 'positively'.

Theoretical Construct 3: Unions influence lean neutrally

- 'Neutral influence' from unions.

The large majority of shop floor respondents believe that unions at present impact on lean negatively. This stems from the fact that union involvement is low in most regards in local suppliers. The subsequent impact from unions is to affect the culture by steering the organisation towards resistance to the lean initiative. Furthermore, shop floor respondents believe that this lack of communication by the organisation through their trade union does not motivate them to participate as unions often have the interests of the people as a priority. The overarching theme is thus that limited involvement by unions leads to the union influence being negative or neutral towards the concept by creating a culture of resistance towards lean.

**Question:**

Would lean implementation be more successful with union involvement?

Response	Theme
1. Unions can determine on behalf of employees if the implementation is necessary.	<i>Lean implementation <b>would be more successful</b> with union involvement</i>
2. To give people a chance to voice their opinions or ideas and not only for a few stakeholders to decide.	<i>Lean implementation <b>would be more successful</b> with union involvement. Inputs from shop floor allow greater success</i>
3. In order for lean to be a success, money needs to be spent on the implementation process and thus the people involved. The unions can assist with this.	<i>Unions can assist with determining what investment in people is required (training etc) Lean implementation <b>would be more successful</b> with union involvement</i>
4. Unions will be one sided based on the demands of the people (win - lose scenario).	<i>Lean implementation <b>would not</b> be more successful with union involvement</i>
5. Maybe unions could be informed about the implementation of a certain lean initiative; the unions could then create the trust from employees towards full acceptance of the lean initiative.	<i>Lean implementation <b>would be more successful</b> with union involvement Unions create trust in the organisation</i>
6. Workers always support the union's opinions.	<i>Lean implementation <b>would be more successful</b> with union involvement Union affect people's opinions</i>
7. They have a bigger impact on the culture on the shop floor. People believe in the unions and they share their opinions.	<i>Lean implementation <b>would be more successful</b> with the involvement of unions</i>

<p>8. As explained previously, unions play a big role in influencing employees about an idea or change. If lean benefits are understood and explained to the unions and the unions cascade this to the shop floor, then resistance to change by employees would be eliminated.</p>	<p><i>Lean implementation <b>would be more successful</b> with union involvement</i></p> <p><i>Unions need to understand the benefits of lean first</i></p>
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### **Overarching Theme:**

Theoretical Construct 1: Lean implementation would be more successful if the unions were involved in the initiative

### Supporting Themes:

- Lean implementation would be more successful with union involvement.  
Unions need to first understand the benefits
- Unions create trust in the organisation
- Union affect people's opinions
- Unions can assist with determining what investment in people is required (training etc)
- Unions assist with convincing people to accept lean.

Shop floor workers generally believe that union involvement can change the perception of the shop floor to be more accepting of lean. This is achieved through the integration of ideas and opinions from the people through the unions and back to the people. The unions can also gauge with management the extent of training investment required and work with people to identify the need requirements. The element of trust required for successful implementation is also a key component of lean implementation. The overarching theme is thus that an informed union which is knowledgeable on the benefits offered through it, is one that can assist with the implementation efforts resulting in a more successful implementation.

**Question:**

Do you feel that there may be a relationship between the barriers for lean implementation where one barrier may influence another barrier?

<b>Response</b>	<b>Theme</b>
1. Yes, they all contribute and may affect or cause another barrier.	<i>There is a relationship between all barriers</i>
2. If there is ineffective leadership between the organisational structures, there will be a lack of communication between workers and this could cause some form of union resistance.	<i>There is a relationship between barriers</i>  <i>Ineffective leadership is the beginning of many other barriers</i>
3. Yes, these barriers are related, unions and management need to communicate more in order to facilitate a path over these barriers. So, examples would include poor leadership creating communication problems, union involvement overlooked as a result and thus the trust of the people is affected because [they ask] why was the union excluded.	<i>There is a relationship between these barriers</i>  <i>Poor leadership is the root cause of other barriers</i>
4. Yes, ineffective leadership can lead to communication issues etc.	<i>There is a relationship between the barriers</i>  <i>Barriers emanate from ineffective leadership.</i>
5. Yes, there is a relationship because if there is poor leadership towards the workers, that means resistance from the union since they are the bridge between management and the workers. Through this relationship, there could come resistance to change towards lean implementation.	<i>There is a relationship between the barriers</i>  <i>Unions lead to resistance to change</i>

<p>6. Yes, there is a relationship, for example, union resistance could stem from a lack of proper leadership and poor communication from leaders within an organisation.</p>	<p><i>There is a <b>relationship</b> between the barriers</i></p> <p><i>Ineffective leadership and poor communication from <b>leaders create additional barriers to lean</b></i></p>
<p>7. Yes, the biggest barrier in my opinion is the communication between staff; this poor communication causes the resistance from unions. The communication barriers could also be a result of bad management.</p>	<p><i>There is a <b>relationship between the barriers to lean implementation</b></i></p> <p><i>Communication is a barrier</i></p>
<p>8. Yes, union resistance is the result of poor leadership, further burdened by a poor organisational structure which in turn affects the culture of the organisation. Once communication is broken, then the implementation fails. For successful implementation, one needs involvement from all parties, whether it be management, unions or staff.</p>	<p><i>There is a relationship between barriers</i></p> <p><i>Organisational structure affects the culture</i></p> <p><i>Barriers eliminated through effective communication</i></p>

### **Overarching Theme:**

Theoretical Construct 1: There is a relationship between most barriers to lean implementation

### **Supporting Themes:**

- 'Ineffective leadership' is the beginning of many other barriers
- 'Organisational structure' affects the culture
- 'Unions' lead to resistance to change.

## Theoretical Construct 2: Leadership approach affects lean implementation barriers

### Supporting Themes:

- Ineffective leadership and poor communication from leaders create 'additional barriers' to lean
- Barriers 'emanate' from ineffective leadership
- Poor leadership is the 'root cause' of other barriers.

There is a definite sentiment among workers that barriers to lean are related. Respondents in most instances highlight the importance of leadership when it comes to the elimination of barriers. Lack of the correct leadership style or approach creates a plethora of other barriers that cascade through the organisation. From the responses, ineffective leadership can affect organisational structures, poor communication, union perception and trust among employees. All of these are perceived to be barriers; however the root cause appears to be ineffective leadership in some instances.

Leadership however should not be perceived to be the only "initial" barrier. Union resistance as a result of poor communication could affect the culture of the organisation and this could in turn lead to resistance by the work force to the lean initiative.

**Question:**

What other barriers would affect a successful lean implementation in an organisation?

<b>Response</b>	<b>Theme</b>
1. a) Favouritism of the lean implementer, not all stakeholders get involved. b) The voice of the shop floor not adequately represented) intrinsic and extrinsic motivation not found when lean is introduced.	<i><b>Motivation</b> levels as a barrier</i> <i><b>Lean implementer profile</b> in the organisation</i> <i>Shop floor not represented (<b>union</b>)</i>
2. a) Lack of correct training for workers.	<i>Inadequate <b>training</b></i>
3. a) Cost - not enough money for a proper implementation; b) Shop floor involvement limited to training.	<i><b>Methodology</b> for implementation</i> <i>Investment in lean lacking</i>
4. a) Sudden poorly communicated changes as a result of lean (poor planning); b) Poor communication.	<i>Communication issues</i>
5. a) Communication breakdown from implementer and workers; b) Resistance to change.	<i>Communication issues</i> <i><b>Lean Implementer approach and methodology</b></i>
6. a) Communication; b) Understanding lean manufacturing	<i>Communication issues</i>
7. a) Understanding of lean concepts.	<i>Inadequate training on lean</i>
8. a) Top Management - the fear to take a risk/resistance to change; b) Foreign group company management (Multi-national); c) Customer requirements or supplier limitations.	<i>Resistance to change</i> <i>Leadership approach (foreign group company)</i> <i>Customer/ supplier requirements</i>

**Overarching Theme:**

Theoretical Construct 1: Training and investment in lean remains a concern for implementation

## Supporting Themes:

- Investment in lean lacking
- Inadequate training on lean.

## Theoretical Construct 2: Lean implementer approach and personality

### Supporting Themes:

- Motivation levels as a barrier (lean implementer not able to convince workers of benefits, lack of trust from shop floor of lean implementers' intentions)
- Methodology for implementation
- Communication issues between lean implementer and shop floor.

The literature study conducted in Chapter Two identifies most of the barriers except supplier and customer requirements. These requirements by customers relate to certain standards (e.g. bin quantities, just in time supply) which may result in operating practices that do not allow for lean manufacturing to be adopted. Foreign management style was also identified as having a sub-optimal impact on communication and trust levels among workers. The approach and style adopted by the lean implementer occurred frequently through the research, it appears again in the shop floor qualitative data as having a major impact on lean success. The personality of the implementer is often rejected on the basis of ineffective communication and lack of trust from the shop floor of the implementer. Training and investment in lean is also a prominent barrier echoed in the literature study.

The overarching theme is that there are many barriers that affect implementation that are as a result of different direct and indirect factors which include:

- Available budgets
- Organisation size
- Strategic vision
- Support levels in the organisation
- Methodology and approach to lean implementation

These factors/barriers are thus deemed applicable within the Eastern Cape automotive context.

**Question:**

In your opinion, is there a relationship of trust between South African employees and employers?

<b>Response</b>	<b>Theme</b>
9. There is no trust and honesty between employees and employers.	<i>Relationship and trust affected by lack of honesty.</i>
10. In most companies there appears to be more white people than other races. Why is this the case when non-whites are the majority in this country?	<i>Relationship and trust affected by <b>race</b>.</i>
11. No, management in South Africa does not play open cards when it comes to financials for example.	<i>Relationship and trust affected by lack of transparency</i>
12. When it feels it goes your way (then there is trust, when things go well with the company).	<i>Relationships and trust impacted economic well-being of organisation.</i>
13. No, employees feel that employers treat them as slaves and that they could lose their jobs at any time	<i>Relationship and trust affected by <b>fear</b></i>
14. Workers feel detached from the top management; they never know what is happening with regard to projects and their aim.	<i>Relationships and trust affected by <b>lack of communication</b></i>
15. Involvement of all parties, unions, management (top and middle) in the initiation phase of the project is vitally important and it is currently not happening.	<i>Relationship and trust affected by <b>communication and involvement in decisions</b></i>
16. This depends mostly on the communication channels and the way the organisation is structured. If management is transparent and allows employees to participate in developing the company, then employees would be more trusting.	<i>Relationship and trust affected by <b>communication and transparency in decisions</b></i>

**Overarching Theme:**

Theoretical Construct 1: There is little trust between the employees and employers.

**Supporting Themes:**

- Relationship and trust affected by lack of honesty
- Relationship and trust affected by lack of transparency
- Relationship and trust affected by race.
- Relationship and trust affected by communication and involvement in decisions

The relations and trust issues highlighted by the shop floor staff are related to other factors. Most notable is the lack of effective communication between the various levels in the organisation. Employees feel detached from the organisation and this is brought on by certain employment practices that shop floor workers claim are favoured for the white minority. This guides them to seek the services of the union in order to ensure transparency, better communication and honesty from management. However, since all of the suppliers that took part in this research are unionised and the problem is still present from the shop floor responses, the union's effectiveness has to be called into question in terms of solving these issues between the shop floor and management.

## Thematic Analysis

### Unions

#### Question:

Lean implementation programs will be more sustainable and yield better results for all stakeholders if the trade unions were involved and assisted with the implementation process.

Response	Theme
1. When all stakeholders are involved (including the union) it is easier to achieve the goals required.	<p><b>Implementation more sustainable with union involvement and assistance</b></p> <p><i>Implementation more sustainable <b>with all stakeholders</b> involved</i></p>
2. If unions are involved, the company must always specify their goals so that unions explain it to all the shop floor workers for them to know what is expected to be done.	<p><i>Implementation more sustainable through <b>better communication</b></i></p> <p><i>Unions <b>communicate goals</b> with shop floor</i></p> <p><b>Results improve through improved communication</b></p>
3. Since there are people that don't understand lean, it will be better for implementers to fully explain to unions how lean operates so they can explain to shop floor workers	<p><i>Implementation results and sustainability improve through union involvement</i></p> <p><b>Union involvement improves communication and thus results and sustainability</b></p>
4. It will be easy for unions to inform the worker of what is taking place (assists with communication and acceptance - reduces resistance to change)	<p><i>Unions are in a better position to <b>inform workers about lean</b></i></p> <p><b>Communication reduces resistance to change</b></p> <p><i>Lean implementation with union involvement reduces resistance to change</i></p>
5. Yes, this will improve communication in the company and workers will be able to improve their performance as a result (more sustainability and better results)	<p><i>Involving unions improves communication</i></p> <p><b>Performance and results of lean improve through union involvement</b></p>
6. Yes, this allows for better communication in the business	<p><i>Sustainability and results improve through union involvement in the lean process</i></p>

<p>7. Trade unions are able to negotiate better planned improvements for the workers in line with lean. Trade unions can negotiate motivational schemes for the workers to sustain lean.</p>	<p><i>Unions able to <b>negotiate the outputs of lean initiatives</b></i></p> <p><i>Results will <b>improve with union involvement negotiating incentive schemes</b> driven through lean.</i></p>
<p>8. Yes, because presently trade unions are not involved in lean and are also not trained in implementation and understanding of the outcomes of the implementation process.</p>	<p><i>Results and sustainability will improve</i></p> <p><i>Union <b>involvement limited at present</b></i></p> <p><i>Union involvement will <b>increase the understanding</b> of lean outcomes with the shop floor</i></p>

### **Overarching Theme:**

Theoretical Construct 1: Union involvement in lean programs improves communication

#### Supporting Themes:

- Union involvement improves communication and thus results and sustainability
- Implementation more sustainable through better communication
- Involving unions improves communication
- Union involvement will increase the understanding of lean outcomes with the shop floor.

Theoretical Construct 2: Union involvement in lean programs reduces resistance to change

#### Supporting Themes:

- Lean implementation with union involvement reduces resistance to change
- Unions communicate goals with shop floor
- Communication reduces resistance to change

Theoretical Construct 3: Union involvement in lean programs will increase performance, sustainability and results

Supporting Themes:

- Results will improve with union involvement negotiating incentive schemes driven through lean
- Performance and results of lean improve through union involvement
- Implementation more sustainable with union involvement and assistance.

The unions feel that their involvement will improve lean implementation sustainability and results through more effective communication with shop floor members as a result. Unions are of the opinion that they have limited involvement currently. In addition to being able to bridge the gap in communication between management and staff, unions feel that they may be able to provide better direction to lean initiatives relating to the intended outcome that is beneficial for both parties (shop floor and management). This would ultimately in conjunction with better communication reduce resistance to change among employees and facilitate sustainability and buy-in from employees towards lean programs.

**Question:**

In your opinion, how do trade unions generally influence lean implementation?

<b>Response</b>	<b>Theme</b>
1. If the shop stewards are more involved in lean implementation they could influence it more positively.	<i>Unions could influence lean <b>positively</b></i> <i>Unions could have a <b>greater, more positive impact with involvement</b></i>
2. Before implementation management briefs the unions in order for the union rep to communicate this to the workers	<i>Unions can impact in a positive way through communicating the intentions of management with employees</i>
3. If the company works on a target based production system, the workers will understand what is expected of them especially when explained by unions (unions are able to convince employees)	<i>Unions influence employees</i> <i>Unions may influence lean positively</i>
4. We are not informed by the company about shop floor changes so we have no initial influence.	<i>Unions have <b>no influence</b> because they are not involved.</i>
5. Some companies do involve unions in the changes; others decide to make their own decisions. The results vary depending on other factors that are not directly linked to unions.	<i><b>Union involvement</b> in lean would determine the influence</i>
6. Currently we are not involved as to how lean would work and be implemented. If you as the worker come up with alternatives to a certain process, it is not accepted.	<i>Unions <b>are not involved in lean</b>, therefore understanding is limited</i> <i><b>Lack of involvement</b> and therefore understanding leads to a negative influence</i>
7. Because, I have found through some investigation, instances where people are retrenched as a result of lean. So our involvement won't necessarily favour lean. This depends on the planned outcome.	<i>Unions influence lean <b>negatively</b></i> <i>Layoffs result from lean, unions <b>won't support layoffs</b></i>
8. Positively in order to know what is happening in the business and up-skilling workers correctly	<i>Unions influence lean <b>positively</b></i>

**Overarching Theme:**

Theoretical Construct 1: Unions are not involved therefore they do not have much influence on implementation success (Neutral Influence)

## Supporting Themes:

- Unions have no influence because they are not involved.
- Unions are not involved in lean, therefore shop floor understanding is limited as a result
- Unions could have a greater, more positive impact with involvement
- Union involvement in lean would determine the influence.

Theoretical Construct 2: Unions influence lean in a positive manner

## Supporting Themes:

- Unions influence lean positively.

Theoretical Construct 3: Unions influence lean in a negative manner

## Supporting Themes:

- Layoffs result from lean, unions will not support layoffs
- Lack of involvement and therefore understanding of lean manufacturing outcomes lead to a negative influence from unions.

Unions express their lack of involvement as a reason for their influence currently being neutral in terms of support for lean implementation. They admit to a lack of understanding because management does not include them in the planning of lean. There are also two schools of thought discovered through the research. Unions will support lean positively should layoffs not be the sole purpose of lean. The unions are willing to get involved, assist with implementation and communicate with employees if the intervention supports the well-being of employees.

**Question:**

Would lean implementation be more successful with union involvement?

<b>Response</b>	<b>Theme</b>
1. The unions know which problems face workers in the factory. This could lead to planning the initiative better.	<i>Unions can <b>assist with planning lean intervention</b></i>  <i>Success is <b>relative</b></i>
2. If unions could be fully involved by the company, employees will be less reluctant to improve (less resistant to change).	<i>Unions could <b>reduce resistance to change</b></i>
3. Because everyone will be aware of how the company operates and what the vision is of the initiative through the voice offered through the unions.	<i>Unions can <b>act as intermediary</b></i>  <i>Unions can <b>align employees with company vision</b></i>
4. It will increase communication to workers whenever there are any changes on the floor (readiness).	<i>Union involvement can lead to improved communication</i>
5. Because shop stewards will bring positive feedback to the staff.	<i>Union involvement <b>improves communication</b></i>
6. To transfer the skills to the workforce and change their lives for the better. (Success is relative).	<i>Union involvement <b>improves skills transfer</b></i>
7. The more the unions are involved the better the situation will become. Unions also have a vision from the people for their future. Unions are more creative in promoting good working relations within the company so their involvement could promote lean to a large extent.	<i>Unions can <b>create a shared vision between management and employees</b></i>  <i>Unions can <b>promote good working relations</b></i>
8. Since unions work with the people and want to help grow the knowledge of their constituents. This will also ensure that members do not lose their jobs. From that perspective success is different from the union point of view.	<i>Unions will <b>ensure members do not lose their jobs</b></i>  <i>Union involvement could have different effects on lean <b>depending on the outcome</b></i>

**Overarching Theme:**

Theoretical Construct 1: Union involvement increases the probability of lean implementation success.

## Supporting Themes:

- Unions can promote good working relations
- Unions can create a shared vision between management and employees
- Union involvement improves communication (between shop floor and management)
- Unions could reduce resistance to change.

Theoretical Construct 2: Union involvement could enable or hinder lean implementation (relative to intended outcome of the lean initiative).

## Supporting Themes:

- Union involvement could have different effects on lean depending on the outcome
- Success (of lean manufacturing) is relative to the various stakeholders.
- Unions will ensure members do not lose their jobs.

Union respondents agree that they can assist with lean implementation. However, success of lean implementation is relative depending on which stakeholder group you represent. Union involvement in the planning stages could ensure a win-win situation for all. Through the employment of an incentive mechanism, with a shift of focus away from labour rationalisation as a primary focus of South African lean initiatives, unions believe their involvement could create a unified vision for the company toward lean. According to the unions, through their involvement, improved communication, working relations and reduced resistance to change will certainly enhance lean as a concept driven from the shop floor levels.

**Question:**

Do you feel that there may be a relationship between the barriers for lean implementation where one barrier may influence another barrier?

<b>Response</b>	<b>Theme</b>
1. Yes, because communication barriers may arise because of the organisational structure or the knowledge of the person implementing.	Yes, <b>communicational barriers</b> occur due to organisation structure barriers  <i>Communicational barriers exist due to the <b>approach and knowledge</b> of the implementer</i>
2. If there is ineffective leadership the unions cannot assist the company in improvement except helping the workers with their issues. (Ineffective leadership leads to union resistance).	Yes, <b>ineffective leadership</b> leads to union resistance
3. Communication barriers between staff caused by misaligned organisational culture have a relationship and can cause the company to fail.	<b>Communication</b> issues aggravated by a misaligned culture  <i>Implementation failure caused by <b>poor communication</b></i>
4. Unions will not be able to help the company implement if there is a lack of communication which leads to the resistance in the first place.	<b>Communication problems</b> leads to resistance to change
5. When the leadership is ineffective, the organisational structure will collapse and there will be a greater risk of failure of the lean effort.	<i>Risk of implementation failure increased by <b>leadership inefficiencies</b> which cause other barriers</i>
6. There must be no gap between management and labour. Poor communication creates a barrier which results in resistance.	<b>Communication barriers</b> create a gap between management and shop floor
7. Ineffective leadership and the amount of investment in the lean initiative, that is if the leadership does not plan, communicate, promote, motivate and train workers on everything that is needed for the future purposes that will affect negatively on the financial investment in lean initiatives.	<b>Ineffective leadership</b> causes other issues (barriers)
8. The implementers' knowledge and experience is important. They will	<i>Implementer <b>knowledge and experience</b> creates a poor working</i>

<p>know how to work better with the managers and unions. This also affects the communication since an experienced implementer can communicate better.</p>	<p><i>relationship between the organisation and the employees</i></p>
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**Overarching Theme:**

Theoretical Construct 1: There is a relationship between the various barriers to lean.

Supporting Themes:

- Yes, communicational barriers occur due to organisation structure barriers
- Ineffective leadership causes other issues (barriers)
- Risk of implementation failure increased by leadership inefficiencies which cause other barriers
- Implementation failure caused by poor communication
- Communicational barriers exist due to the approach and knowledge of the implementer

Unions describe the issue of poor leadership affecting communication, organisational culture and even the approach of inexperienced lean implementers as having a direct relationship. Ineffective leadership, however, appears to be the main barrier seen to be the root cause of other barriers. Leadership in this instance does not appear to be restricted to senior leadership but leadership of middle management (production supervisors, lean implementers etc).

**Question:**

What other barriers would affect a successful lean implementation in an organisation?

<b>Response</b>	<b>Theme</b>
1. a) Team Work, b) Management and shop floor knowledge	<i>Team Work (lack of)</i> <i>Management and shop floor knowledge (ability to understand lean concepts)</i>
2. a) Attitude of management	<i>Attitude, specifically management</i>
3. a) Poor housekeeping	<i>Disorganisation</i>
4. a) Employees' resistance to change	<i>Resistance</i>
5. a) Communication, b) Transparency, c) Union	<i>Communication</i> <i>Lack of transparency</i> <i>Unions (depending on the lean outcome)</i>
6. a) Planning, b) Motivation, c) Training, d) Communication	<i>Poor planning</i> <i>Low motivation</i> <i>Communication</i>
7. a) Training, b) Management	<i>Lack of training</i>

**Overarching Theme:**

Theoretical Construct 1: Additional barriers to lean implementation

## Supporting Themes:

- Poor planning
- Low motivation
- Lack of transparency
- Team work (lack of)

Unions highlight four barriers that have a major impact on lean implementation. Poor planning from management, low motivation levels for the lean program, lack of transparency relating to lean outcomes and lack of team work among the various members of the organisation.

**Question:**

In your opinion, is there a relationship of trust between South African employees and employers?

Response	Theme
1. Not yet where we need to be, race and gender create barriers to trust.	<b><i>Race and gender issues limit the trust relationship</i></b>
2. Sometimes our jobs are not secured and people lose their jobs everyday so you cannot trust employers when it comes to job security and their true intentions.	<b><i>Job security issues create a trust dilemma</i></b>
3. Because there are things that middle managers feel that they only know ("Know it all syndrome"). This breaks down communication and therefore trust.	<b><i>Middle managers who do not communicate properly are not trusted</i></b>
4. Employees have to earn the trust of management and vice versa (process that's taking place still).	<b><i>Trust process still in its infancy</i></b>
5. Only certain people are appointed to higher levels even if others have more experience.	<b><i>Lack of transparency in the organisation concerning promotions</i></b> <b><i>Transparency problems creates trust issues</i></b>
6. The communication, training and motivational schemes for workers are very poor. This poor planning employed by ineffective leadership adds stress to the workforce. There is no trust as a result.	<b><i>Motivational schemes are not executed with transparency</i></b> <b><i>Ineffective leadership creates a trust problem</i></b>
7. Because when employers make big decisions that affect employees' future, they do not include employees. This, in my opinion, means they (management) do not trust employees to make decisions. Trust needs to go both ways.	<b><i>Failure of leadership to involve unions in key decisions creates a trust divide</i></b>

**Overarching Theme:**

Theoretical Construct 1: There are definite trust issues in organisations between management and the employees in Eastern Cape automotive component suppliers

**Supporting Themes:**

- Lack of transparency in the organisation concerning promotions
- Failure of leadership to involve unions in key decisions creates a trust divide
- Middle managers who do not communicate properly are not trusted
- Job security issues create a trust dilemma
- Race and gender issue limit the trust relationship

Theoretical construct one clearly shows that unions perceive a major gap in the levels of trust required to ensure lean sustainability. Leadership failure from management at all levels in the view of unions creates a debilitating environment where there is very little trust. However, through greater transparency and transformation the process of trust is in progress and there is a sentiment of hope among union representatives that trust can be restored among component suppliers. Unions also place the lack of trust on poor transparency with hiring and firing practices and the execution of incentives. Race and gender prejudices further complicate matters in the view of unions with racial divides and gender inequality still presenting a barrier towards greater trust levels within organisations. This is a complex problem that requires further study. The dynamic between trust and the various barriers presented here extends beyond the scope of this research. It is sufficient to state that at present the view from unions is that there is a definite lack of trust and that this contributes towards other barriers to lean manufacturing implementation.

**Question:**

Any additional comments, statements or opinions?

<b>Response</b>	<b>Theme</b>
1. The company must make employees feel accommodated and they must somehow place incentives and suggestion schemes in place to boost the employee's motivation for these lean initiatives.	<b><i>Incentives and suggestion schemes can improve motivation levels and thus lean implementation efforts</i></b>
2. Lean opens the minds of workers and at the same time it is difficult for some workers. If implementers could train middle management and those who don't understand.	<b><i>Additional training focused on middle management could see increased implementation success</i></b>
3. Lean must be practised more often in companies as new developments (processes, products, machinery etc) come more often. Companies must do more awareness with workers and management to facilitate better communication and reduce resistance to change from employees.	<b><i>Improved communication in the organisation can increase lean success</i></b>
4. If management can work hand in hand with shop floor workers, the company can be better than ever.	<b><i>Improved management and worker interactions can assist in lean practice adoption</i></b>
5. Lean manufacturing should create jobs for people. It should simplify work and build relationships between the employees and employer. There should be a mechanism through lean that enables profit sharing (incentive scheme*). Lean shouldn't lead to retrenchment.	<b><i>Lean is a positive practice</i></b>  <b><i>Lean results should be shared from a financial benefit perspective</i></b>
6. The theory of lean can be good, but implementation is never good in SA as our managers always view lean as doing more with fewer people and that is a threat to us as trade unions. Unions want to promote a culture that every worker should feel at home in a working environment and take the	<b><i>Understanding of lean concept limited from a middle management perspective</i></b>  <b><i>Productivity improvements focused on reduced labour inputs should not be the only intention of lean in South Africa</i></b>

ownership of their work. Productivity solely based on fewer people for more work cannot be achieved. Working together to improve is the only way.	
7. In future, when lean implementers come up with ideas, they must also involve unions before they talk to workers so when workers have problems, unions can be able to help. Unions also play a role in changing the culture which can facilitate implementation.	<b><i>Involvement of unions can lead to improved lean results</i></b>

### **Overarching Theme:**

Theoretical Construct 1: Unions are open to the idea of involvement and adoption of lean practices in Eastern Cape component suppliers

### Supporting Themes:

- Involvement of unions can lead to improved lean results
- Lean is a positive practice
- Lean results should be shared from a financial benefit perspective
- Incentives and suggestion schemes can improve motivation levels and thus lean implementation efforts

Unions are of the opinion that lean manufacturing is of critical importance to the sustainability of the auto sector. They do however protest the method and intended outcome of certain lean practices geared at job rationalisation. This is propagated as expressed by unions through a lack of understanding by management. This is further exacerbated by the lack of a unified vision from senior leadership. A mechanism to share the financial spoils of a successful lean program will develop shop floor interest and boost motivation levels as the stakes for implementation success are raised.

The win-win situation needs to be clearly defined and transparent with all stakeholders involved in the planning and implementation of the scheme.