

**Gordon Institute  
of Business Science**  
University of Pretoria

**An evaluation of management practices in the manufacturing  
industry in South Africa**

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## **Abstract**

This comparative study evaluates the quality of management practices in manufacturing firms in South Africa. It uses methodologies developed by the World Management Survey (WMS) as a basis for comparative analysis. The WMS is an international research programme that evaluates the differences in management practices across different countries and firms; through the WMS, 34 countries and over 10,000 firms have been studied to measure and explain management practices. This study evaluated 31 manufacturing firms and found that South Africa, like other developing countries, ranks low on the quality of management practices. Management practices evaluated include lean operations, performance monitoring, target setting and talent management. In South African manufacturing firms, performance monitoring receives the greatest emphasis whilst talent management receives the least emphasis. There is a significant variation in management practices across manufacturing firms in South Africa, with a long-tail of poorly managed firms that bring the overall management score of South Africa down. This study finds that firm size, plant autonomy, firm ownership and hierarchy are key determinants of the quality of management practices. This study reveals the barriers to the adoption of good management practices which include skills, employment laws, trade unions, knowledge of management practices and costs.

## **Keywords**

Management practices, management quality, firm performance, developing countries

## Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Nkae Mocumi

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Date

## CONTENTS

Abstract.....	i
Declaration.....	ii
List of figures.....	vi
List of tables.....	viii
1 Chapter 1: Introduction to research problem .....	1
1.1 Research scope.....	2
1.2 Research motivation.....	2
1.3 Research problem .....	3
2 Chapter 2: Literature review .....	4
2.1 Why management practices matter .....	4
2.2 Management practices .....	9
2.3 Factors that matter in the introduction of management practices in firms .....	14
2.4 Barriers to the introduction of management practices in firms.....	22
2.5 Dispersion of management practices across firms.....	24
2.6 Management practices in developing countries .....	25
2.7 Literature review conclusion .....	27
3 Chapter 3: Research questions and hypotheses.....	28
3.1 Research questions.....	28
3.2 Hypotheses.....	28
4 Chapter 4: Research methodology .....	30
4.1 Research method .....	30
4.2 Population.....	31
4.3 Unit of analysis .....	31
4.4 Sample .....	31
4.5 Sampling method and size .....	32
4.6 Data collection.....	33
4.7 Data analysis.....	38

4.8	Potential research limitations.....	39
5	Chapter 5: Results .....	40
5.1	Data screening .....	40
5.2	Response rate .....	41
5.3	Respondent demographics.....	42
5.4	Firm demographics.....	44
5.5	Inter-country management scores.....	45
5.6	Variation in management scores across firms.....	52
5.7	Most prominent management practices .....	53
5.8	Obstacles to introduction of management practices.....	53
5.9	Hypotheses.....	55
5.10	Summary of results.....	69
6	Chapter 6: Discussion of results .....	70
6.1	Ranking of South Africa on management practices .....	70
6.2	Variation in management practices across firms.....	74
6.3	Most prominent management practices .....	75
6.4	Barriers to the adoption of management practices.....	75
6.5	Supported hypotheses.....	77
6.6	Hypotheses not supported.....	79
6.7	Insights .....	81
7	Chapter 7: Conclusion .....	83
7.1	Principal findings .....	83
7.2	Implications for management .....	84
7.3	Limitations of the research .....	88
7.4	Suggestions for future research .....	89
8	References .....	90
9	Appendix A: Survey Questions .....	94
10	Appendix B: Letter of endorsement from the Manufacturing Circle.....	99

11 Appendix C: Ethical clearance..... 100

## List of figures

Figure 1: Studies into management practices.....	6
Figure 2: Inter-country management practice variability .....	7
Figure 3: Management practice variability within countries .....	7
Figure 4: Distribution of firm level management practices scores by country .....	8
Figure 5: Lower average scores in low performing countries .....	8
Figure 6: Firm size vs. assessed management score.....	16
Figure 7: Variation in firms' management practice vs. assessed management score .....	16
Figure 8: Average management score by ownership type.....	18
Figure 9: Distribution of firm management scores by ownership .....	19
Figure 10: Average management score by skill level .....	20
Figure 11: Management scores of multinationals vs. domestic firms .....	21
Figure 12: Average management score vs. international presence.....	21
Figure 13: Management scores in African countries.....	27
Figure 14: Respondents by seniority .....	42
Figure 15: Respondents by gender.....	43
Figure 16: Managers with college degree.....	43
Figure 17: Firm ownership .....	44
Figure 18: Firm size by number of employees.....	44
Figure 19: South Africa ranking on management score.....	45
Figure 20: Ranking across all countries surveyed up to 2014 (WMS) .....	46
Figure 21: Ranking across African countries surveyed up to 2014 (WMS) .....	47
Figure 22: Ranking - lean operations.....	48
Figure 23: Ranking against African countries - lean operations .....	48
Figure 24: Ranking on performance monitoring.....	49
Figure 25: Ranking against African countries - performance monitoring .....	49
Figure 26: Ranking on target setting.....	50

Figure 27: Ranking against African countries - target setting .....	50
Figure 28: Ranking on talent management.....	51
Figure 29: Ranking against African countries - Talent management .....	51
Figure 30: Management practice variability between firms.....	52
Figure 31: Management score variability between firms.....	52
Figure 32: Management practices emphasis .....	53
Figure 33: Scatterplot: manager's education .....	60
Figure 34: Confidence interval: education .....	61
Figure 35: Scatterplot: multinationals and non-multinationals .....	62
Figure 36: Boxplot: exporters.....	63
Figure 37: Scatterplot and boxplot: plant age .....	65
Figure 38: Boxplot: tenure.....	66
Figure 39: Scatterplot and boxplot: hierarchy .....	67

## List of tables

Table 1: Factors that matter in the introduction of management practices .....	15
Table 2: Independent Variables .....	36
Table 3: Data screening - missing values .....	40
Table 4: Interview experience .....	42
Table 5: Obstacles to introducing management practices .....	53
Table 6: Correlations: firm size, firm autonomy .....	55
Table 7: Linear regression: firm size .....	55
Table 8: Linear regression: plant autonomy.....	57
Table 9: Ownership mean.....	58
Table 10: Group statistics: family member CEO.....	58
Table 11: Independent samples test: family member CEO .....	59
Table 12: Linear regression: manager education .....	60
Table 13: Two-sample t-test: multinationals versus non-multinationals.....	62
Table 14: Group statistics – exporters .....	63
Table 15: Linear regression: plant age .....	64
Table 16: Linear regression: tenure .....	66
Table 17: Pearson’s correlation: hierarchy .....	67
Table 18: Linear regression: hierarchy – shop floor to CEO.....	68
Table 19: Summary of hypotheses findings.....	69

## 1 Chapter 1: Introduction to research problem

The determinants of firm productivity have long been a subject of interest to economists, with management practices being one of the main causal factors. Good management practices comprise of lean operations, performance monitoring, target setting and talent management. In the last decade a major research programme, referred to as the World Management Survey (WMS), evaluated the causes of productivity differences across countries and firms through studying the variances in management practices. Research papers produced through the WMS include research by Bloom & Van Reenen (2007), Bloom, Mahajan, McKenzie & Roberts (2010), Bloom & Van Reenen (2010b), Bloom, Sadun & Van Reenen (2012b), Bloom, Genakos, Sadun & Van Reenen (2012), Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) and Bloom, Lemos, Sadun, Scur & Van Reenen (2014). The WMS reveals how management practices impact productivity, how management practices vary across firms within one country and across different countries and offers an explanation for this variation. The WMS found a significant association between the measures of management practices and firm productivity, profitability, sales growth and firm survival rates.

Through the WMS, the authors surveyed over 10,000 organisations, constructed management data from these surveys and found that in the manufacturing sector, American, some European and Japanese firms are the best managed whereas firms in developing countries such as Brazil, China and India are poorly managed.

Based on the early findings of Ichniowski, Shaw, & Prennushi (1997), Ichniowski & Shaw (1999) and the findings of the WMS over the past decade, that there is an association between management practices and productivity, this research seeks to determine the degree to which management practices have been implemented in South African manufacturing firms, determine the variation in management practices and provide an explanation for the variance in a South African context.

The objective of this research is to deliver a comparative study on management practices, based on the WMS, comparing South Africa to other countries that have been studied. Bruhn, Karlan, & Schoar (2010) posit that developing countries are missing managerial capital and argue that this lack of managerial capital has consequences for firm growth. This study will reveal the extent to which this is the case in South Africa through studying management practices in South African manufacturing firms.

This study also seeks to determine the factors that matter the most in the adoption of good management practices in South African manufacturing firms, the barriers to

adoption, how management practices vary across firms and the factors that lead to such variation. It is a study of complementarity, a concept in organisational analysis that explains patterns of organisational practices, how they fit with particular business strategies and why different organisations choose different patterns and strategies (Brynjolfsson & Milgrom, 2013).

## **1.1 Research scope**

The scope of this research is management practices, where South Africa ranks on the quality of management practices, factors that drive their adoption and lack of adoption. The study evaluates whether the size of the firm, autonomy of the plant, firm ownership, management skills, multinational status, level of export, market competition, age of the plant, tenure of management and firm hierarchy, each have an impact on the adoption of good management practices in firms.

## **1.2 Research motivation**

### **1.2.1 Business need**

Business schools, consulting firms, the media and policy makers have in the past cited management practices and norms as an important contributor to the performance of firms. In an article in the Harvard Business Review, Bloom, Sadun & Van Rensbergen (2012a) discuss the notion of “the return on good management” (p. 3) and suggest that a one point rise on management score is linked with a 23% rise in productivity, a 14% rise in market capitalisation and 1.4 percent rise in annual sales growth. The Economist magazine submits that during the 2008 financial crisis, in the most impacted sectors, those businesses that had adopted the right management practices performed far better than those that had not (The Economist, 2014).

Economists have further explored the concept of firm performance through various studies and specifically considered the impact of management practices on firm performance and productivity and the variation in adoption of management practices across firms and countries. However, such studies to analyse management practices and how these practices vary across firms, have not been conducted in South Africa. While barriers to the adoption of good management practices have been considered through various studies, barriers tend to be context specific and this study will reveal what these barriers are within the South African manufacturing sector and to what extent the barriers have an impact on adoption.

According to the Manufacturing Circle, a manufacturing industry body in South Africa, it is important to have a strong manufacturing industry because the sector is a key employer in South Africa (1.6 million people), it accounts for more than 12% of GDP and

provides export earnings for the country (Manufacturing Circle, 2014). The Manufacturing Circle (2014) suggests that the manufacturing sector is declining in South Africa, with more than 300,000 jobs lost since 2008 and a decline in manufacturing contribution to GDP.

Therefore it is important to understand the state of management practices in manufacturing firms in South Africa because these practices are a contributor to the performance of the sector.

### **1.2.2 Theoretical need**

According to Bloom, Eifert, Mahajan, McKenzie & Roberts (2013), research suggests that the dispersion of productivity in firms is very wide between those firms performing in the “90<sup>th</sup> to the 10<sup>th</sup> percentiles of total factor productivity” (p. 2) and further to this the dispersion differs in different countries (Hsieh & Klenow (2009) and Bloom, Eifert, Mahajan, McKenzie & Roberts (2013)). The extent of proliferation of management practices has not been studied in South African firms. Studies of both developed and developing countries indicate that developed countries score higher on the quality of management practices than developing countries. A comparative study of South African manufacturing firms provides insight into where South Africa ranks in terms of scores on management practices. It also provides insight into the drivers and deterrents to the adoption of good management practices in South African manufacturing firms.

### **1.3 Research problem**

The aim of this research is to conduct a comparative study on management practices, comparing South Africa’s management practice scores to the scores of other countries that have been studied through the WMS. Whilst developing countries, including African countries, have been studied through the WMS, South Africa as a country has its own specific nuances including the fact that it was a closed off country (sanctions) before the 1994 democratic elections; this may have excluded South African firms from progressive practices in management and forced them to adopt context specific management practices therefore this research provides a view of management practices from a South African perspective.

The aim is to measure and explain management practices in South African manufacturing firms. This insight can be used by firms to consider the identified factors and adopt good management practices where relevant in order to realise productivity benefits that have been associated with introducing good management practices.

## **2 Chapter 2: Literature review**

The literature reviewed in this section explores the importance of good management practices and considers the factors that encourage the adoption of good management practices and the barriers to such adoption in firms. The research problem highlighted the ongoing research in the area of management practices in firms; this will be reviewed in more depth in this section in order to gain a better understanding of management practices.

### **2.1 Why management practices matter**

The questions of what drives productivity in firms and the reasons for the substantial difference in the productivity across firms have been studied extensively and continue to be a subject of interest (Bloom, Mahajan, McKenzie, Roberts (2010), Foster, Haltiwanger, & Syverson (2008), Ilmakunnas, Maliranta, & Vainiomaki (2004), Shaw & Lazear (2008) and Syverson (2011)). Productivity, which is the efficiency with which firms convert inputs into outputs (Syverson, 2011) is an important predictor of firm productivity which in turn influences firm profitability. According to Syverson (2011), productivity is what differentiates firms that survive from firms that do not survive. Ichniowski, Shaw, & Prennushi (1997) measured the impact of different workplace practices on productivity and found an association; the authors specifically investigated the effects of management practices in steel production lines (manufacturing) through field interviews, spending time at the specific firms, and found that practices such as incentive pay, flexible work assignments and training result in significantly higher productivity than more traditional practices that are fairly narrow in approach. Similarly, Bruhn, Karlan, & Schoar (2010) argued that firms with better managerial practices were able to improve productivity; the authors specifically argued that managerial capital has an impact on productivity in two ways: Firstly, better managerial inputs improve the efficiency of other inputs such as labour and equipment; managers forecast the needs of the firm and allocate resources appropriately resulting in improved productivity. Secondly Bruhn, Karlan, & Schoar (2010) argue that resource constraints experienced by the firm are a result of managerial capital because managers shape the strategies that impact on resource availability thus impacting productivity.

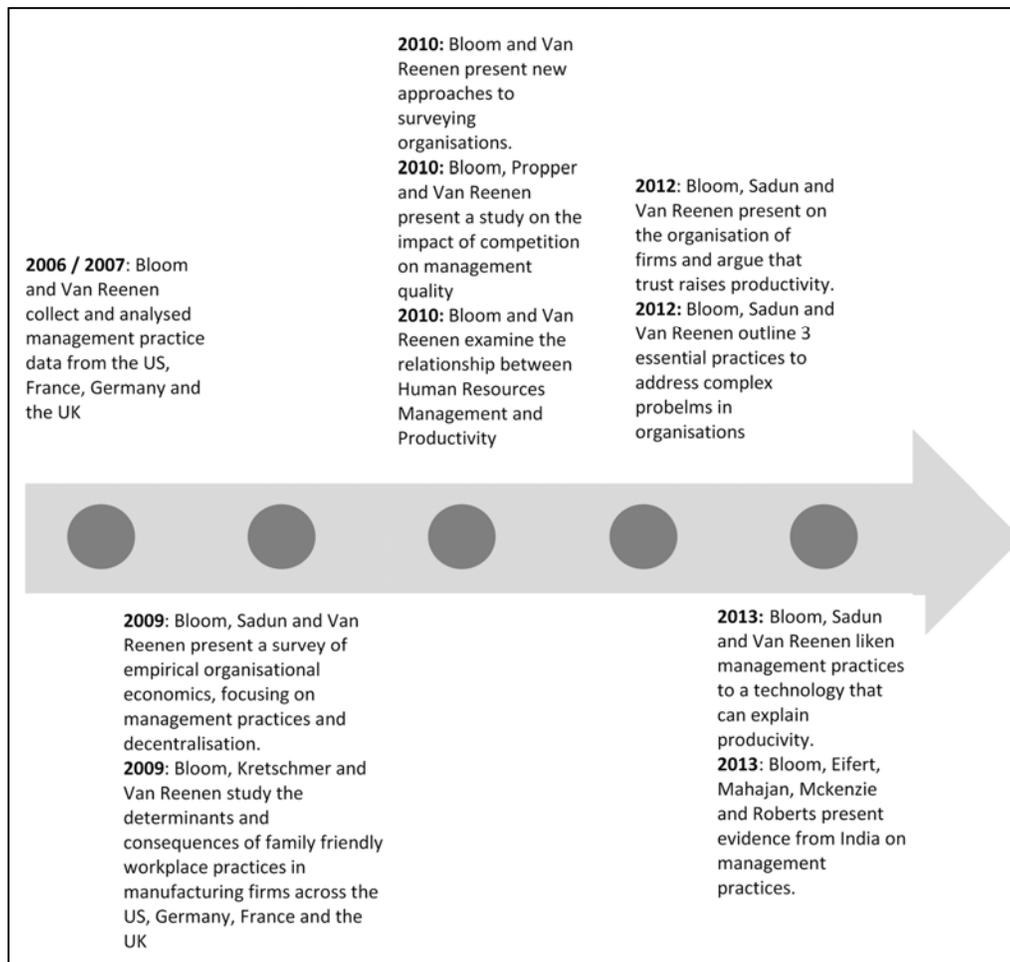
From the various studies into determinants of productivity, management practices have been found to be one of the predominant factors that impact the productivity of firms (Mol & Birkinshaw, 2009). Mol & Birkinshaw (2009) focus on management innovation, proposing that management innovation is a result of the internal context of the firm and the external search for insights; the authors also propose that management innovation

is positively related to firm productivity and performance. Mol & Birkinshaw (2009) describe management innovation as “the introduction of management practices that are new to the firm and intended to enhance firm performance” (p. 1). The study by Mol & Birkinshaw (2009) considers two key elements; firstly the conditions under which firms introduce new management practices and secondly how the introduction of new management practices is related with future productivity enhancements. With their study based on an analysis of over 3600 observations, Mol & Birkinshaw (2009) conclude that the introduction of new management practices has a positive effect on firm performance.

The largest study by far into management practices has been that conducted through the Centre for Economic Performance at the London School of Economics and Political Science, conducted by Nicholas Bloom, John Van Reenen and other management scholars, where, over a period of a decade from 2004, conducted studies in various countries to determine how management practices vary across firms and countries and the impact of management practices on firm productivity. The study is referred to as the World Management Survey (WMS) and focuses on management practices in manufacturing firms and other industries.

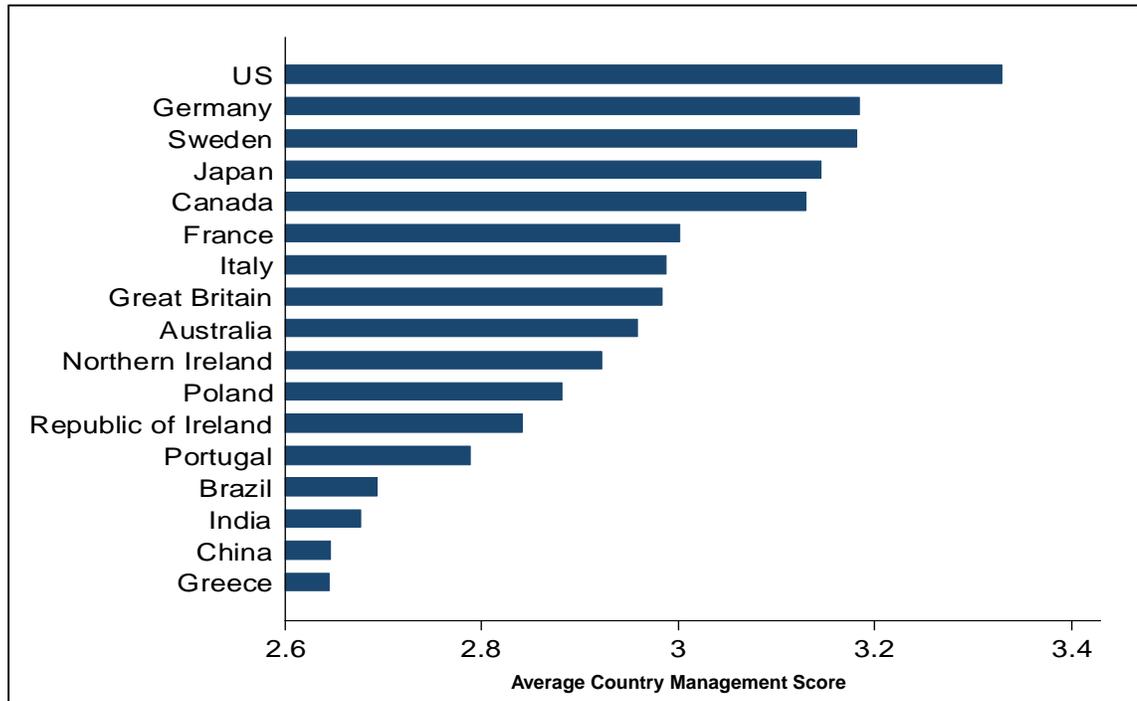
Figure 1 depicts a timeline providing an overview of the various studies that have been undertaken through the WMS:

**Figure 1: Studies into management practices**



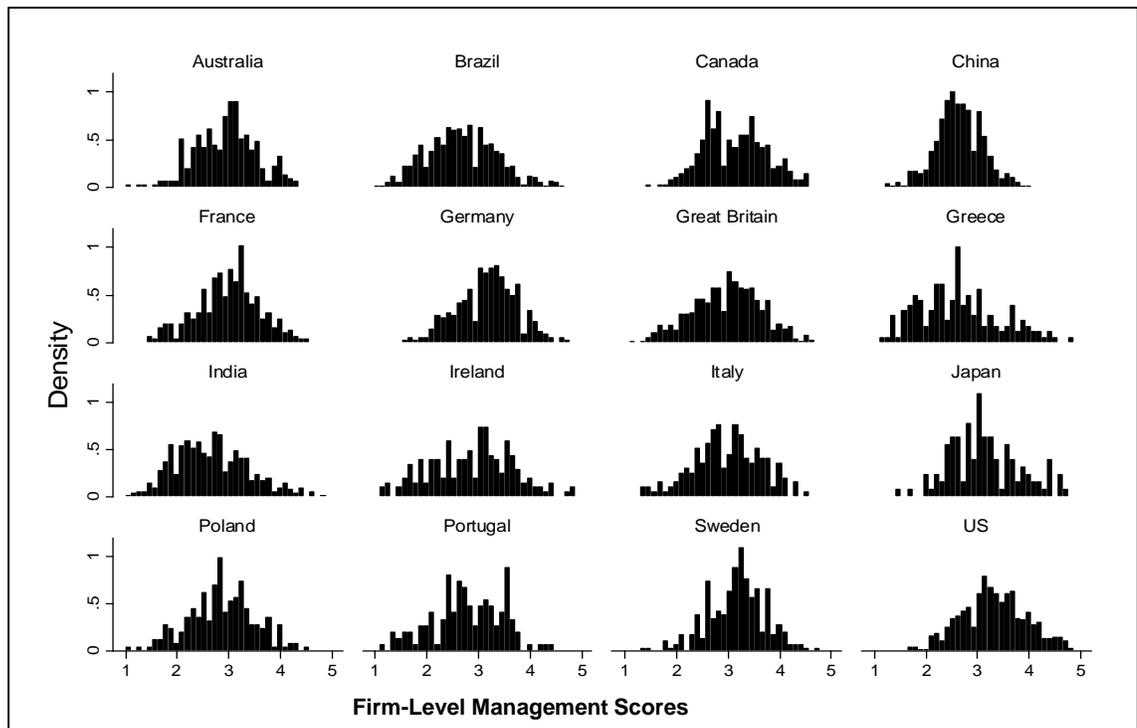
In their initial work on management practices, Bloom & Van Reenen (2007) and the WMS collected data from manufacturing firms in Sweden, Germany, the United States (US), Japan, France, Canada, Italy, Australia, Great Britain, Northern Ireland, Republic of Ireland, Portugal, Poland, Brazil, India, China and Greece on management practices and observed a large dispersion in management practices across firms. The authors also observed substantial variability in management practices across the countries in the sample (Figure 2). Developed countries such as Germany, Sweden, Japan and the US have better quality management while developing countries such as China, Brazil and India have lower management scores on average.

**Figure 2: Inter-country management practice variability**



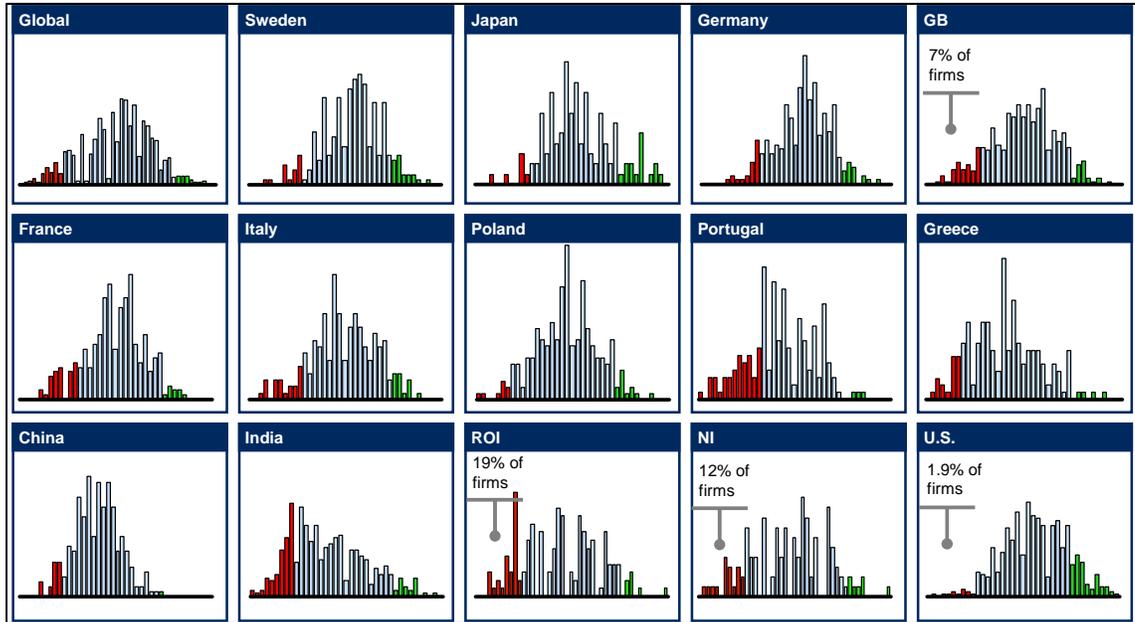
Bloom & Van Reenen (2007) and the WMS also found that management practices differ more in countries than across countries as reflected in Figure 3 below.

**Figure 3: Management practice variability within countries**



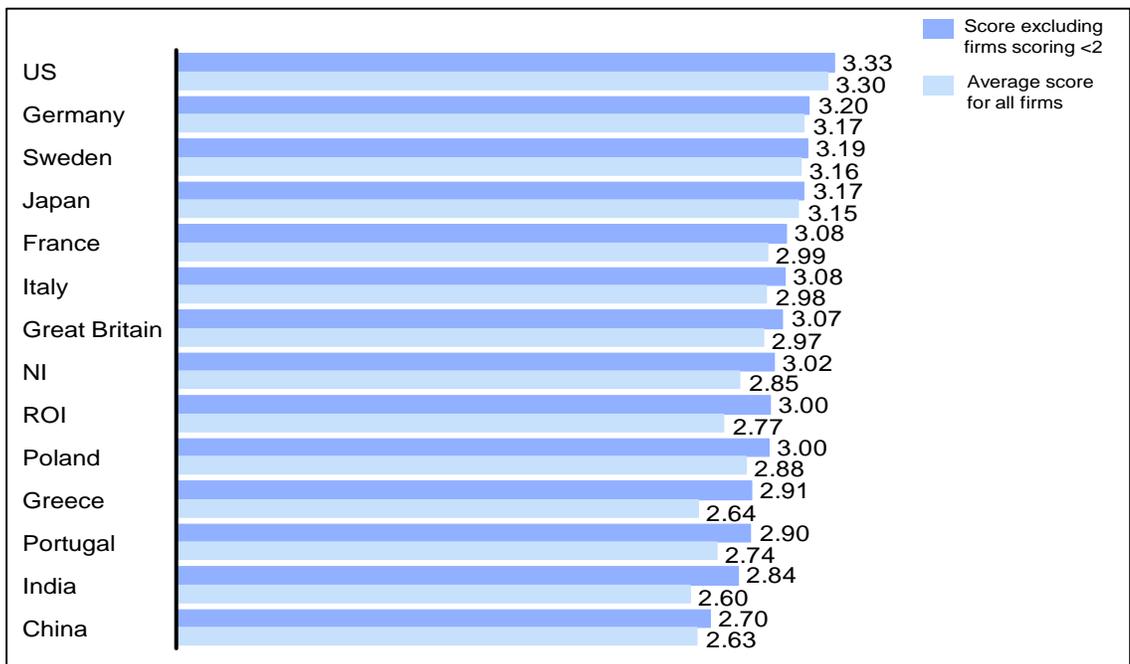
Bloom & Van Reenen (2007) and the WMS found that while some countries showed a high level of good performers, there was a long tail of underperformers in others as shown in Figure 4.

**Figure 4: Distribution of firm level management practices scores by country**



As expected, the long tail of firms with low management scores (underperformers) drags down the average management score of countries that perform poorly (Bloom & Van Reenen, 2007), as shown in Figure 5.

**Figure 5: Lower average scores in low performing countries**



Bloom & Van Reenen (2007) sought to explain the variations in management practices and found while there are many factors that explain the variation, the predominant ones were market competition and family firms, where greater levels of competition were significantly associated with good management practices and family owned firms, where the CEO is a family member, tended to be poorly managed. Further research has shown wider factors such firm size, plant autonomy and manager education that are relevant in explaining variations in management practices.

Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) conducted an experimental study in India, taking some multi-plant textile firms in India through extensive management consulting where the firms received a diagnosis of the state of their management practices and assistance with implementing recommendations from the diagnosis. Other firms that were part of a control group received limited diagnostic consulting and no assistance in implementing limited recommendations. Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) found significant improvements in key productivity measures such as quality, inventory and output for in the treated firms and none in the control groups.

In determining drivers of productivity, many studies have found management practices as a key determinant (Bloom & Van Reenen (2007) and Syverson (2011)) however, some studies have further found that developing countries have significantly lower management scores than developed countries (Bloom, Mahajan, McKenzie & Roberts, 2010) and the lower scores are attributed to badly run firms in developing countries.

According to Mookherjee (2013), managers perform three vital functions in firms; firstly they make important decisions on elements that impact production in the firm, secondly they supervise employees and work activities and thirdly they process information that supports the core activities of the firm. With this role in mind, it stands to reason that management practices matter in firms.

## **2.2 Management practices**

Management practices in this study are grouped into four areas namely lean operations, performance monitoring, target setting and talent management.

Using plant shop floor data, (Black & Lynch, 2004) found that workplace organisation, process improvements, creating work teams, incentive pay and obtaining employee inputs have been a significant part of the improvement in productivity advancement in the United States. However, such practices should not be studied in isolation and should rather be considered in concert with other practices that may make them more effective. According to Ichniowski, Shaw, & Prennushi (1997), it is important to study such

practices as part of a coherent system because there are interaction effects that must be considered and that are important to the impact of productivity.

### **2.2.1 Lean operations**

Lean operations refers to processes and behaviours that optimise production lines and maximise the value harnessed from physical assets, eliminating waste; the objective is to minimise process time variability (Shah & Ward, 2007). Lean operations focuses on the utilisation of lean manufacturing techniques, the presence of a continuous improvement culture where processes are documented, a mechanism for suggesting process improvements and follow up on implementation of improvements (Bloom & Van Reenen, 2007).

In their study to develop a framework for TQM (Total Quality Management), JIT (Just in Time) and TPM (Total Productive Maintenance) and examine their relationship to manufacturing performance, Cua, McKone, & Schroeder (2001) came to the conclusion that there is a relationship between these three practices and manufacturing performance. Lean production is a combination of various management practices in an integrated system (Shah & Ward (2003) and Shah & Ward (2007)).

According to Cua, McKone, & Schroeder (2001), “TQM is a manufacturing program aimed at continuously improving and sustaining quality products and processes by capitalizing on the involvement of management, workforce, suppliers, and customers, in order to meet or exceed customer expectations” (p. 676). As a management practice to improve performance, TQM practices entail process management, customer inputs and involvement, strategic planning and employee input and involvement (Cua, McKone, & Schroeder (2001) and Shah & Ward, (2007)). TQM is about involving customers, suppliers and employees in processes to ensure quality products and processes (Cua, McKone, & Schroeder, 2001).

Cua, McKone, & Schroeder (2001) define JIT as “a manufacturing program with the primary goal of continuously reducing and ultimately eliminating all forms of waste” (p. 676). As a management practice, JIT entails practices such as reducing set-up time, pull system production, just in time delivery, being cognisant of functional equipment layout, adhering to daily schedules, cross-functional training and the involvement of employees (Cua, McKone, & Schroeder (2001) and Shah & Ward, (2007)). JIT works best when employees are well versed with the techniques of JIT and management is committed to its core tenets. JIT focuses on two major types of waste, work in progress inventory and delays in flow time; both of these can be addressed through reducing set up time and pull system production (Cua, McKone, & Schroeder, 2001).

Cua, McKone, & Schroeder (2001) define TPM as “a manufacturing program designed primarily to maximize equipment effectiveness throughout its entire life through the participation and motivation of the entire work force” (p.677). As a management practice, TPM entails practices such as planned maintenance of equipment, emphasis on equipment technology and autonomous maintenance (Cua, McKone, & Schroeder (2001) and Shah & Ward, (2007)). Daily maintenance of equipment is critical in TPM and requires operators of such equipment to be conscientious about maintenance. Similar to JIT and TQM, for TPM to be successful there is a requirement for trained employees and management commitment. It stands to reason that TPM is a key management practice because equipment up time increases the chances of higher productivity because the equipment is available for use.

While there are specific technical characteristics to JIT, TQM and TPM, these three practices also share some common elements which fall squarely in the realm of human and strategic oriented practices (Cua, McKone, & Schroeder, 2001); these common elements are not necessarily skills that can be taught but rather skills that managers acquire over time through practice. These include leadership commitment, strategic planning, cross-functional training, employee involvement and two-way communication (Cua, McKone, & Schroeder, 2001). According to Cua, McKone, & Schroeder (2001) and Shah & Ward (2007), the level of implementation of these management practices and techniques determines manufacturing performance; all three programs have the common aim of making manufacturing production more efficient and effective through continuous improvement. In other words, lean production is a combination of practices and tools with relationships where the constituent elements have mutual dependence (Shah & Ward, 2007). It is about both people and processes.

According to Gibbons & Henderson (2013), it has been extensively demonstrated that an important source of productivity in firms was the ability to make continuous improvements in the production process. At Toyota shop floor workers were encouraged to identify bottlenecks and opportunities for improvement in the production process (Gibbons & Henderson, 2013) and this led to significant improvements in performance and productivity

Bresnahan, Brynjolfsson, & Hitt (2002) studied the organisational complements to information technology (IT) and their impacts on productivity and found that the interaction of IT, workplace organisation and human capital are good predictors of productivity. These practices can be classified as management practices as they are led by managers in the organisation.

### 2.2.2 Performance monitoring

Performance monitoring refers to processes that align the efforts of the whole company towards a common goal. Performance monitoring entails tracking and reporting on performance measures across the company, reviewing performance, managing underperformance and consequence management.

The nature of performance measurement is inherently subjective and more often than not employee performance is measured by a supervisor who perceives an employee's performance based on sometimes non-verifiable factors (Lazear & Oyer, 2013). This is where it is important to have as rigorous as possible performance measures that can truly reflect performance on the part of the employee. In their work in personnel economics Lazear & Oyer (2013) suggest there are at least three ways in which employee assessments can differ from actual productivity. Firstly, employees can focus on the elements that affect assessments from their supervisors to try and influence their supervisors; these elements may not necessarily be in the interests of the firm from a productivity perspective. This is how some firms rather promote according to seniority as opposed to subjective assessments of performance (Lazear & Oyer, 2013). Secondly, there is the notion of managers favouring some workers over others which introduces subjectivity into assessments; in this case firms tend to reduce overall incentives and rather focus on the imperfect system of subjective performance measures (Lazear & Oyer, 2013). Lastly Lazear & Oyer (2013) discuss the tendency of managers to compress employee performance ratings due to differences in opinion between managers and employees on actual performance. These three dimensions suggest that management practices with respect to performance measurement can differ for various reasons in firms.

The ability of firms to manage underperformance of workers firing and displacement is hampered by various labour legislation or trade unions in a number of countries which makes the cost of hiring higher for firms (Lazear & Oyer, 2013). Lazear & Oyer (2013) posit that if firms could freely modify salaries of employees to their marginal output then worker displacement would not be of great concern. However, because this is not often the case, it is not easy for firms to let go of underperforming workers. Therefore, managing underperformance becomes an important management practice in firms.

According to Gibbons & Henderson (2013), there is no single definition of good performance management but there are three elements that the authors have found in their reviews of literature on high performance system where firms that have such systems have the following in common: firstly they implement effective incentive systems

(these include performance-based pay, stock ownership and group-incentive plans), secondly they focus on skills development (this includes actions such as job rotation and extensive training) and thirdly they create opportunities for distributed communication and problem solving (this includes the allocation of decision rights to frontline manufacturing employees through self-directed work teams). These elements are a reflection of good management practices in firms.

### **2.2.3 Target setting**

Target setting entails managing performance targets through making sure that targets are defined, cascaded to all levels of the organisation, the realism of targets, their transparency and whether or not they are interconnected and linked to broader firm goals (Bloom & Van Reenen, 2007).

### **2.2.4 Talent management**

Talent management refers to processes and behaviours that optimise the quality of the workforce and processes to enhance the attraction and retention of quality employees. A human resources system focused on enhancing human resources is directly related operational performance, that is, employee productivity, machine efficiency, and customer alignment (Youndt, Snell, Dean, & Lepak, 1996). According to Youndt, Snell, Dean & Lepak (1996), managing the value of human resources is especially important in modern manufacturing organisations where there is heavy investment in advanced manufacturing technology and modern practices.

Talent management entails creating a unique value proposition for employees such that talented employees seek to work for your firm as opposed to the competition. It involves having practices and policies in place that allow for the advancement and retention of talented employees. It is critical to the performance of manufacturing firms to harness the potential of their employees (Youndt, Snell, Dean, & Lepak, 1996). Important practices here include decentralised decision making, comprehensive training, incentive compensation and employee participation; these practices are linked to employee motivation (Youndt, Snell, Dean, & Lepak, 1996).

According to Youndt, Snell, Dean, & Lepak (1996), firm investments to increase employee skills and knowledge carry opportunity costs and are only defensible if the employees produce future returns through increased productivity; “therefore the higher the potential for employee contribution in a firm, the more likely it is that the firm will invest in their advancement” (p. 839).

Another key aspect of talent management is incentives; this considers how employees are promoted in the company (whether promotions are based on tenure or performance), salaries and bonuses and non-financial rewards (Bloom & Van Reenen, 2007).

Offering pay or incentives as a result of performance increases motivation in organisations. Gibbons & Roberts (2013) posit that performance pay can attract individuals to firms; “it may cause selection (individuals to choose to join the firm) and the productivity effects of this selection could be as important as the productivity effects of the incentives themselves” (p. 80). According to Lazear & Oyer (2013), the higher the incentives as perceived by employees, the harder the employees will work, which by implication would mean the more productive the firm. This notion should however be considered within the context of quality versus quantity wherein the employee can work hard producing more but at a substandard quality (Lazear & Oyer, 2013).

Employee reward does not always have to be cash based. Employees can also be motivated through other means such as healthcare benefits, retirement benefits, employer-sponsored child care, nicely decorated offices, stock options, skills development and recognition of achievements Lazear & Oyer (2013). These alternative ways of compensation form an important managerial practice when used appropriately to motivate employees to improve productivity. Alternative ways of compensation can also give a firm comparative advantage over other firms depending on how the benefits are perceived by employees Lazear & Oyer (2013).

On the notion of building a high performance culture through incentives, Lazear & Oyer (2013) suggest that employees respond to incentives in differing ways and that while incentives can create unintended consequences, on the whole they are associated with performance. Through various studies Lazear & Oyer (2013) found that an increase in productivity came about because of the way employees were incentivised. Through reviewing case studies from various studies on incentives Lazear & Oyer (2013) concluded that incentives can be a “powerful managerial tool for affecting individuals’ behaviour” (p. 489).

### **2.3 Factors that matter in the introduction of management practices in firms**

There are often related environmental variables that drive an entire system (Brynjolfsson & Milgrom, 2013) and particularly for this study there are specific variables that drive an entire management system in firms, variables that, if changed, could lead to a change in the way management practices are adopted in firms. Mol & Birkinshaw (2009) refer to these variables as organisational attributes that provide context of the organisation.

Bloom & Van Reenen (2007) explored a number of factors that matter in the introduction of management practices in firms. These factors are outlined in **Table 1**.

**Table 1: Factors that matter in the introduction of management practices**

a. Size of firm (number of employees)	b. Autonomy of the plant (hiring, decisions on new product introductions, sales and marketing activity)	c. Firm ownership
d. Skills level (tertiary education)	e. International presence (production sites abroad, extent of export)	f. Competition

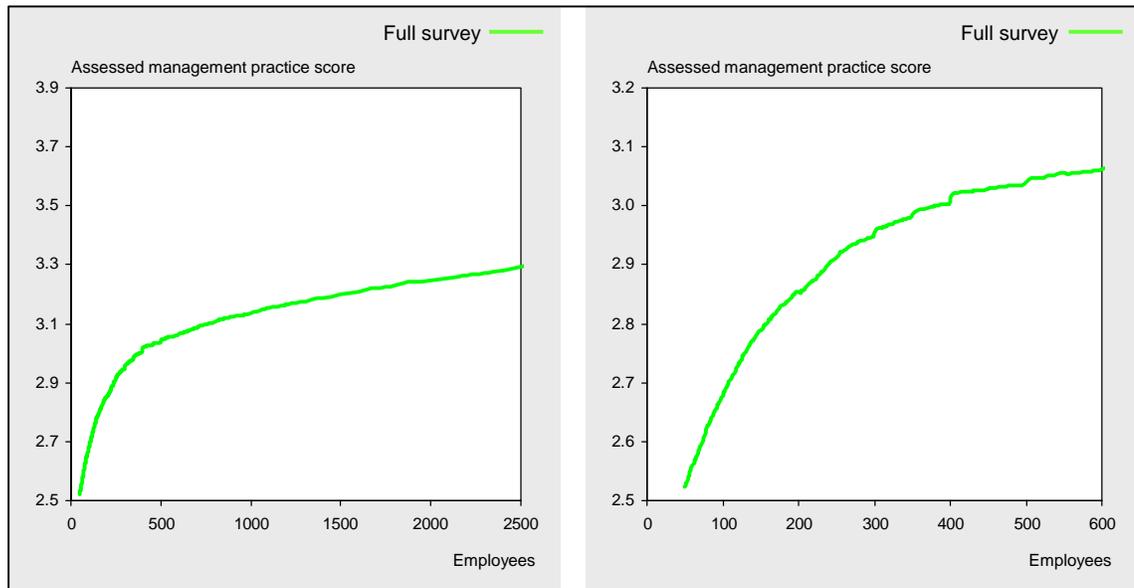
These factors matter when it comes to management practices a firm chooses to adopt. According to Gibbons & Roberts (2013) and Mol & Birkinshaw (2009), matters such as centralisation of decision making, communication, sophistication of managers, size of the firm, the definition of subunits, financing, boundaries of organisations can have a strong effect on behaviours in firms. Such behaviour in turn impacts practices that are adopted and entrenched in firms. The proposition here is that there is a positive interaction effect between the factors and the adoption of management practices in firms.

### **2.3.1 Firm size**

According to Mol & Birkinshaw (2009), Shah & Ward (2003) and Cua, McKone, & Schroeder (2001), the size of the firm has an impact on the introduction of good management practices; larger firms typically have more competitors and face more challenges, and varied challenges than smaller firms. To outperform competitors and overcome these challenges, larger firms are more likely to introduce good management practices (Mol & Birkinshaw, 2009). Further to this, larger firms tend to have more resources including knowledge and human resources to implement good management practices (Mol & Birkinshaw (2009) and Cua, McKone, & Schroeder (2001)). Therefore, according to Mol & Birkinshaw (2009), “larger firms are both under more pressure to introduce new practices, when compared to smaller firms, and more capable of doing so” (p. 1271). Similar to Mol & Birkinshaw (2009), Cua, McKone, & Schroeder (2001) and Shah & Ward (2003) also state that context is important, specifically the number of employees in the firm, which is how the size of manufacturing plants is measured. Along with the number of employees, the organisational structure is important context for manufacturing firms. Larger firms tend to be more formalised from an organisational structure perspective (Cua, McKone, & Schroeder, 2001) and this makes it easier to deploy management practices. The opposite would hold true for smaller firms.

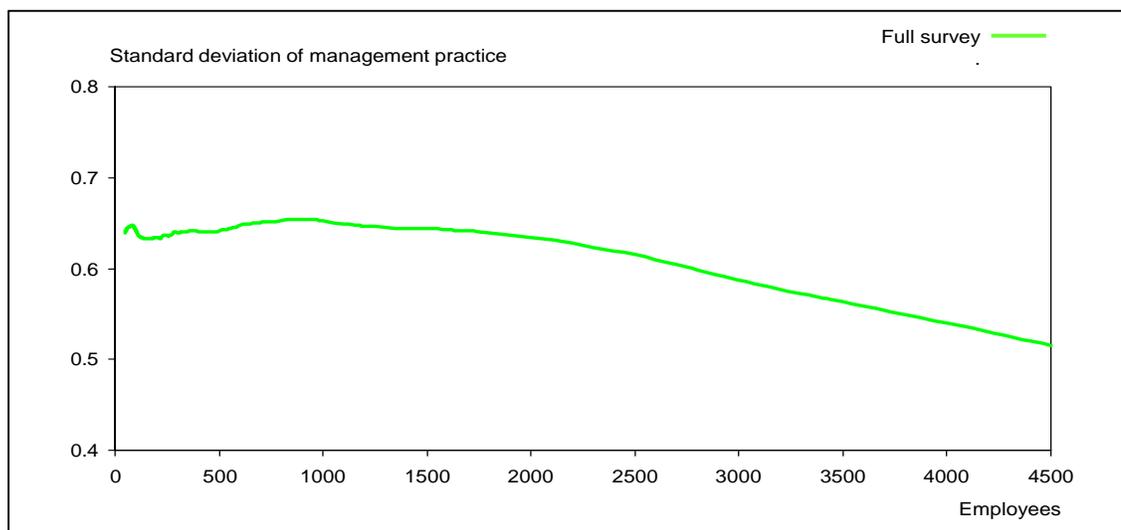
Bloom & Van Reenen (2007) and other WMS studies found that management scores increase with firm size but slows at 500 employees as reflected in Figure 6.

**Figure 6: Firm size vs. assessed management score**



Bloom & Van Reenen and other WMS studies also found that beyond approximately 500 employees firms of a similar size showed reduced variation in their management scores as shown in Figure 7.

**Figure 7: Variation in firms' management practice vs. assessed management score**



### **2.3.2 Autonomy of the plant**

One of the key practices that Bloom & Van Reenen (2007) emphasise is the delegation of authority or empowerment as a reflection of good management practice in firms. Bloom, Sadun & Van Reenen (2012b) explore the notion of trust in organisations and posit that when trust is high and decisions are delegated to plant managers, the managers are likely to make the right decisions to solve problems in the plant. Delegation of authority to plant managers also frees up time for the CEO which enables them to play a more strategic role resulting in firm growth (Bloom, Sadun & Van Reenen, 2012b).

According to Gibbons & Roberts (2013), the allocation of decision authority has strong motivational effects in organisations. With empowerment comes incentives which create motivation in organisations (Gibbons & Roberts, 2013). Gibbons & Roberts (2013) conclude that organisational architecture of the firm matters, including boundaries in the firm, the internal structure and hierarchy, authority and decision making structures.

### **2.3.3 Firm ownership**

The ownership structure of the firm has an influence on the quality of management practices in firms, more specifically when family ownership is contrasted with non-family ownership. According to Gibbons & Roberts (2013), the ownership structure of a firm matters in the context of management practices adopted by a firm. According to Bennedsen, Nielsen, Perez-Gonzalez, & Wolfenzon (2007), the issue with family firms lies in the appointment of the Chief Executive Officer (CEO) which is influenced by the preferences of the controlling families wherein the family may prefer to hire a family member as opposed to a better qualified person; further to this, Bennedsen, Nielsen, Perez-Gonzalez, & Wolfenzon (2007) assert that family CEOs could underperform because of differences between family and business interests.

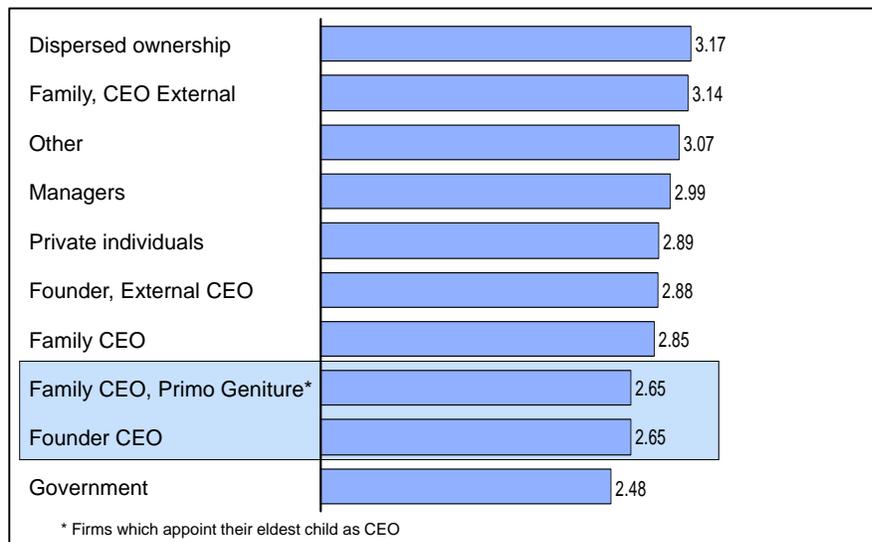
According to Bloom & Van Reenen (2007), having management as family members has a number of implications that could be costly to the firm. Firstly, when management is selected only from the family this limits the pool of talent from which management is selected potentially compromising the quality of management in the firm; and further to this there is limited competition for more senior roles because the family hierarchy may already determine who is placed in senior positions which may further compromise the quality of management (Bloom & Van Reenen, 2007). Secondly the firm may not invest in skills development and talent because of the knowledge of who will receive the management positions, which may compromise the quality of management and practices in the firm (Bloom & Van Reenen, (2007). There is an up-side to family owned and managed firms; Bloom & Van Reenen (2007) explain that issues arising from

principal-agent circumstances are mitigated and there may also be investment in development and training for heirs in anticipation that they will run the firm in the future.

Bloom & Van Reenen (2007) studied the effect of family ownership and management on firm productivity and conceded that even though family owned firms may choose to be family managed at the compromise of performance to keep the firm in the family as a legacy for future generations.

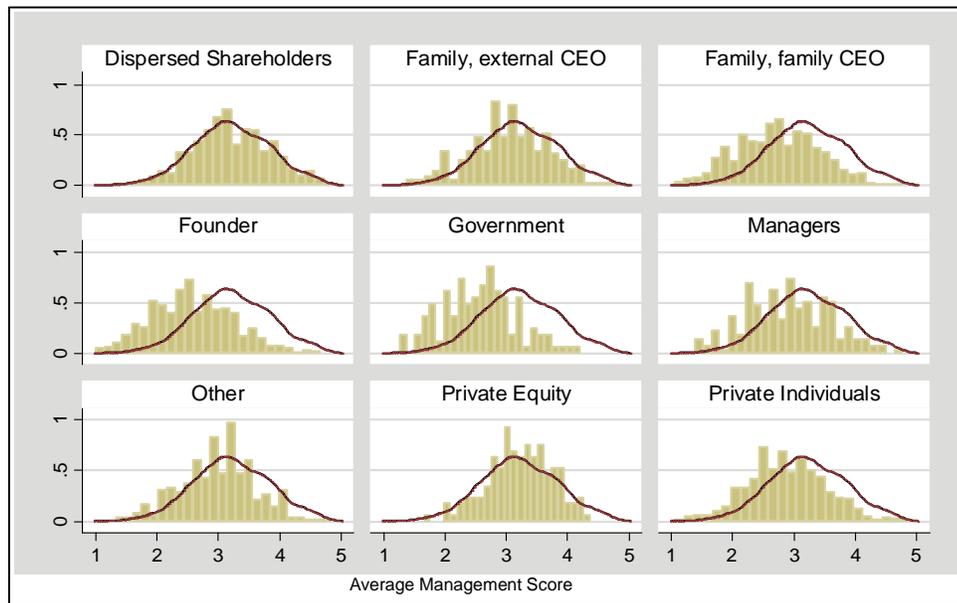
Bloom & Van Reenen (2007) and the WMS found that management practices vary substantially according to ownership type, as reflected in Figure 8, and that family ownership is slightly positively associated with the quality of management practices; however the authors found that where the firm is family managed and the CEO is a family member, the firm is poorly managed in terms of management practices, as shown in Figure 9. Therefore it is the combination of family ownership and family management that makes for poor management practices. The authors found that this is the case even after including controls such as the age of the firm.

**Figure 8: Average management score by ownership type**



Bloom & Van Reenen (2007) found that government owned firms had lower management quality than non-government owned firms, as shown in Figure 9, and the reason is that government owned firms tend to have weaker people management practices and that promotion tended to be on tenure as opposed to performance; The authors found that in government owned firms underperformance was more tolerated. Bloom & Van Reenen (2007) found that multinational, various shareholder, and private-equity-owned firms were typically well managed.

**Figure 9: Distribution of firm management scores by ownership**



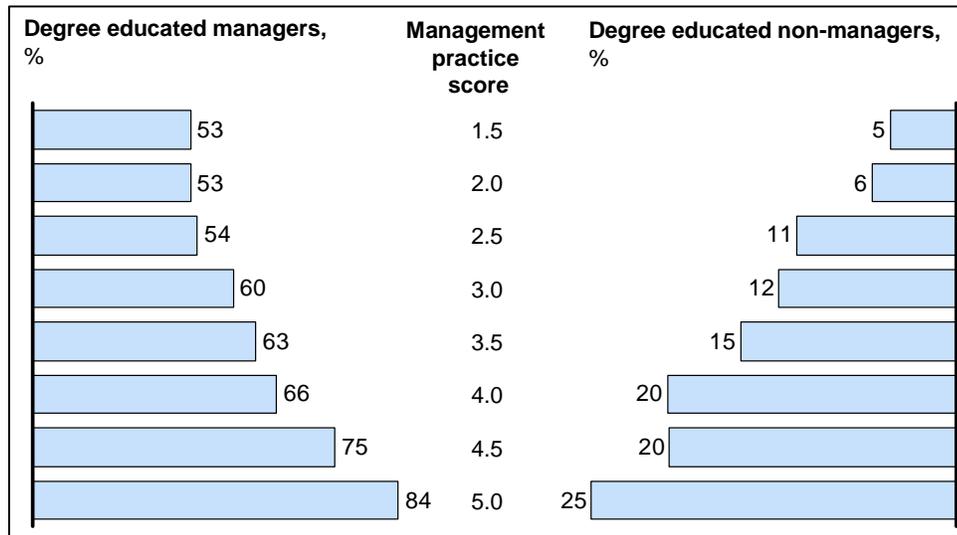
### 2.3.4 Skills level

The skill level of the workforce, both managers and shop floor workers, measured as a percentage of the workforce with a tertiary qualification, is also an important attribute to the introduction of good management practices in firms (Mol & Birkinshaw, 2009). Mol & Birkinshaw (2009) posit that well qualified employees are most likely to be well versed in issues beyond their day to day work through various professional organisations they may join for instance, and therefore seek out practices that advance their firms (Mol & Birkinshaw, 2009). Further on the issue of skills, Syverson (2011) refers to the work of Bloom & Van Reenen (2007), Bloom & Van Reenen (2010b) and Bloom, Mahajan, McKenzie & Roberts (2010) to present the case of management practices being one of the drivers of productivity and the author emphasises that on the aspect of management practices, this has to be considered in line with the role of management. What (Syverson, 2011) suggests is that management practices adopted may be related to the skills of those who implement the practices which would help in understanding the causal nature of management practices.

Bloom & Van Reenen (2007) found evidence that firms with higher employee skills and management skills, evidenced through tertiary qualifications, have significantly better overall management practices, with particularly good human resources focused management practices, as shown in Figure 10. This is not only relevant for managers but for none managers as well. As part of the review of the World Management Survey data, Bloom, Lemos, Sadun, Scur, & Van Reenen (2014) suggest that having workers

who are clever enough to appreciate and act on continuous improvement initiatives is important.

**Figure 10: Average management score by skill level**



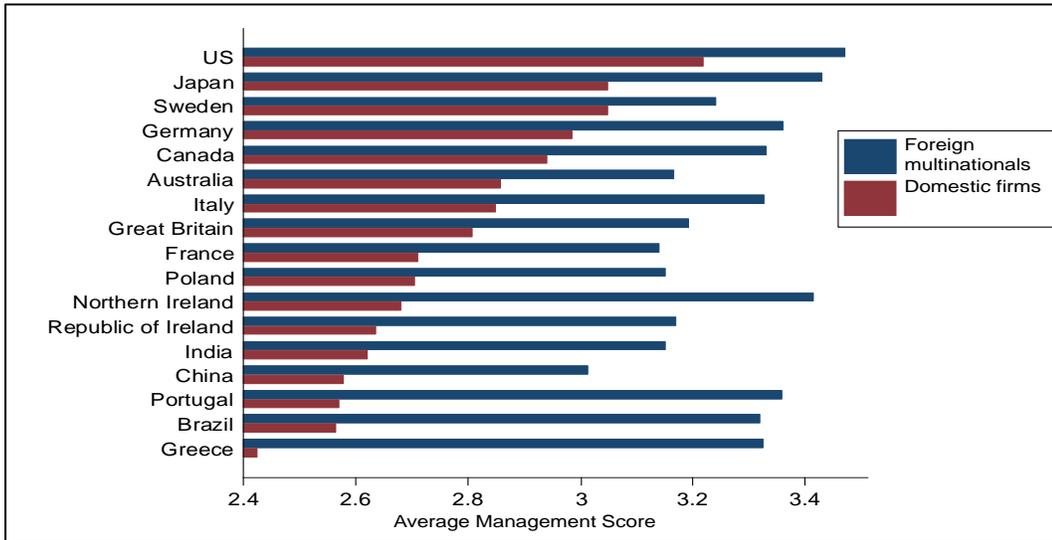
### 2.3.5 International presence

The extent to which the firm has international presence, either through having production sites abroad, exporting their products internationally or owned by a foreign multinational, has an impact on the propensity of the firm to implement good management practices. According to (Mol & Birkinshaw, 2009), if the firm is internationally inclined, this is likely to be a source of exposure to modern management practices since the firm is exposed to other approaches in different contexts other than its current context; in this way the firm gains learning. International exposure causes the firm to learn about management practices adopted by others and those that could be considered for adoption in the firm. Further to this, according to Mol & Birkinshaw (2009), the extent to which a firm exports its products has an impact on management practices because firms that export to international markets have to put in more effort in the practices they adopt to compensate for the fact that they are foreign. Therefore this internationalisation bodes well for the adoption of good management practices.

Through their various studies on management practices, Bloom, Genakos, Sadun & Van Reenen (2012) found that multinationals are able to adopt good management practices. The authors also found that non-exporters had lower management scores than exporters. Bloom, Sadun & Van Reenen (2012b) found that multinational firms have a comparative advantage over non-multinational firms in that multinationals transfer managerial skills and organisational technology to overseas subsidiaries.

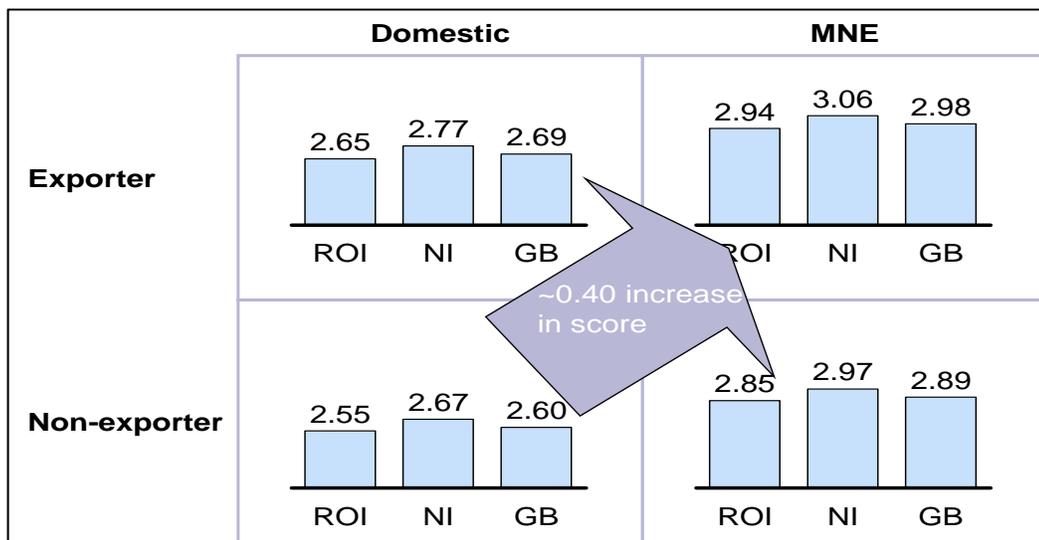
Bloom & Van Reenen (2007) found that multinationals are well run in all countries, as reflected in Figure 11.

**Figure 11: Management scores of multinationals vs. domestic firms**



Bloom & Van Reenen (2007) found that international presence increased the quality of management practices. The authors found that exporting firms exhibit better management practice than firms serving only the domestic market and that multinational firms have better management practices than domestic firms as shown in Figure 12.

**Figure 12: Average management score vs. international presence**



### **2.3.6 Competition**

According to Bloom & Van Reenen (2007), environments that are more competitive tend to have better quality management practices because competition causes firms to strive for better to survive. Highly competitive environments will force underperforming firms out, giving more efficient firms a larger market share (Bloom & Van Reenen, 2007). Bloom & Van Reenen (2007) state that competition has an impact on the effort that managers put in; the higher the level of competition in the environment, the higher the managerial effort due to a fear of being driven out of the market. Contrary to this own view, Bloom & Van Reenen (2007) also state that in high competition environments it is likely that profits are not very high which in itself could deter managerial effort and therefore result in lower quality management practices.

Bloom & Van Reenen (2007) found in their study that higher management scores were positively and significantly associated with the number of competitors a firm faces. According to Bloom & Van Reenen (2007), “the more rivals a firm perceives it faces, the better managed it appears to be” (p. 1379). The authors concluded that the higher the levels of competition the better the quality of management practices in a firm. According to Bloom & Van Reenen (2007), the positive influence of competition could be due to increased competition forcing increased management effort in firms or due to increased competition driving out badly managed firms from the industry. Bloom & Van Reenen (2007) used average managerial hours worked to determine effort but found an immaterial association between higher levels of competition and the hours worked by managers. Bloom & Van Reenen (2007) concede that managerial hours may not be an appropriate reflection of managerial effort as effort could be through the intensity of work as opposed to the number of hours at work.

### **2.4 Barriers to the introduction of management practices in firms**

Although studies reveal a link between management practices and productivity (Bloom & Van Reenen, 2007) the question remains on why firms do not adopt such management practices. Bloom & Van Reenen (2007) differentiate between static and dynamic reasons. According to the authors, static reasons include costs, differences in the industry and agency considerations. Firstly, from a cost perspective, firms need to weigh up the costs of introducing new practices against the benefits that could be obtained and those benefits must include an increase in profits (Bloom & Van Reenen, 2007). Secondly, different industries may have different needs; Bloom & Van Reenen (2007) cite the example of introducing complex appraisal systems when the workforce is homogenous; in this situation no benefit would be harnessed. Thirdly, firms face the

challenge of balancing the interests of managers and of shareholders, where managers do not always act in the interest of shareholders simply because it is too much of an effort, like the effort of introducing good management practices (Bloom & Van Reenen, 2007). From a dynamic perspective, Bloom & Van Reenen (2007) suggest that new management practices take time to operationalise because there is a lag in learning and the change management effort may be high and costly.

Further to these reasons, Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) speculate that informational constraints are important factor in the lack of adoption; this is a case of management simply not knowing of such management practices or not knowing how to implement such practices, for instance less common management practices such as regular meetings and standardised ways of operating.

Management in firms may also not focus on management practices when profits are high but may be incentivised to implement specific management practices when profits are low. Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) also cite management time as a possible reason why there is a lack of adoption of management. Bloom & Van Reenen (2010b) explored what causes differences in management practices across firms and countries and found product market competition, labour regulation, multinational status, ownership and education to have an influence on management scores. These factors could explain the varying degrees of adoption of management practices in different countries; they also define the context of the country where the study is conducted.

Syverson (2011) performed an extensive review of productivity literature and concluded that “no potential driver of productivity differences has seen a higher ratio of speculation to actual empirical study” (p. 336) than management practices. Given the speculative nature of various literature on the reasons behind the lack of adoption of management practices, the question is what are the actual reasons why firms do not adopt the proven management practices to improve productivity? Mol & Birkinshaw (2009) suggest that firms implement management practices based on what their peers or competition implement, primarily to be seen to be doing the right things and not necessarily because these practices are appropriate for their respective firms.

Brynjolfsson & Milgrom (2013) posit that it is likely that transition to any system will be difficult, especially where decisions are decentralised. Therefore in considering barriers to adopting certain management practices, firms need to be circumspect.

Gibbons & Henderson (2013) cite implementation difficulties as a barrier to the introduction of good management practices. Implementation difficulties relate to the effort of implementing management practices from an execution perspective.

Other barriers to the adoption of good management practices include the age of the actual plant, where managers in older plants may be resistant to implementing new management practices despite having knowledge of such because they have invested in skills and relationships that would need to change significantly if they were to adopt new management practices (Ichniowski, Shaw, & Prennushi (1997), Cua, McKone, & Schroeder (2001) and Shah & Ward (2003)). According to Ichniowski, Shaw, & Prennushi (1997), such resistance does not exist in firms that have new lines of production or where old plants were reopened by new owners. Further to this older plants in firms are characterised by mistrust between the shop floor workers and management which would make any changes to management practices ineffective (Ichniowski, Shaw, & Prennushi, 1997). This is further confirmed by Shah & Ward (2003) who suggest that the longer a firm has experienced specific management practices, the more difficult it is for the firm to replace those practices, even if they are inferior.

Shah & Ward (2003) examined the relationship between contextual factors and the extent of implementation of lean operations, specifically focusing on the size of the plant, plant age and extent of unionisation. In so far as unionisation is concerned, Shah & Ward (2003) suggest that the implementation of any changes to the way employees work in highly unionised environments requires negotiation with the trade unions and this may be an impediment to the implementation of any management practices like lean manufacturing.

With respect to knowing what good management practices to introduce, Mol & Birkinshaw (2009) refer to the notion of 'search' and argue that active search, described as the actions of managers in a firm as they seek knowledge on management practices, is an important contributor to whether or not new management practices are introduced in firms. According to Mol & Birkinshaw (2009), managers can search for new knowledge on management practices through previous experiences, reading and bringing in management consultants who implement new practices. Therefore, not knowing what management practices to introduce can in itself be a barrier to the adoption of management practices in firms.

## **2.5 Dispersion of management practices across firms**

In their study to determine why management practices differ across firms and countries, Bloom & Van Reenen (2010b) found an emphasis on specific management practices in specific countries, for instance, in the United States, China and India there was a lot of focus on incentives, whereas in Japan, Sweden and Germany there was more of an

emphasis on monitoring and targets. Context in the different countries influences these patterns (Bloom & Van Reenen, 2010b).

The best management practices evolve over time according to Ichniowski & Shaw (2013), which means that at a point in time, not all management practices will necessarily have been adopted by all firms or by every worker in a particular firm. Hence it is expected that there will be differences in management practices across firms.

Decisions about the scope of work in the firm, propensity to adopt new technology, the magnitude of outsourcing and the extent of exportation are some of the many management policies that vary across firms (Ichniowski & Shaw, 2013). According to Ichniowski & Shaw (2013), industries are populated by differing firms and not homogeneous firms that have a common set of optimal management practices.

Brynjolfsson & Milgrom (2013) assert that there are indeed differences in productivity between countries and these may be due to organisational differences and more specifically due to intangible assets in the organisation. According to Brynjolfsson & Milgrom (2013), using econometric analysis to focus on differences between firms clarifies outcomes and behaviours of firms.

In their study on persistent performance differences among seemingly similar firms, Gibbons & Henderson (2013) developed a view that contributes to the explanation of why management practices may differ across firms; the authors posit that firstly managers may not know that their firm is behind with respect to progression on management practices, secondly that while managers may know that their firms are lagging with respect to progressive management practices, they simply do not know what to do about it, thirdly managers may know that they are lagging and may know what to do about it but are simply not motivated to adopt new management practices, and lastly managers may know that they are lagging, they may know what management practices to adopt and may also be putting effort into implementing those management practices but cannot get it done due to inability to implement.

Bloom & Van Reenen (2007) found that there is a wide spread of management practices in every country and suggest that this is particularly enhanced in developing countries where the spread across firms is much more emphasised.

## **2.6 Management practices in developing countries**

Studies of productivity across firms suggest that developing countries have lower levels of productivity than developed countries (Bloom, Mahajan, McKenzie & Roberts (2010) and Bruhn, Karlan, & Schoar (2010)). The authors refer to Gross Domestic Product

(GDP) per capita and average firm level sales per employee in manufacturing to come to this conclusion. Bloom, Mahajan, McKenzie & Roberts (2010) focus on three reasons for low productivity in developing countries, namely, management practices, financial limitations and delegation of authority.

Bloom, Mahajan, McKenzie & Roberts (2010) found evidence that firms in developing countries are poorly managed which in turn lessens their productivity and that this is particularly emphasised in larger firms (greater 100 employees) which tend to be operationally complex and therefore require a certain level of management practices for coordination. The authors also found evidence that financial limitations were a limiting factor for growth, especially in smaller firms (less than 100 employees).

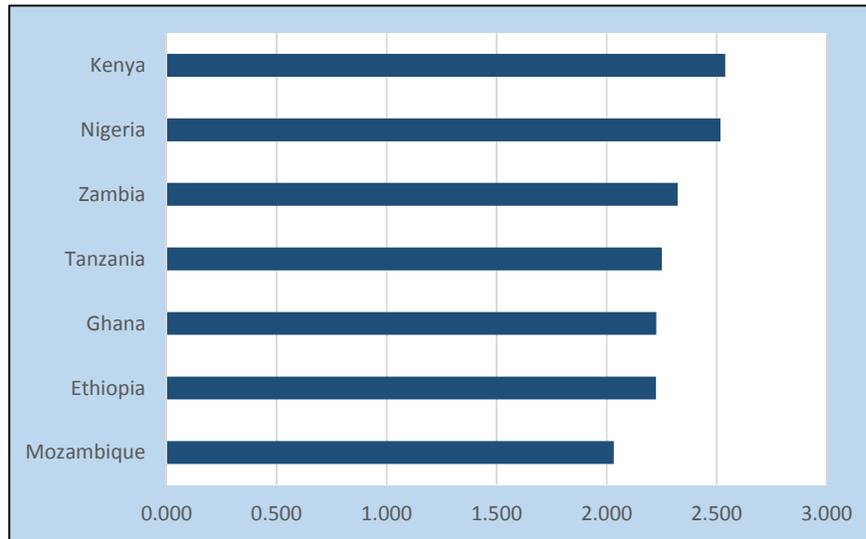
Another growth constraint found by Bloom, Mahajan, McKenzie & Roberts (2010) is that of the inability of firms to decentralise decision making and provide more autonomy to managers. The authors found that in developing countries, owners of firms tend to make most of the major decisions such as investment, employment and production decisions. This is in contrast to firms in developed countries surveyed by Bloom and Van Reenen (2007) where firms in developed countries delegate more decision making to managers. According to Bloom, Mahajan, McKenzie & Roberts (2010), there are a number of reasons for this lack of autonomy in firms in developing countries: Firstly it is the non-enforceability of law; owners fear that managers will steal from them and they will have no recourse. Secondly, firms in developing countries lack systems for quantifying inputs and outputs in order to adequately track inventories. Thirdly, there are limited opportunities for managers because senior positions are filled by family members therefore managers are disincentivised to make improvements in their managerial skills.

In their comparative study on management practices in Mozambique, Lemos & Scur (2014) found that in general African countries rank very low on management scores with limitations specifically on performance monitoring, target setting and talent management. Similar to the findings of Bloom, Mahajan, McKenzie & Roberts (2010), Lemos & Scur (2014) found that while developing countries do have some well managed firms, there is a significant number of poorly managed firms that pull down the countries average management score. The authors also found that in developing countries like Mozambique, there is significant variation in management practices across firms.

Figure 13 shows the management scores of the African countries that have participated in the WMS research. Over 100 firms were surveyed per country and Kenya ranks the

highest on the average management score, with Nigeria ranking second highest and Mozambique the lowest.

**Figure 13: Management scores in African countries**



In many of the African countries manufacturing represents a small but significant proportion of the overall GDP; in Mozambique manufacturing represents 10% - 12% of the country's GDP (Lemos & Scur, 2014). Given this significant proportion, it is concerning that developing African countries have such low management scores as this has productivity implications.

## **2.7 Literature review conclusion**

From the various studies that have been undertaken into management practices, it is clear that management practices are a key contributor to firm productivity. The literature review has described the various management practices and how they add value to firms; it has provided a view of factors that matter in the implementation of management practices and the reasons why firms do not implement management practices. Further to this the literature has provided an indication of where various countries rank on the quality of management practices which in turn has an impact on firm productivity and ultimately country productivity. It is prudent that every country has an understanding on where it ranks on management practices in key sectors such as manufacturing, factors that matter in the implementation of management practices in the said country and barriers to the implementation of management practices. It is important at both a firm level and country level.

### **3 Chapter 3: Research questions and hypotheses**

#### **3.1 Research questions**

This comparative study provides a South African perspective on management practices. It focuses specifically on South Africa as a country that has not been studied before on management practices and has its own specific context in terms of product market competition, labour regulation, education and ownership. The following research questions will be answered.

##### **3.1.1 Research question 1**

Where does South Africa rank on management scores compared to other countries that have been studied?

##### **3.1.2 Research question 2**

How do management practices vary across South African manufacturing firms?

##### **3.1.3 Research question 3**

Which management practices are most prominent in South African manufacturing firms?

##### **3.1.4 Research question 4**

What are the significant barriers to the introduction of management practices?

#### **3.2 Hypotheses**

The following hypotheses are tested in this study:

**Hypothesis 1:** The larger the firm, the better the quality of management practices in the firm.

**Hypothesis 2:** The greater the autonomy of the plant, the better the quality of management practices in the firm.

**Hypothesis 3:** Non-family owned and managed firms have better quality management practices than family owned and managed firms.

**Hypothesis 4:** The more educated the managers in the firm, the better the quality of management practices in the firm.

**Hypothesis 5:** Multinational firms have a better quality of management practices in the firm than non-multinational firms.

**Hypothesis 6:** Firms that export their products have a better quality of management practices in the firm than firms that do not export.

**Hypothesis 7:** The higher the level of market competition in the environment, the better the quality of management practices in the firm.

**Hypothesis 8:** The older the plant, the better the quality of management practices.

**Hypothesis 9:** The shorter the tenure of manager in firm the better the quality of management practices.

**Hypothesis 10:** The fewer the levels between shop floor and CEO in the firm, the better the quality of management practices

## **4 Chapter 4: Research methodology**

This research is a quantitative study on the variation in the adoption of management practices across the manufacturing sector in South Africa. Because this a comparative study, comparing South Africa other countries where similar studies have been undertaken, the appropriate research type is an explanatory study. Saunders & Lewis (2012) define explanatory studies as those studies that seek to reveal an explanation behind an occurrence. The results will then be compared to similar data collected for other countries through existing studies that excluded South Africa to determine how the impact compares to other countries. Saunders & Lewis (2012) explain that explanatory studies are normally preceded by descriptive studies which are intended to produce a representation of the situation and this study will follow this method.

### **4.1 Research method**

Data was collected using a questionnaire administered through telephonic interviews, in a structured interview format. A questionnaire is a method of data collection in which each potential respondent is taken through the same set of questions often in the same order to ensure consistency (Saunders & Lewis, 2012). In this study, the questions were open-ended and there were no predefined answers to select from.

Each interview took an average of 32 minutes. The response rate was relatively high at 68.75% and similar to the approach by Bloom & Van Reenen (2007), the interview was introduced as an academic research without discussion of the firm's financials; this made managers more comfortable to participate in the research.

Questions were organised to start with the least contentious, for instance production process, and to end with the most controversial, for instance bonuses, pay, and consequence management (Bloom & Van Reenen, 2007).

The questions asked in the interviews were about processes in the firm, which meant that any plant manager in the firm could respond, increasing the chances of obtaining an interview in the firm (Bloom & Van Reenen, 2007).

This research was endorsed by The Manufacturing Circle, a manufacturing industry body in South Africa and this assisted in securing interviews with the manufacturing firms. See Appendix B: Letter of endorsement from the Manufacturing Circle.

After the interview, responses were scored against a standard scoring sheet (rubric) by the interviewer outside of the interview. The scoring method, as used by Bloom & Van Reenen (2007), gives a firm a low score if the management practice in question is below standard and a high score if the management practice is above standard. For instance,

a firm was given a low score if it fails to track performance or does not take performance into account when deciding on promotions; on the other hand a firm was given a high score if it has rigorous continuous improvement processes in place, sets comprehensive and stretch targets and promotes employees based on performance.

All interviews were conducted in English which is the official language of business in South Africa.

#### **4.1.1 Rationale for proposed method**

The proposed interview method was selected because it is important that respondents answer open ended questions to which they are not selecting an answer they think the interviewer wishes to hear or that they think is appropriate; but rather respondents answer frankly, wherein their answers will be scored against a defined scoring sheet outside of the interview. This reduces the risk of respondent bias.

According to Bloom & Van Reenen (2007), responses can be biased by the scoring mechanism used, where the respondent provides answers that they believe to be correct, what the interviewer wants to hear or that they deem to be attracting a more positive score.

#### **4.1.2 Research process**

For the primary data collection the approach adopted for this study was described by Bloom & Van Reenen (2007). It entailed conducting interviews with managers in firms to ascertain management practices in their respective organisations.

### **4.2 Population**

The population of this study comprised of manufacturing firms in South Africa.

### **4.3 Unit of analysis**

The unit of analysis was operations, plant, production and manufacturing managers who were senior enough to know of management practices and were also still close enough to day-to-day operations and the production floor (Bloom & Van Reenen (2010a) and Mookherjee (2013)). According to Gibbons & Henderson (2013), business unit (plant) effects were significantly more important than industry effects in explaining the differences across firms hence the unit of analysis was at the plant or operations level.

### **4.4 Sample**

The sample was mid-level managers in manufacturing firms who are directly responsible for production through managing a production line and output. The specific industry, manufacturing, was chosen for ease of comparison across measures. According to

Gibbons & Henderson (2013), when studies focus on specific industries, researchers are able to develop measures that are relevant for the industry and to collect detailed and accurate information. Gibbons & Henderson (2013) and Ichniowski, Shaw, & Prennushi (1997) also state that focusing on a specific industry allows for the control of heterogeneity.

The selection was restricted to firms with 100 and up employees to focus on sizeable firms. Bloom & Van Reenen (2007) and Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) suggest that it is important to work with sizeable firms due to the fact that their intricacy means that good management practices are likely to be an imperative. The sample of firms was taken both from the Manufacturing Circle register (the Manufacturing Circle is an industry body for manufacturing firms in South Africa that is made up of medium to large manufacturing firms from varying industries in South Africa) and from other manufacturing industry bodies that listed smaller manufacturing firms.

#### **4.5 Sampling method and size**

There is no complete view of the total population available and therefore no sampling frame; there are various lists from various publications of manufacturing firms in South Africa but no one complete list. Because of this, non-probability sampling was used for this study and included quota sampling where a select number of mid-level and senior managers were selected from manufacturing firms. According to Saunders & Lewis (2012), quota samples are often used in the absence of a sampling frame.

Some snowball sampling was also used where managers referred managers in other firms for interviews. According to Saunders & Lewis (2012), snowball sampling is used when it is difficult to access members of the target population. Using referrals added a legitimacy to the requests for interviews and increased the chances of managers agreeing to be interviewed for this study. The limitation of snowball sampling, according to Saunders & Lewis (2012), is that “those selected for a snowball sample are most likely to identify others who are similar to themselves, resulting in a homogeneous sample” (p. 139). This study had limited snowball sampling.

There was an element of sample selection bias in this study because of the inaccessibility of plant and production managers in larger firms; the sample may be biased to smaller firms.

## **4.6 Data collection**

### **4.6.1 Pre-test**

To pilot the interview questionnaire, a convenience sample of three plant managers was selected and the interview questionnaire was tested through conducting three test interviews. This was done to determine whether the targeted respondents understood the questions and that they were practical for the interview format. Only minor changes were made to the interview questionnaire. Based on the pre-test, questions relating to salaries and bonuses of individuals, per the World Management Survey instrument, were excluded because interviewees were reluctant to answer these questions. Questions about the Chief Executive Officer's (CEO) salary were also excluded due to the reluctance by managers to answer the question.

### **4.6.2 Data collection**

Two sources of data were used in this study: primary data and secondary data.

#### **4.6.2.1 Primary data**

This refers to data that was collected from firms through interviews on management practices, firm ownership and general organizational data. Primary data is data collected for the purpose of the research to be undertaken, collected directly from source (Saunders & Lewis, 2012). Examples of management practices that were explored include lean operations, performance monitoring, target setting and talent management.

For the primary data collection the approach that was adopted for this study was described by Bloom & Van Reenen (2007). It entailed conducting interviews with managers in firms to ascertain management practices adopted in the firms.

To collect the primary data, an evaluation tool developed for Bloom & Van Reenen (2007) and the WMS by a leading management consulting firm was used. This was to ensure comparability between South African manufacturing firms and other countries where the study into management practices has been completed. The evaluation tool was statistically tested by Bloom & Van Reenen (2007) and was proven to be robust.

Bloom & Van Reenen (2007) examined the external validity of the measures to determine if the measures represent good management practice and concluded that the measures were acceptable. It is on this basis that this comparative study adopts such management practices for comparison.

Following structured telephonic interviews, the interview data was evaluated based on a set of criteria scoring management practices from worst practice (one) to best practice (five) across eighteen management practices. Appendix A presents the interview

instrument. Management practices can be grouped into four areas that form the key constructs for this study, namely, lean operations (two practices), performance monitoring (five practices), target setting (five practices) and talent management (six practices). Per Bloom & Van Reenen (2007), the lean operations section is about the introduction of lean production techniques and the formalisation of continuous improvement efforts. The performance monitoring and target setting section focus on tracking process performance, tracking individual performance, managing underperformance and aligning targets across the organisation. The talent management section focuses on how individuals are promoted in the firm, reward systems, talent attraction and retention.

Similar to Bloom & Van Reenen (2007), other detailed information about the interview process itself was collected (number of contacts prior to the actual interview, duration of interview, time of day of the interview) and on the manager interviewed (gender, seniority, company tenure and job tenure). This data was collected to provide possible further insight on the management score.

#### **4.6.2.1.1 Dependent variable: Management practices**

For management practices, respondents were asked to describe the situation in their respective firms on the following aspects, classified by the four areas of management practices described in Chapter 2. Management practices as a dependent variable cannot be observed directly hence dimensions describing management practices are used.

- **Lean operations** tested how well lean management techniques have been implemented, it also tested the motivation behind changes to operations and processes for and attitudes toward continuous improvement and whether or not learnings were documented, whether there was a mechanism for logging and tracking continuous improvement efforts (Bloom & Van Reenen, 2007).

Dimensions tested for were:

- Introduction of lean (modern) techniques
- Rationale for introducing lean (modern) techniques
- **Performance monitoring** tested whether performance was tracked using meaningful metrics at regular intervals, whether performance was reviewed and at the appropriate frequency, the quality of performance review conversations, whether process performance outcomes led to different consequences (Bloom & Van Reenen, 2007). Dimensions tested for were:
  - Process documentation and continuous improvement
  - Performance tracking
  - Performance review

- Performance dialogue
- Consequence management
- **Target setting** tested whether performance targets were broad enough to include financial and non-financial, whether performance targets were linked to the firm's objectives and the level to which the performance targets were cascaded, the time horizon of performance targets, whether performance targets were appropriately difficult to achieve and how easily understandable performance measures were (Bloom & Van Reenen, 2007). Dimensions tested for were:
  - Types and balance of targets
  - Interconnection of targets
  - Time horizon of targets
  - Target stretch
  - Clarity and comparability of goals
- **Talent management** tested the level of emphasis on talent management in the organisation, whether there was a formal approach to identifying good and poor performers and the extent reward was linked to performance, how well the firm was able to deal with underperformers, whether promotion based, how talent was developed in the organisation, the strength of the employee value proposition and whether the firm went out of its way to retain top talent (Bloom & Van Reenen, 2007). Dimensions tested for were:
  - Instilling a talent mindset
  - Building a high-performance culture through incentives and appraisals
  - Removing poor performers and making room for talent
  - Developing talent and promoting high-performers
  - Distinctive employee value proposition
  - Retaining talent

These dimensions were tested for through the use of open ended questions and due to the nature of interviews, the interviewer could paraphrase to ensure understanding of the questions asked to probe the respondent further.

#### 4.6.2.1.2 Independent variables: Factors impacting management practices

Data on the independent variables was gathered through asking for the information directly from the managers in the interviews. The data collected, reflected in Table 2, was on:

**Table 2: Independent Variables**

a. Size of firm (number of employees)	b. Autonomy of the plant (hiring, decisions on new product introductions, sales and marketing activity)	c. Firm ownership
d. Skills level (tertiary education)	e. International presence (production sites abroad, extent of export, foreign ownership)	f. Competition

These variables are considered to be contextual factors that contribute to the explanation of management practices adoption in firms (Cua, McKone, & Schroeder, 2001).

#### 4.6.2.2 Secondary data

Secondary data was collected from the World Management Survey (WMS) through studies by Bloom & Van Reenen (2007), Bloom, Mahajan, McKenzie & Roberts (2010), Bloom & Van Reenen (2010b), Bloom, Sadun & Van Reenen (2012b), Bloom, Genakos, Sadun & Van Reenen (2012), Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) and Bloom, Lemos, Sadun, Scur & Van Reenen (2014). The WMS draws together data collected over a decade seeking to address the issue of the relevance of management practices in understanding how management practices vary across firms and how they influence firm productivity.

This data was collected over a number of countries through the WMS and was used for this study to compare the results from South Africa to determine if the findings of Bloom & Van Reenen (2007) and the WMS can be applied to South Africa, a developing country. Secondary data is data that was originally collected through another study for possibly a different purpose (Saunders & Lewis, 2012). This data was made publicly available through the WMS and was used to rank how South Africa scored compared to other countries that have been evaluated with respect to management practices.

#### 4.6.3 Data validity and reliability

According to Saunders & Lewis (2012) validity is about measuring that which was intended to be measured, in this case management practices, so that the research findings are what they profess to be about. As important as validity, reliability is about

producing consistent results regardless of the subject or the observer, herein referred to as the respondent and interviewer respectively (Saunders & Lewis, 2012).

The following measures described by Bloom & Van Reenen (2007) were adopted to reduce respondent bias:

- **Define and choose appropriate respondents** – for the purposes of this study respondents were managers who are familiar with the day to day practices of the firm and were senior enough to have a holistic view of the firm (Bloom & Van Reenen, 2007)). Interviews were scheduled and conducted with these managers by first calling ahead to establish that these would be the respondents available for interviewing.
- The technique of “**responder blind surveys**” (p. 105), which was described by Bloom & Van Reenen, (2010a), was also adopted. The technique is one where the respondent is not made aware of what their responses are being scored against, in this case management practices. This reduces the risk of respondents providing answers they think the interviewer wants to hear. During the telephonic interviews, managers were not aware of the scoring method as open ended questions were used where there was no limited set of answers to each question.
- **Controlling for respondent characteristics** - Bloom & Van Reenen, (2007) describe this as collecting information on respondents that can be used in the regression analysis to help reduce measurement error. In this regard additional information that was collected included information on the level in the hierarchy and tenure for each of the respondents because this may cause them to have different viewpoints.

The following measures described by Bloom & Van Reenen (2007) were adopted to reduce interviewer bias:

- The interviewer was well trained on key concepts that are referred to in the survey, for instance, ensuring familiarity with concepts such as lean manufacturing, performance management and quality monitoring. It is important that the interviewer is very familiar with a range of management practices and has some prior business experience. This is especially important if the respondents are middle to senior managers in a firm (Bloom & Van Reenen, 2007). In this regard the interviewer was an MBA student with a Master’s degree and 15 years working experience, 10 of which were in management consulting. The interviewer had an extensive understanding of management practices and business experience with the said management practices.

A potential problem that arises with the data is common method bias, where the strength of correlations between variables is heightened due to the method of data collection and sources are the same (Mol & Birkinshaw, 2009). This problem was overcome as follows: The data used for most of the independent variables were objective in nature, for instance, size of the firm, skills level, firm ownership, international inclination, which reduces the possibility of bias in the results (Mol & Birkinshaw, 2009).

#### 4.7 Data analysis

Of the 33 manufacturing plants (managers) that were interviewed, two interviews were not completed due to the respective manager having other pressing matters to attend to and the interview being cut short. These two interviews were excluded from the data analysis.

This study's analysis uses a data set of 31 interviews on management practices, firm level data, ownership data, and interviewee data. The sample includes firms of varying sizes, all employing above 100 employees. The sample includes firms that are South African owned as well as those that are owned by multinationals. The sample contains family owned firms, government owned firms and firms owned by various shareholders. The firms in the sample are not identical in the sense that they manufacture different products.

Data analysis was performed on the primary data in three steps:

- **Data screening:** to check for missing values, test assumptions of normality and identify outliers.
- **Reliability and validity checks:** These tests were not conducted due to the fact that this study is using an instrument that has been extensively tested by Bloom & Van Reenen (2007).
- **Hypothesis testing:** Correlation and Linear Regression techniques were used to test the different hypotheses. Hypothesis one to hypothesis ten were examined independently for a relationship to management score using correlation analysis. The size of the value of the correlation indicates the strength of the relationships. The effects of the independent variables on management score was also assessed using Linear Regression.

One of the major goals of this research is to determine differences in management practices across firms and to determine drivers of these differences and barriers to adoption. The research also considered contextual factors that may affect adoption of management practices and to provide an explanation of any variation in the practices.

The secondary data collected for this study entails data collected through the WMS. This data was used for comparison purposes to determine the ranking of South Africa on the quality of management practices overall and on specific management practices. This data was divided into data from the 2007 by Bloom & Van Reenen which was limited in the countries studied. Data specifically for African countries was extracted. Data collected up to and including 2014 was also reviewed.

#### **4.8 Potential research limitations**

Management practices may be one element of many on factors that impact firm productivity, therefore in determining why firms do not adopt certain management practices to improve productivity, it may be that other factors that impact firm productivity have been prioritised over good management practices. Factors such as threats in the environment of the firm that may cause individuals to work harder or reduce sales from the firm were not considered in this study. Examples of threats are retrenchments and an economic downturn. These threats may also encourage managers to adopt good management practices.

Interviews were conducted only with production, operations, and plant and factory managers to gather all the data collected. These individuals may have a limited understanding of some of the management practices that relate to human resources management. This study could be expanded to interviewing human resources managers who could provide more detail on some of the practices.

In this study only a single individual was interviewed for a particular plant, other researchers in the WMS interviewed more than one manager in the plant, sometimes interviewing human resources practitioners. Other researchers also re-ran their respective projects to ensure the rigour of the research. Time was a constraint in this study and did not allow for more extensive interviews.

This study is limited to manufacturing firms; it is possible that the type of industry and the size of firm may yield different results with respect to management practices, the weighting of the importance of each management practice and the reasons for the lack of implementation of good management practices.

Bloom & Van Reenen (2007) refer to the notion of “firm-performance-related measurement bias” (p. 1374) where managers respond positively when the firm is performing well. This bias may exist in the study, although mitigated by the method used.

## 5 Chapter 5: Results

The objective of this chapter is to present the results of the analysis. The initial sections provide a brief description of the demographics of the respondents; the response rate and the results of the data screening are presented. Following this, the descriptive statistics are presented, followed by the results of the hypothesis tests and the chapter concludes with a summary of results.

### 5.1 Data screening

#### 5.1.1 Missing values

The data collected from the interviews was examined for missing values. Table 3 shows a summary of the number of items measured and the number of missing values.

**Table 3: Data screening - missing values**

Section	Number of items	Number of items with missing values	Action taken
<b>Management practices</b>	18	0	None
<b>Company &amp; Managers Information</b>	4	1 item had all values missing, namely, number of competitors.	None of the managers interviewed had an idea of how many competitors the firm had. Some managers stated that they produced a unique product and therefore the firm had no real competitors. As a result of this, Hypothesis 7 which states that <i>the higher the level of competition, the better the management practices in the firm</i> , was not tested due to a lack of data.
<b>Organisation Information</b>	19	1 item had values missing, namely: credit crunch impact.	Managers were asked to provide a view of what impact the 2008 financial crises had on the firm and only 11 managers provided a view. These rest of the managers did not have a view on this. Because this particular item did not have an impact on hypothesis testing, it was removed from the analysis process.
<b>Ownership Information</b>	8	0	

Section	Number of items	Number of items with missing values	Action taken
<b>Human Resources Information</b>	10	3 items had missing values: - Number of managers who left the plan in last 12 months - How many times bigger is the CEO salary than shop floor - How well managed is the rest of the company	The managers interviewed did not have a view on attrition. This item was excluded from further analysis. The managers interviewed were not comfortable to speculate on the CEO's salary. This item was excluded from further analysis. The managers interviewed did not have a view on how well managed the rest of the firm was. This item was excluded from further analysis.
<b>Constraints on Management</b>	7	0	
<b>Post Interview Information</b>	12	0	

### 5.1.2 Validity and reliability of data

Data validity and reliability was not tested for because the instrument used for this study was tested extensively for validity and reliability by Bloom & Van Reenen (2007) and further through the World Management Survey and was found to be robust.

### 5.2 Response rate

Of the 48 interview requests made to manufacturing firms in South Africa, 33 were fulfilled over a period of 12 weeks. This resulted in a response rate of 68.75%. Of the 33 interviews that were conducted, 31 were completed while two were excluded from the results due to the fact that the interviews were not completed; the plant managers were called off to other duties.

```
. summarize WiilToShare KnowMgmtPrac IntDura
```

Variable	Obs	Mean	Std. Dev.	Min	Max
WiilToShare	31	3	.7745967	2	5
KnowMgmtPrac	31	2.274194	1.237192	1	4.5
IntDura	31	32.19355	10.49895	18	69

shows data that was collected about the interviews. The number of observations (obs) refers to the number of interviews and for this study, 31 interviews were completed. The average duration of interviews was 32 minutes, with the longest interview taking 69

minutes and the shortest interview taking 18 minutes. On average, the managers interviewed had a slightly below average knowledge of management practices (KnowMgmtPrac). Overall managers were willing to share information (WiilToShare).

**Table 4: Interview experience**

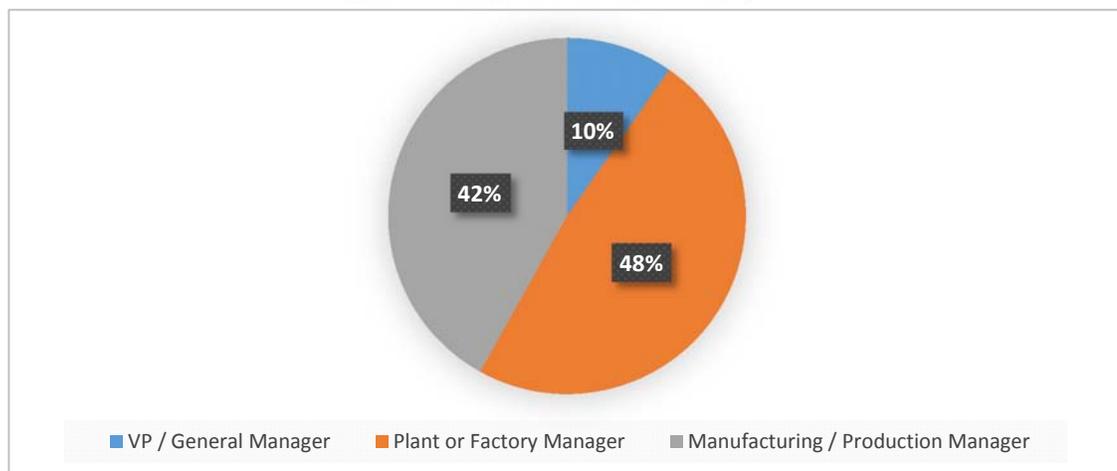
Variable	Obs	Mean	Std. Dev.	Min	Max
WiilToShare	31	3	.7745967	2	5
KnowMgmtPrac	31	2.274194	1.237192	1	4.5
IntDura	31	32.19355	10.49895	18	69

### 5.3 Respondent demographics

#### 5.3.1 Seniority of respondents

Figure 14 shows the split in the seniority of interviewees by role, with VP/General Manager being the most senior and Manufacturing/Production Manager being the most junior of the respondents interviewed.

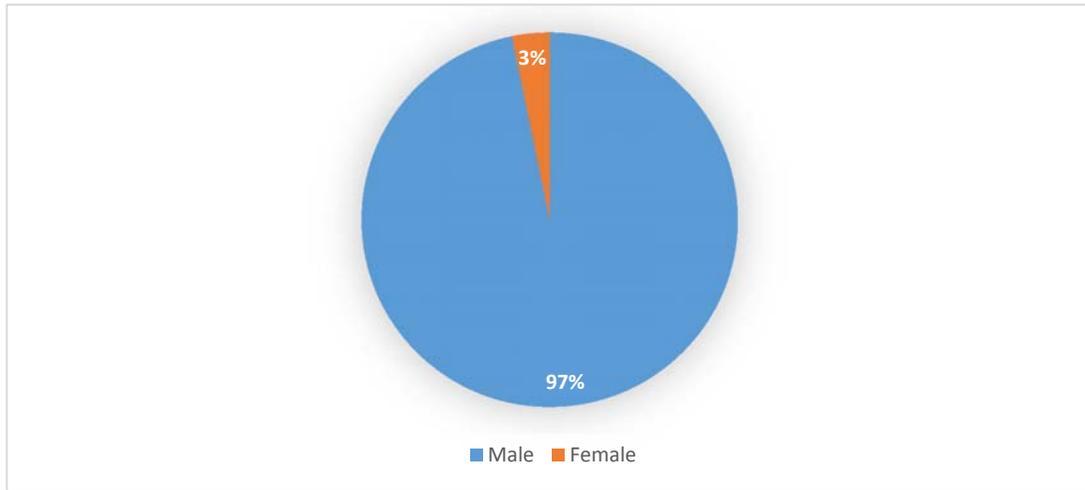
**Figure 14: Respondents by seniority**



### 5.3.2 Gender of respondents

All but one of the respondents were male, as shown in Figure 15.

Figure 15: Respondents by gender



### 5.3.3 Tenure in firm

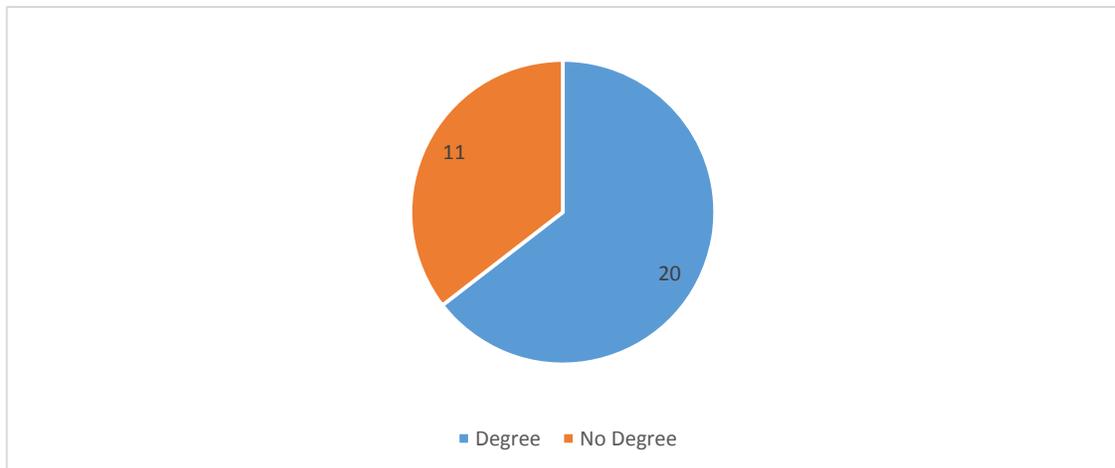
The average tenure in the role across the respondents was 6.04 years.

The average tenure in the firm across the respondents was 15.40 years.

### 5.3.4 Education level of respondents

65% of the respondents had a college degree as shown in Figure 16. None of the respondents have studied abroad.

Figure 16: Managers with college degree

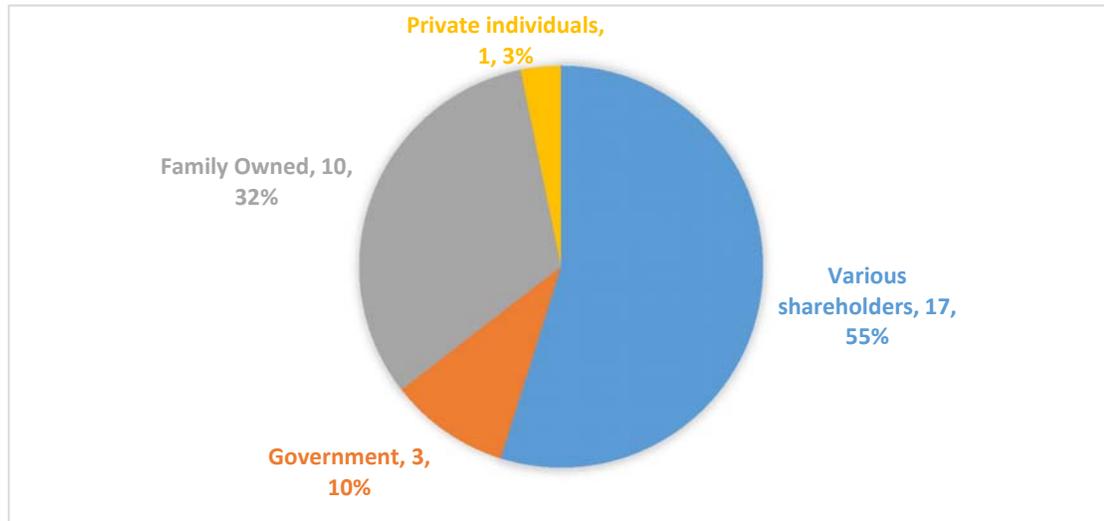


## 5.4 Firm demographics

### 5.4.1 Firm ownership

Figure 17 depicts firm ownership of the firms interviewed. The majority of firms are owned by various shareholders with some publicly listed; 32% of the firms were family owned, with the rest owned by the government and private individuals. All firms were in the manufacturing sector.

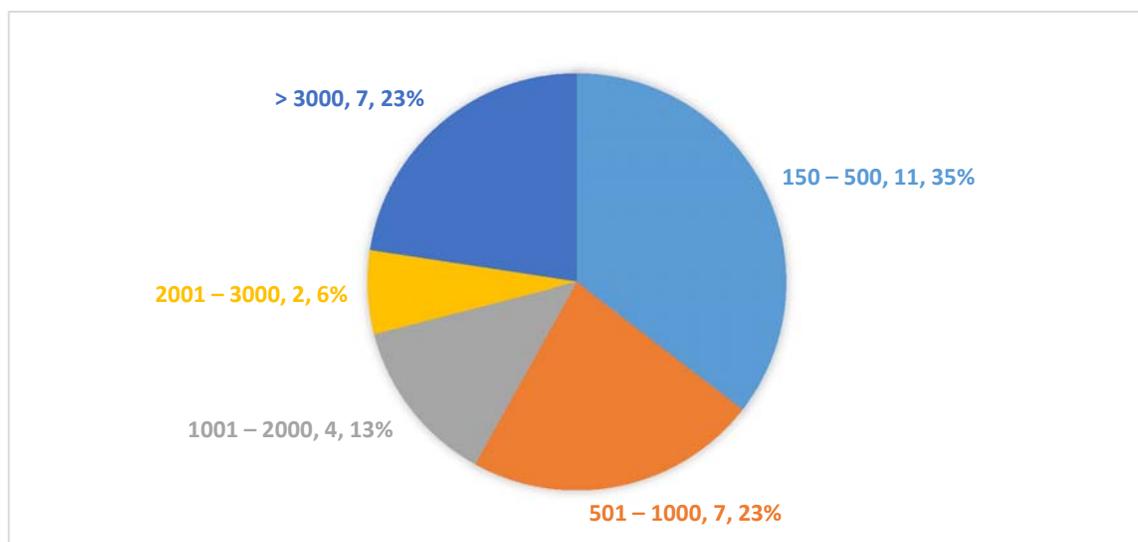
Figure 17: Firm ownership



### 5.4.2 Firm size

As shown in Figure 18, the majority of firms, 35%, were small to medium firms with employees between 150 and 500. The sample is biased towards smaller firms.

Figure 18: Firm size by number of employees

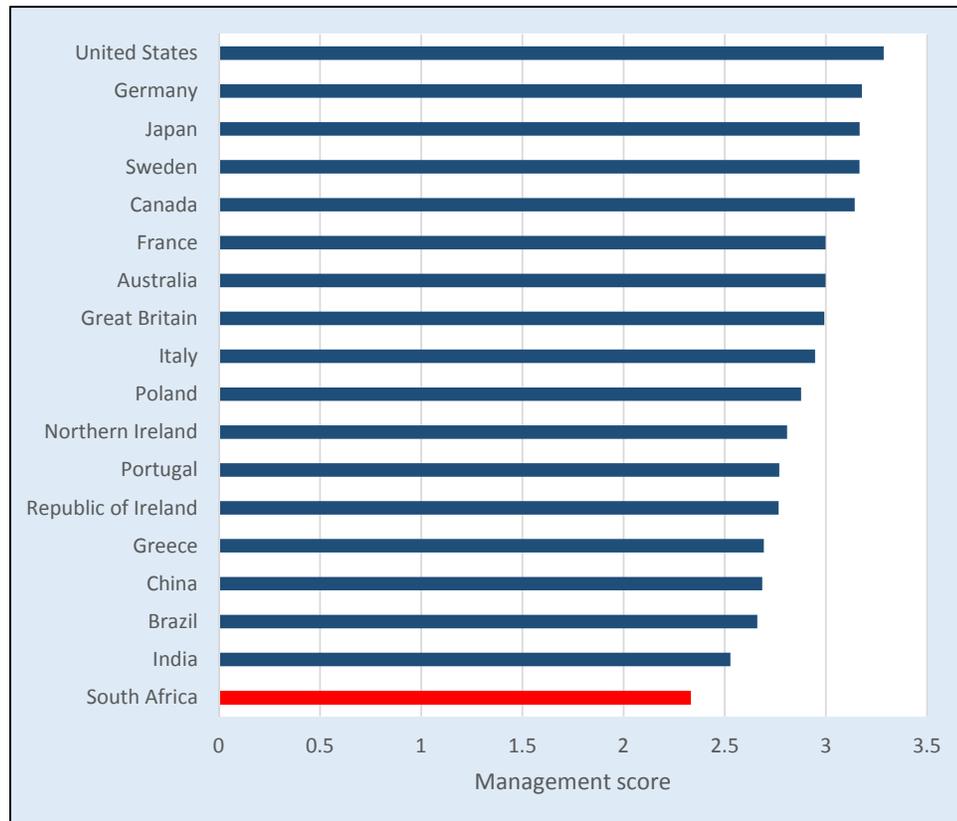


## 5.5 Inter-country management scores

### 5.5.1 Ranking on management score

This study sought to determine the ranking of South Africa on management practices compared to other countries that have been surveyed by Bloom & Van Reenen (2007) and the WMS. Based on the small sample size in this study, South African survey results were included and showed South Africa to rank the lowest compared to the countries surveyed in 2007, largely developed countries, referred to in Figure 19.

**Figure 19: South Africa ranking on management score**



Further to the study of Bloom & Van Reenen (2007), the WMS continued collecting data across the world on management practices through the studies of Bloom, Mahajan, McKenzie & Roberts (2010), Bloom & Van Reenen (2010b), Bloom, Sadun & Van Reenen (2012b), Bloom, Genakos, Sadun & Van Reenen (2012), Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) and Bloom, Lemos, Sadun, Scur & Van Reenen (2014). Figure 20 depicts South Africa's ranking across all other countries surveyed through the World Management survey up to 2014. This ranking is based on a limited sample size of 31 observations in South Africa where the other countries surveyed had a minimum of 100 observations and some well over 700 observations in a country. The

small sample size for South Africa would have an impact on the ranking. As shown in Figure 20, South Africa ranks higher than a number of developing countries in Africa.

**Figure 20: Ranking across all countries surveyed up to 2014 (WMS)**

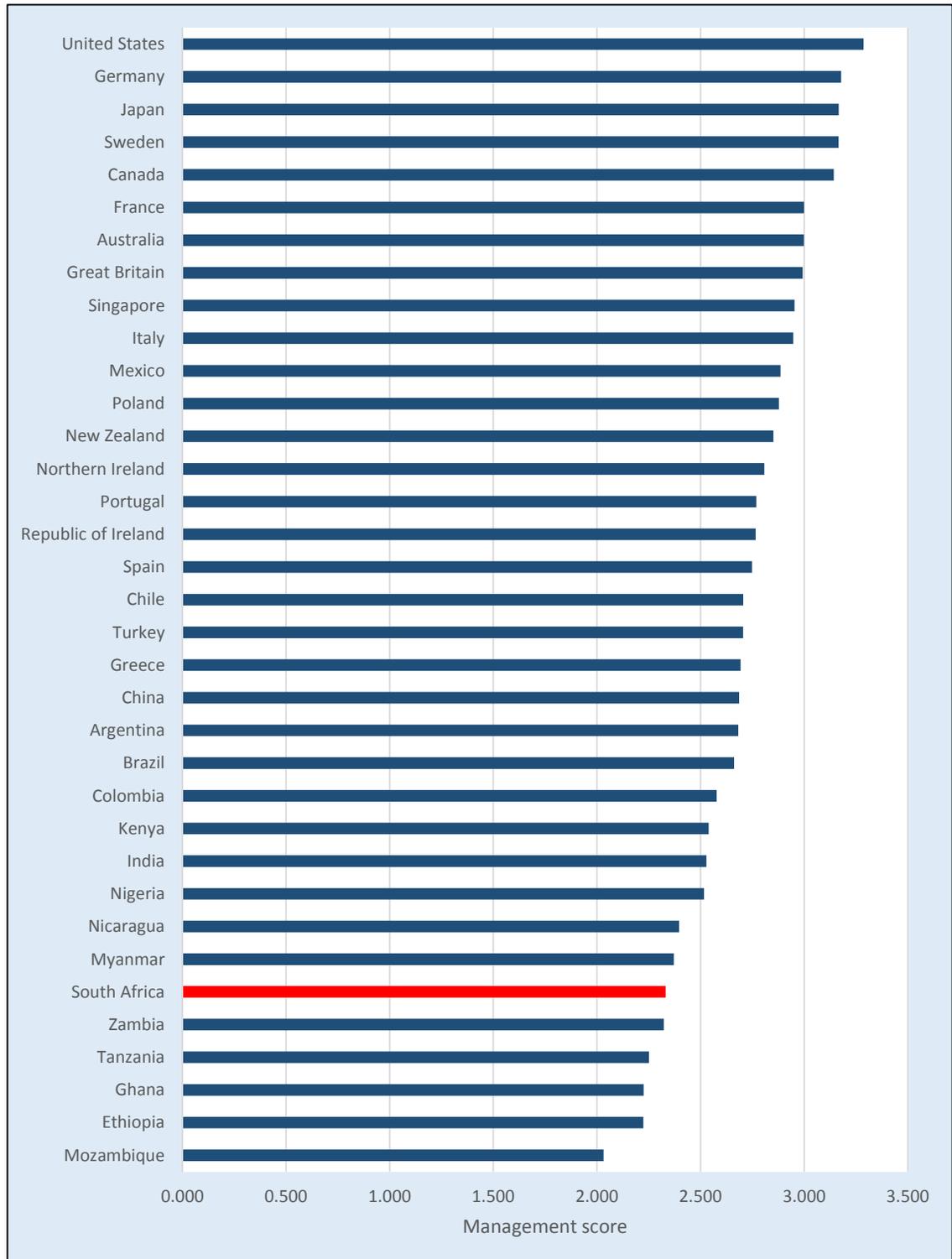


Figure 21 depicts South Africa's ranking across other African countries that participated in the WMS up to 2014. Based on the limited sample of this study, South Africa ranks third in this regard, after Kenya and Nigeria.

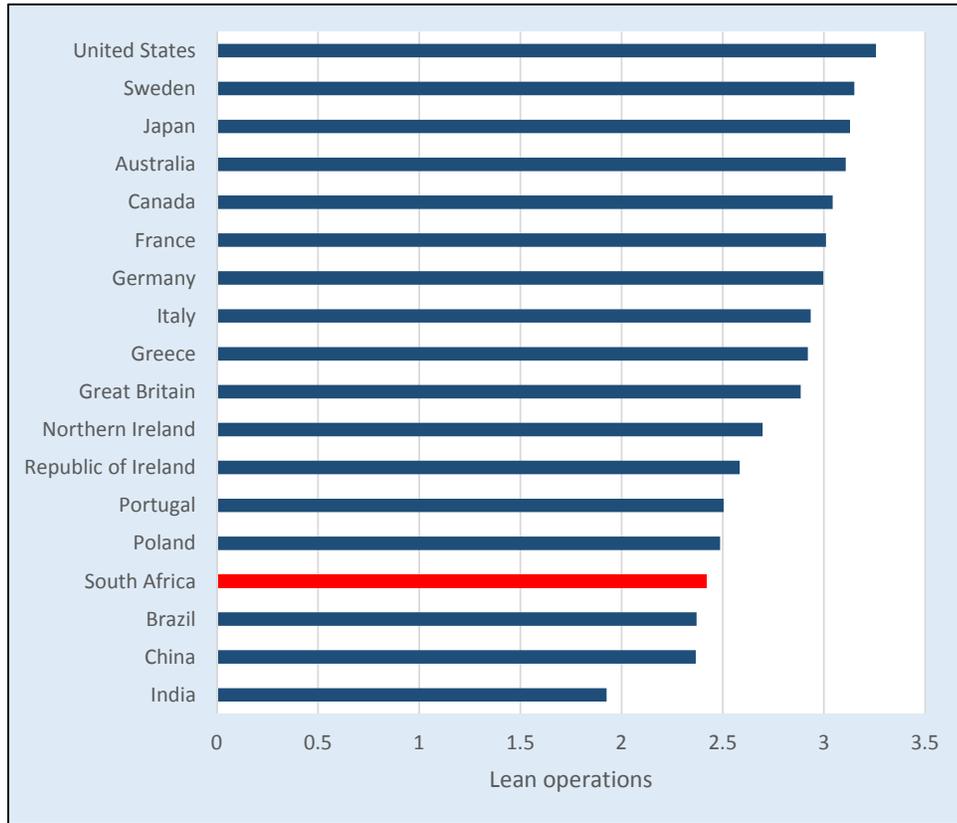
**Figure 21: Ranking across African countries surveyed up to 2014 (WMS)**



### 5.5.2 Ranking on lean operations

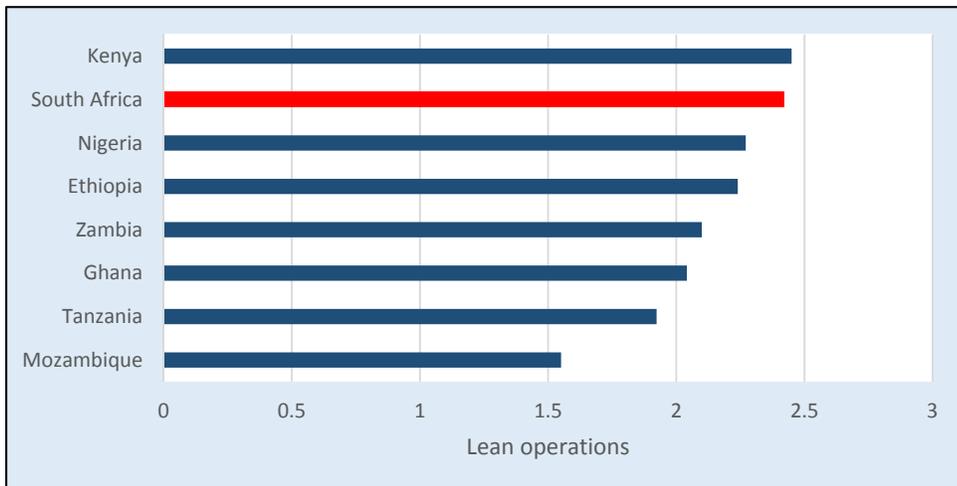
Compared to the results of the 2007 study by Bloom & Van Reenen and the WMS, South Africa ranked higher than Brazil, China and India on the average lean operations score, with India ranking the lowest, as shown in Figure 22.

**Figure 22: Ranking - lean operations**



Compared to other African countries that have participated in the WMS research, South Africa ranks high, almost on par with Kenya (Figure 23).

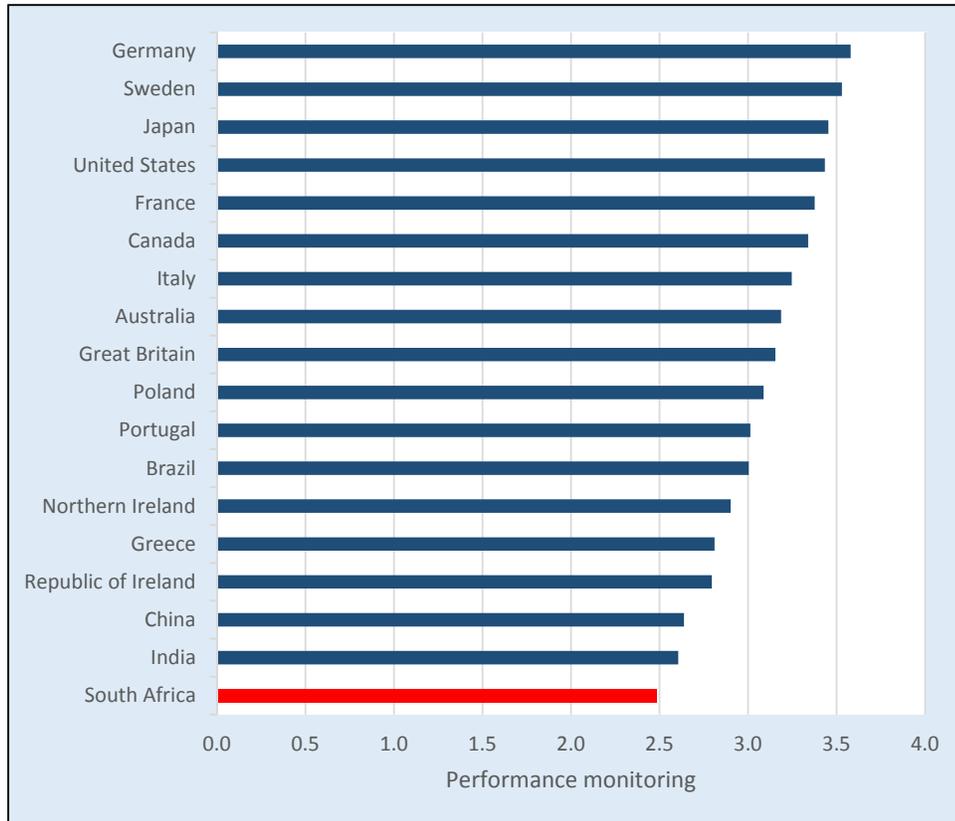
**Figure 23: Ranking against African countries - lean operations**



### 5.5.3 Ranking on performance monitoring

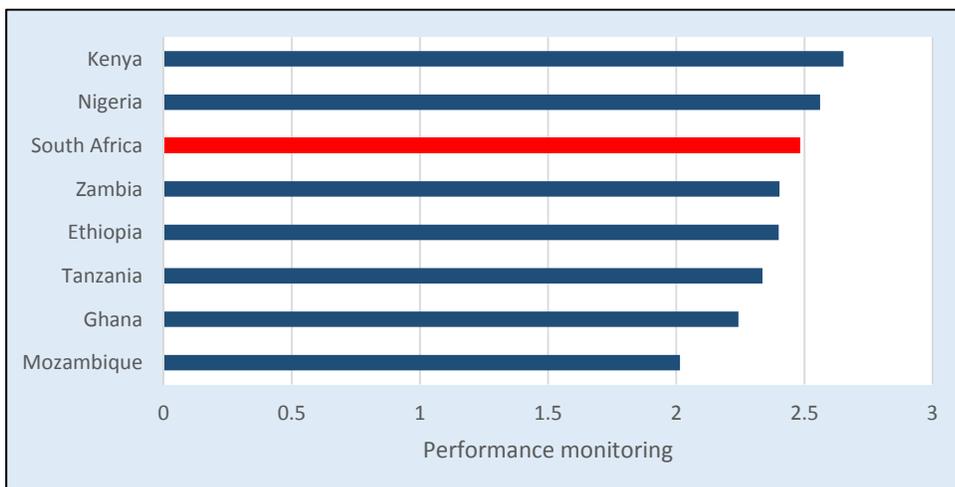
Compared to the results of the 2007 study by Bloom & Van Reenen and further WMS studies, South Africa ranks lowest on performance monitoring, as shown in Figure 24.

**Figure 24: Ranking on performance monitoring**



Compared to other African countries that have participated in the WMS research, South Africa ranks third, after Kenya and Nigeria (Figure 25).

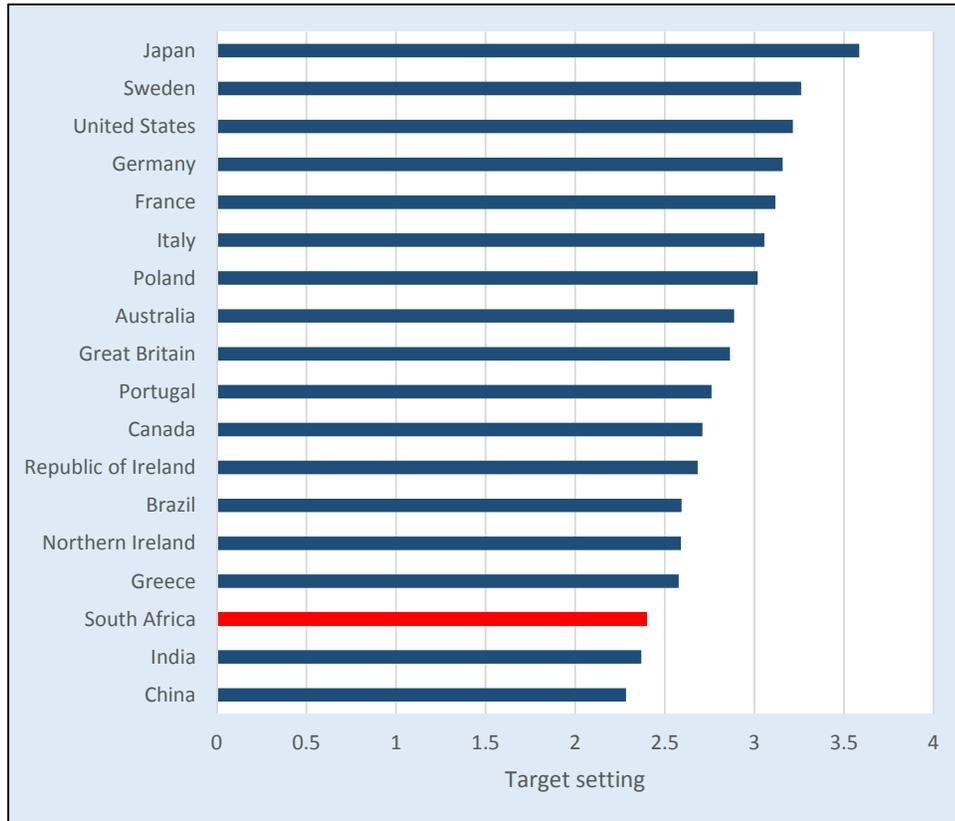
**Figure 25: Ranking against African countries - performance monitoring**



### 5.5.4 Ranking on target setting

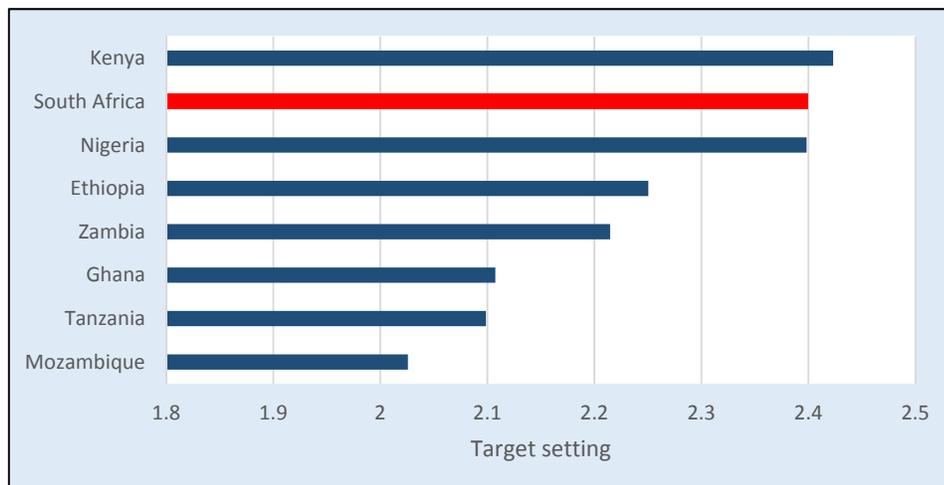
Compared to the results of the 2007 study by Bloom & Van Reenen and further WMS studies, South Africa ranks higher than India and China on target setting, as shown in Figure 26.

**Figure 26: Ranking on target setting**



Compared to other African countries that have participated in the WMS research, South Africa ranks second, slightly higher than Nigeria (Figure 27).

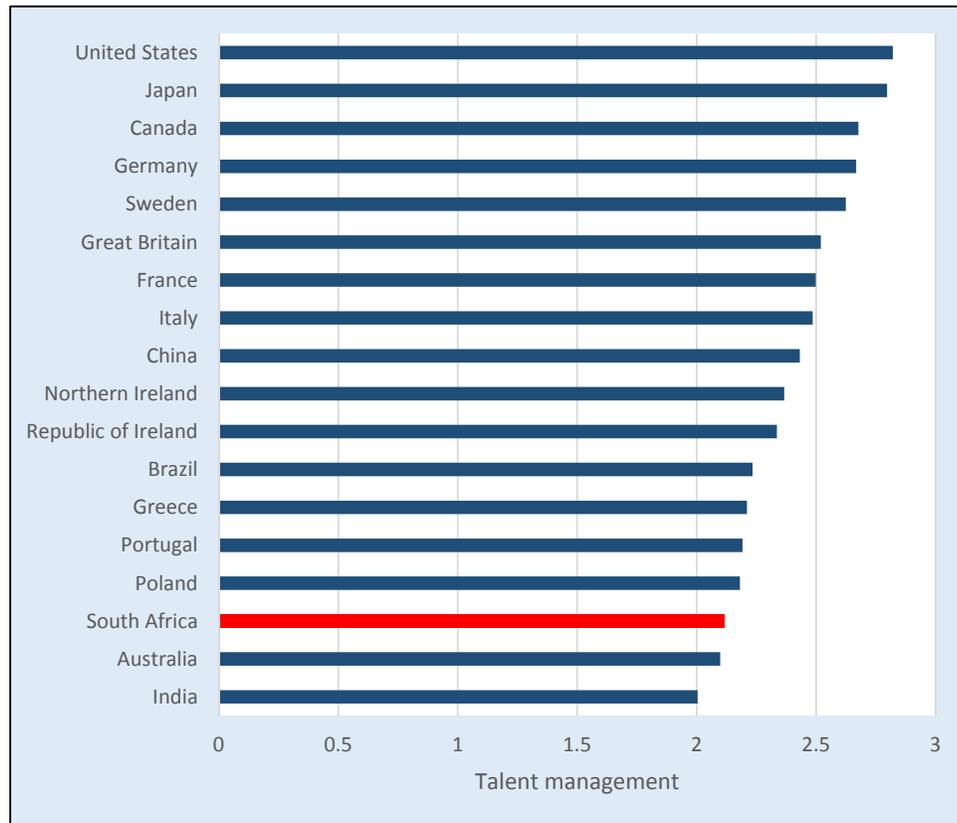
**Figure 27: Ranking against African countries - target setting**



### 5.5.5 Ranking on talent management

Compared to the results of the 2007 study by Bloom & Van Reenen and further WMS studies, South Africa ranks third lowest on talent management, slightly higher than Australia, with India ranking the lowest as shown in Figure 28.

**Figure 28: Ranking on talent management**



Compared to other African countries that have participated in the WMS research, South Africa ranks second last (Figure 29).

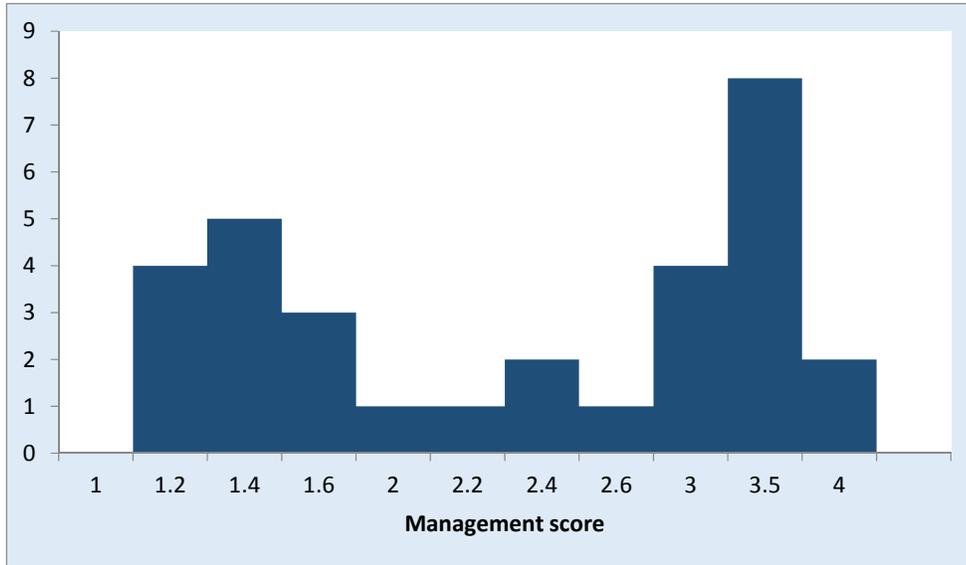
**Figure 29: Ranking against African countries - Talent management**



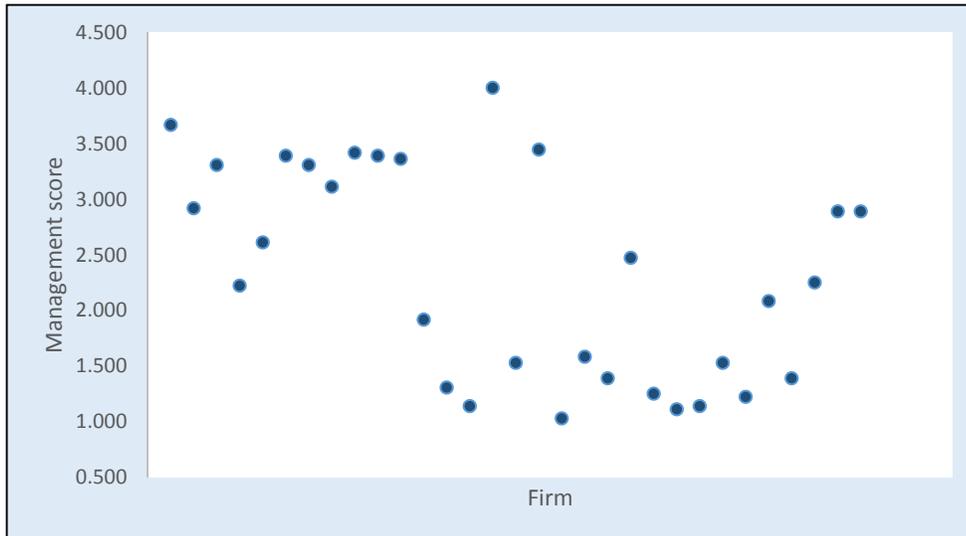
## 5.6 Variation in management scores across firms

Management practices vary greatly between firms within the South African manufacturing industry. While some firms reflect good performance, there is a long tail of poorly performing firms as shown in Figure 30 and Figure 31. The small sample size caused a bi-modal result.

**Figure 30: Management practice variability between firms**



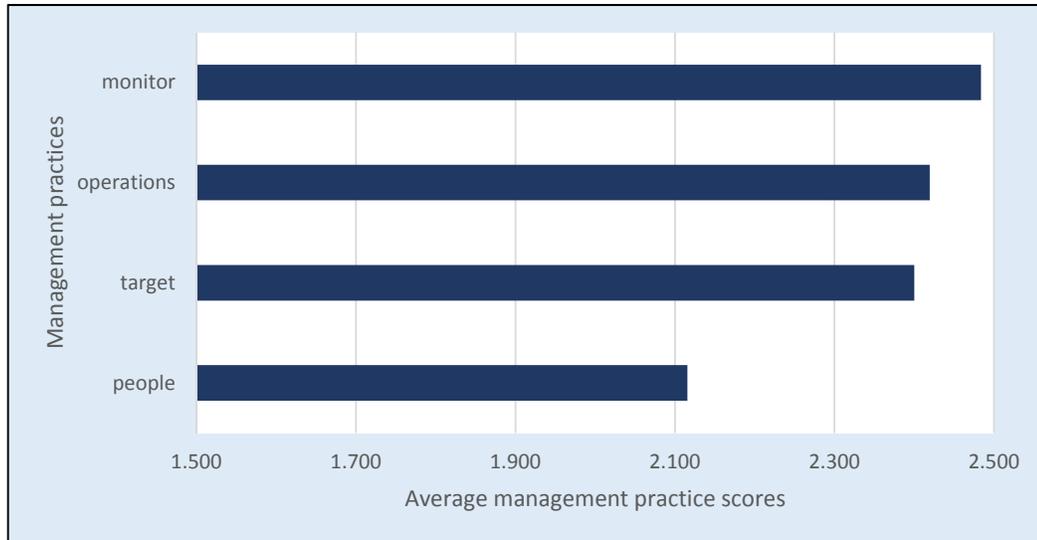
**Figure 31: Management score variability between firms**



### 5.7 Most prominent management practices

Figure 32 depicts the averages of all the dimensions in lean operations, performance monitoring, target setting and talent management that were calculated. By a slight margin, performance monitoring is the most prominent management practice in South African manufacturing firms, with talent management (people) receiving the least emphasis.

**Figure 32: Management practices emphasis**

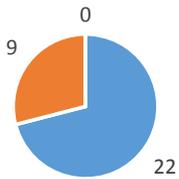
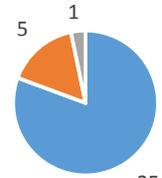
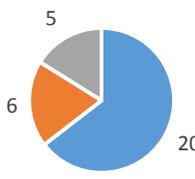
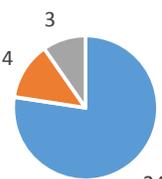
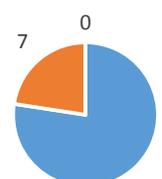


### 5.8 Obstacles to introduction of management practices

Respondents were asked to provide information on specified potential obstacles to the introduction of management practices. Respondents were asked whether the factor was an obstacle and if it was, whether it was a major or minor obstacle. Table 5 reflects responses.

**Table 5: Obstacles to introducing management practices**

Factor	Response
Hiring managers with right skills <ul style="list-style-type: none"> <li>• 25% of managers found manager skills be a major obstacle</li> <li>• 3% of managers found this to be a minor obstacle</li> </ul>	<p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>

Factor	Response
<p>Hiring non-managers with right skills</p> <ul style="list-style-type: none"> <li>29% of managers found non-manager skills to be a major obstacle</li> </ul>	 <p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>
<p>Employment laws</p> <ul style="list-style-type: none"> <li>16% of managers found employment laws to be a major obstacle</li> <li>3% of managers found employment laws to be a minor obstacle</li> </ul>	 <p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>
<p>Trade unions</p> <ul style="list-style-type: none"> <li>19% of managers found trade unions to be a major obstacle</li> <li>16% of managers found trade unions to be a minor obstacle</li> </ul>	 <p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>
<p>Obtaining a cost effective management consultancy</p> <ul style="list-style-type: none"> <li>13% of managers found cost effective management consultancies to be a major obstacle</li> <li>9% of managers found cost effective management consultancies to be a minor obstacle</li> </ul>	 <p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>
<p>Knowing what new management practices to introduce</p> <ul style="list-style-type: none"> <li>22% of managers found knowing what new management practices to introduce to be a major obstacle</li> </ul>	 <p>■ Not an obstacle ■ Major obstacle ■ Minor obstacle</p>
<p>Other obstacles cited</p>	<p>Cost of introducing changes to management practices.</p>

## 5.9 Hypotheses

### 5.9.1 Firm size

Hypothesis 1 stated that *the larger the firm, the higher the quality of management practices in the firm.*

A Pearson correlation analysis was run to obtain the value of the Pearson correlation coefficient. Table 6 shows the Pearson correlation coefficient,  $r$ , of 0.4245. Therefore there was a moderate positive correlation between firm size (measured by headcount) and management score.

**Table 6: Correlations: firm size, firm autonomy**

	Mgmt	HeadCo~t	NPI	Salmkt~t	PermWork
Mgmt	1.0000				
HeadCount	0.4245*	1.0000			
NPI	0.6267*	0.4165*	1.0000		
SalmktPlant	0.6358*	0.4103*	0.7125*	1.0000	
PermWork	0.6728*	0.3693*	0.5763*	0.5660*	1.0000

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, firm size (based on headcount). The objective was to determine how much of the management score is determined by firm size.

A linear regression (Table 7) established that firm size could statistically significantly predict the quality of management practices,  $F(1, 29) = 6.37$ ,  $p < 0.05$  and firm size accounted for 15.19% of the explained variability management scores.

**Table 7: Linear regression: firm size**

Source	SS	df	MS	Number of obs = 31		
Model	4.90349102	1	4.90349102	F( 1, 29) =	6.37	
Residual	22.3110074	29	.769345082	Prob > F =	0.0173	
Total	27.2144984	30	.907149946	R-squared =	0.1802	
				Adj R-squared =	0.1519	
				Root MSE =	.87712	
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
HeadCount	.0001425	.0000564	2.52	0.017	.0000271	.0002579
_cons	2.063105	.1898772	10.87	0.000	1.674762	2.451448

We, therefore, reject the null hypothesis and conclude that in South African manufacturing firms, larger firms have better quality management practices than smaller firms.

### 5.9.2 Plant autonomy

Hypothesis 2 stated that *the greater the autonomy of the plant, the better the quality of management practices in the firm.*

Plant autonomy is made up of three dimensions, namely, decisions on new product introductions (NPI), permission to hire permanent workers (PermWork) and sales and marketing at plant level (SalMktPlant).

A Pearson correlation analysis was run to obtain the value of the Pearson correlation coefficient for each of the three dimensions of plant autonomy. Table 6 shows the Pearson correlation coefficients,  $r$ , of new product introductions (NPI) at 0.6267, permission to hire permanent workers (PermWork) at 0.6728 and sales and marketing at plant level (SalMktPlant) at 0.6358. Therefore there was a moderate positive correlation between plant autonomy and management score.

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, plant autonomy. The objective was to determine how much of the management score is determined by plant autonomy. A linear regression was run which included all three dimensions of plant autonomy.

Table 8 shows the results of the linear regression. Plant autonomy is a statistically significant predictor of the quality of management practices,  $F(4, 26) = 8.85$ ,  $p < .005$  and plant autonomy accounted for 51.13% of the explained variability management scores. Of the three dimensions of plant autonomy, permission to hire permanent workers (PermWork) is the only significant dimension at  $p < 0.05$ .

**Table 8: Linear regression: plant autonomy**

. regress Mgmt HeadCount NPI SalMktPlant PermWork						
Source	SS	df	MS			
Model	15.68871	4	3.92217749	Number of obs =	31	
Residual	11.5257884	26	.443299555	F( 4, 26) =	8.85	
Total	27.2144984	30	.907149946	Prob > F =	0.0001	
				R-squared =	0.5765	
				Adj R-squared =	0.5113	
				Root MSE =	.66581	
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
HeadCount	.0000349	.0000483	0.72	0.476	-.0000644	.0001342
NPI	.1667978	.1700555	0.98	0.336	-.1827562	.5163519
SalMktPlant	.2020005	.1627158	1.24	0.226	-.1324666	.5364675
PermWork	.2890697	.1209189	2.39	0.024	.0405173	.5376221
_cons	.9817426	.2682791	3.66	0.001	.430287	1.533198

We, therefore, reject the null hypothesis and conclude that in South African manufacturing firms, the greater the autonomy of the plant, the better the quality of management practices.

### 5.9.3 Firm ownership

Hypothesis 3 stated that *Non-family owned and managed firms have better quality management practices than family owned and managed firms.*

An independent samples t-test was run to test the hypothesis. This test is run to determine if a difference exists between the means of two independent groups, from one independent variable, on a dependent variable and also determines whether that difference is statistically significant. In this case, the independent variable is Family member CEO and the two groups are two statuses on whether the firm CEO is a family member or not (Yes and No); and the dependent variable is the management score.

Table 9 shows the mean management score of the different types of ownership. Dispersed ownership (firms owned by various shareholders) have the highest mean management score and government and family owned firms have the lowest mean management scores.

**Table 9: Ownership mean**

a) Who ultimately owns the parent firm?	Summary of management		
	Mean	Std. Dev.	Freq.
Family (2	1.6972	.70851077	10
Private I	2.222	0	1
Dispersed	2.9167647	.7359248	17
Government	1.1576667	.13993689	3
Total	2.3307097	.9524442	31

The group statistics in Table 10 show that the mean family member CEO score (1.583 ± 0.162) was significantly lower than the mean non-family member CEO score (3.031 ± 0.150).

**Table 10: Group statistics: family member CEO**

Mean estimation		Number of obs = 31		
Yes: CEOFam = Yes				
No: CEOFam = No				
Over	Mean	Std. Err.	[95% Conf. Interval]	
Mgmt				
Yes	1.583333	.1626348	1.251189	1.915478
No	3.031375	.1503677	2.724283	3.338467

Data are mean ± standard deviation, unless otherwise stated. As shown in Table 11, an independent-samples t-test was run to determine if there were differences in the management score between family member CEO and non-family member CEO firms. There were no outliers in the data.

The family member CEO mean score was -1.448 (95% confidence interval, -1.900 to -0.996) lower than the non-family member CEO mean score. The difference in the mean family member CEO score is statistically significant,  $t(29) = -6.547$ ,  $p < 0.0005$ .

**Table 11: Independent samples test: family member CEO**

Two-sample t test with equal variances						
Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Yes	15	1.583333	.1626348	.6298817	1.234516	1.93215
No	16	3.031375	.1503677	.6014706	2.710874	3.351876
combined	31	2.33071	.171064	.9524442	1.98135	2.680069
diff		-1.448042	.2211554		-1.900355	-.9957281
diff = mean(Yes) - mean(No)					t =	-6.5476
Ho: diff = 0					degrees of freedom =	29
Ha: diff < 0		Ha: diff != 0		Ha: diff > 0		
Pr(T < t) = 0.0000		Pr( T  >  t ) = 0.0000		Pr(T > t) = 1.0000		

We, therefore, reject the null hypothesis and conclude that in South African manufacturing firms, non-family owned and managed firms have better quality management practices than family owned and managed firms.

#### 5.9.4 Education

Hypothesis 4 stated that *the more educated the managers in the firm, the better the quality of management practices in the firm.*

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, management education, which was measured through determining whether the manager has a college degree. The objective is to determine how much of the management score is determined by management education.

A linear regression (Table 12) established that management education could not statistically significantly predict the quality of management practices,  $F(1, 28) = 2.95$ ,  $p > 0.05$  and management education accounted for 6.31%% of the explained variability management scores.

**Table 12: Linear regression: manager education**

. regress Mgmt MangEduct						
Source	SS	df	MS			
Model	2.48623417	1	2.48623417	Number of obs =	30	
Residual	23.5709532	28	.841819757	F( 1, 28) =	2.95	
Total	26.0571874	29	.898523702	Prob > F =	0.0967	
				R-squared =	0.0954	
				Adj R-squared =	0.0631	
				Root MSE =	.91751	
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
MangEduct	.9179075	.5341183	1.72	0.097	-.1761842	2.011999
_cons	1.885129	.291655	6.46	0.000	1.2877	2.482557

There were no outliers in the data, as assessed by inspection of a scatterplot (Figure 33). The scatterplot further shows that there is no linear relationship between manager education and the management score.

**Figure 33: Scatterplot: manager's education**

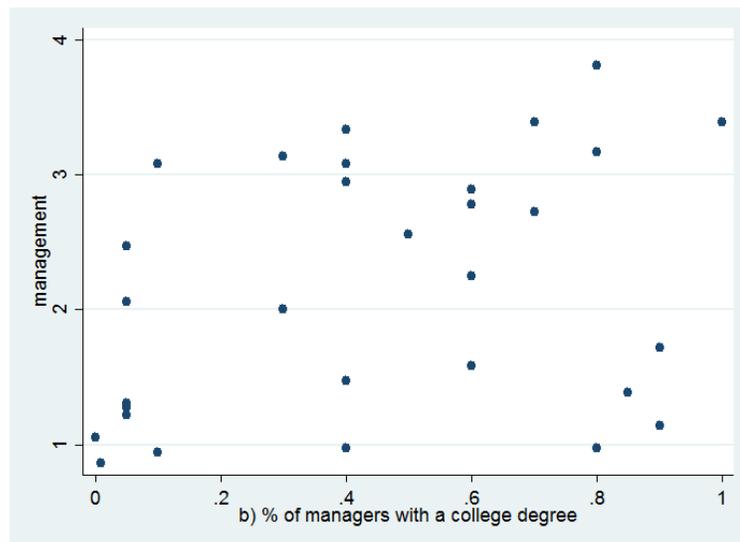
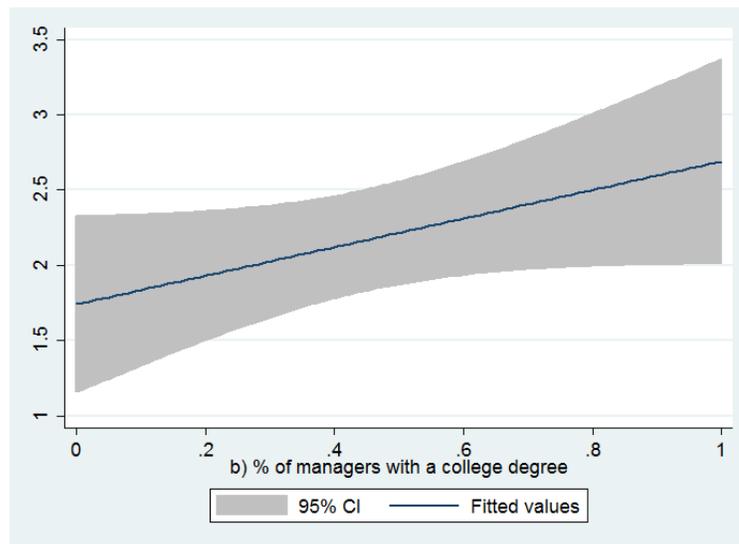


Figure 34 depicts a 95% confidence interval around the best fit line.

**Figure 34: Confidence interval: education**



We, therefore, do not reject the null hypothesis and conclude that in South African manufacturing firms, manager education does not result in better quality management practices.

### 5.9.5 Multinational firms

Hypothesis 5 stated that *multinational firms have a better quality of management practices in the firm than firms with no international presence.*

An independent samples t-test was run to test this hypothesis. This test is run to determine if a difference exists between the means of two independent groups, from one independent variable, on a dependent variable and also determines whether that difference is statistically significant. In this case, the independent variable is multinational status and the two groups are two statuses on whether the firm is a multinational or not (Yes and No); and the dependent variable is the management score.

As shown in Table 13, there were 11 multinational firms (Yes) and 20 non-multinational firms (No). An independent-samples t-test was run to determine if there were differences in the management score between multinational and non-multinational firms. There were no outliers in the data, as assessed by inspection of a scatterplot (Figure 35). Management scores for multinational and non-multinational firms were normally distributed and there was homogeneity of variances distributed (based on the study by Bloom & Van Reenen (2007)). The mean multinational score ( $2.661 \pm 0.896$ ) was higher than the mean non-multinational score ( $2.148 \pm 0.954$ ). The multinational mean score was 0.513 (95% confidence interval, -0.204 to 1.230) higher than the non-multinational

mean score. The difference in the mean multinational score is not statistically significant,  $t(29) = 1.462, p > 0.05$ .

**Table 13: Two-sample t-test: multinationals versus non-multinationals**

```
. ttest Mgmt, by(MultiN)

Two-sample t test with equal variances
```

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Yes	11	2.661727	.2703319	.8965894	2.05939	3.264064
No	20	2.14865	.2134156	.9544235	1.701966	2.595334
combined	31	2.33071	.171064	.9524442	1.98135	2.680069
diff		.5130773	.3509358		-.204667	1.230822

```

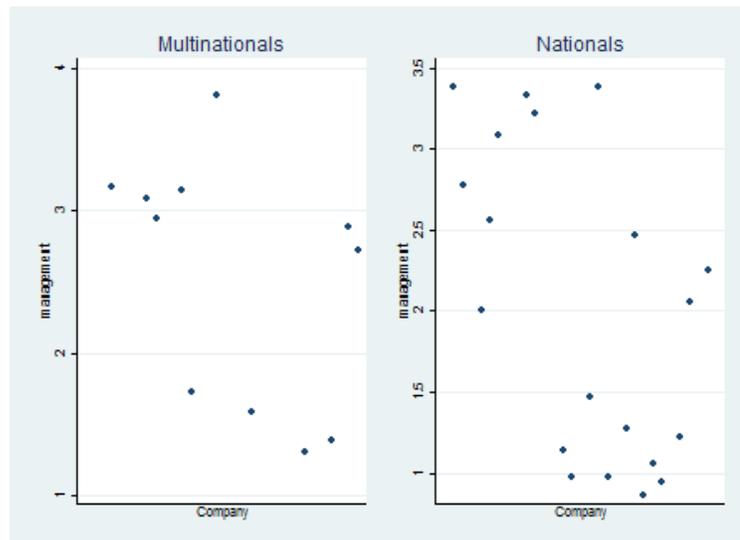
diff = mean(Yes) - mean(No)
Ho: diff = 0
Ha: diff < 0
Pr(T < t) = 0.9228

t = 1.4620
degrees of freedom = 29
Ha: diff != 0
Pr(|T| > |t|) = 0.1545
Ha: diff > 0
Pr(T > t) = 0.0772

```

The scatterplot (Figure 35) further shows that there is no linear relationship between multinationals and the management score. There is no linear relationship between non-multinationals (nationals) and the management score.

**Figure 35: Scatterplot: multinationals and non-multinationals**



We, therefore, do not reject the null hypothesis and conclude that in South African manufacturing firms, multinational firms do not have better quality management practices than non-multinational firms.



### 5.9.7 Market competition

Hypothesis 7 stated that *the higher the level of market competition in the environment, the better the quality of management practices in the firm.*

None of the firms interviewed were clear about who their competition was or the number of competitors. Some firms speculated that they were the only ones in the industry as far as the managers knew. For this reason no data was collected to test Hypothesis 7.

### 5.9.8 Age of plant/factory

Hypothesis 8 stated that *the older the plant, the better the quality of management practices.*

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, age of the plant. The objective is to determine how much of the management score is determined by the age of the plant.

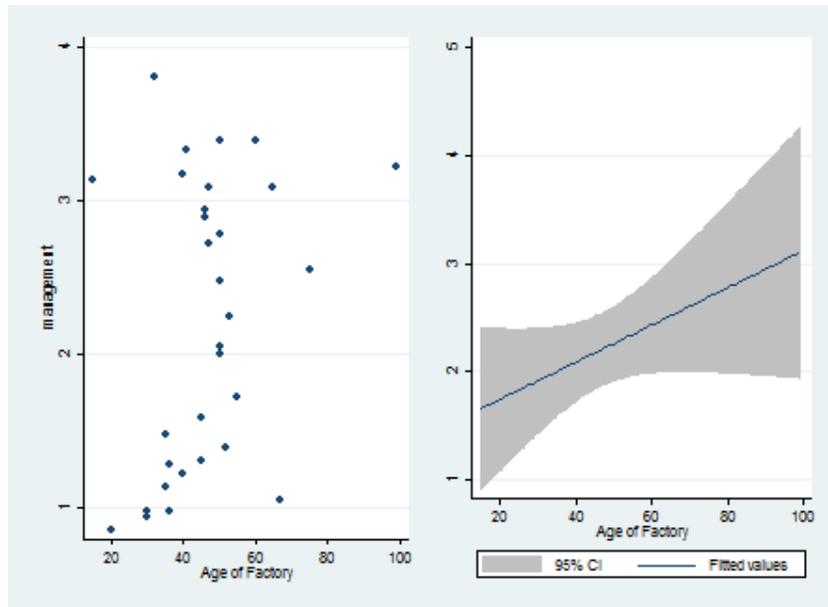
A linear regression (Table 15) established that plant age could not statistically significantly predict the quality of management practices,  $F(1, 29) = 2.35$ ,  $p > 0.05$  and plant age accounted for 4.32% of the explained variability management scores.

**Table 15: Linear regression: plant age**

Source	SS	df	MS	Number of obs = 31		
Model	2.04250756	1	2.04250756	F( 1, 29) = 2.35		
Residual	25.1719908	29	.867999684	Prob > F = 0.1359		
Total	27.2144984	30	.907149946	R-squared = 0.0751		
				Adj R-squared = 0.0432		
				Root MSE = .93167		
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FactoryAge	.0162094	.0105668	1.53	0.136	-.0054022	.037821
_cons	1.576711	.51923	3.04	0.005	.5147668	2.638656

The scatterplot (Figure 37) further shows that there is no linear relationship between plant age and the management score.

**Figure 37: Scatterplot and boxplot: plant age**



We, therefore, do not reject the null hypothesis and conclude that in South African manufacturing firms, the older the plant does not result in better quality management practices.

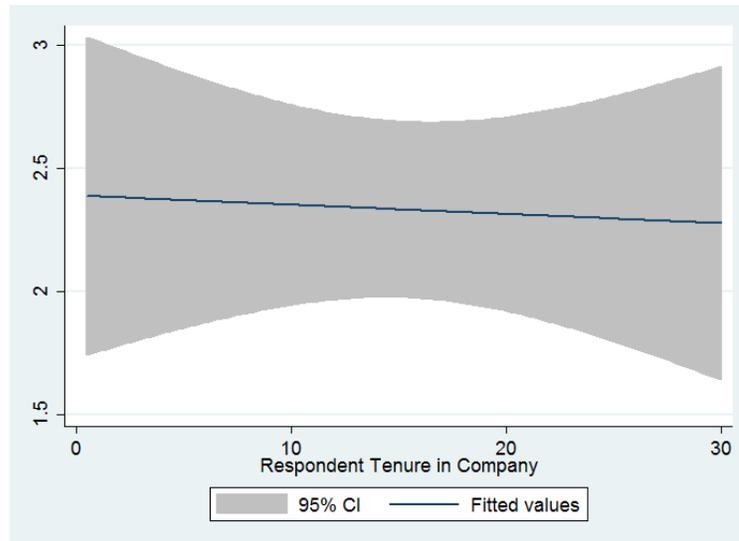
### 5.9.9 Tenure

Hypothesis 9 stated that *the shorter the tenure of manager in firm the better the quality of management practices*.

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, manager tenure. The objective is to determine how much of the management score is determined by manager tenure.

The boxplot (Figure 38) shows that there is no linear relationship between manager tenure and the management score.

Figure 38: Boxplot: tenure



A linear regression (Table 16) established that tenure could not statistically significantly predict the quality of management practices,  $F(1, 29) = 0.05$ ,  $p > 0.05$  and tenure accounted for -3.29% of the explained variability management scores.

Table 16: Linear regression: tenure

. . regress Mgmt TenureComp						
Source	SS	df	MS			
Model	.042282375	1	.042282375	Number of obs =	31	
Residual	27.172216	29	.936972966	F( 1, 29) =	0.05	
Total	27.2144984	30	.907149946	Prob > F	= 0.8333	
				R-squared	= 0.0016	
				Adj R-squared	= -0.0329	
				Root MSE	= .96797	
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
TenureComp	-.003752	.0176624	-0.21	0.833	-.0398756	.0323716
_cons	2.388479	.3227665	7.40	0.000	1.728347	3.04861

We, therefore, do not reject the null hypothesis and conclude that in South African manufacturing firms, a shorter manager tenure does not result in better quality management practices.

### 5.9.10 Hierarchy

Hypothesis 10 states that *the fewer the levels between shop floor and CEO in the firm, the better the quality of management practices.*

A Pearson correlation analysis was run to obtain the value of the Pearson correlation coefficient. Table 17 shows the Pearson correlation coefficient,  $r$ , of 0.4798. Therefore there was a moderate positive correlation between hierarchy (measured by the number of levels between the shop floor and CEO) and management score.

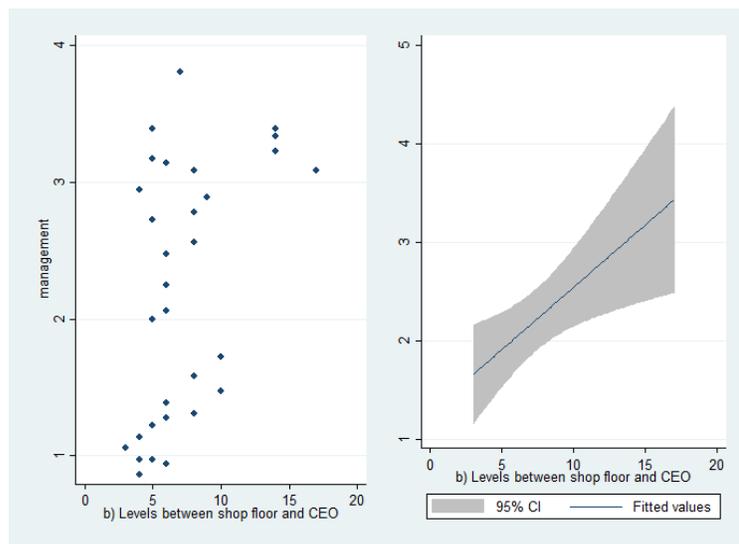
**Table 17: Pearson's correlation: hierarchy**

. . pwcorr Mgmt FloorCEO		
	Mgmt	FloorCEO
Mgmt	1.0000	
FloorCEO	0.4798	1.0000

A simple linear regression was run on the data to predict the value of the dependent variable, management score, based on the value of the independent variable, hierarchy, measured on the number of levels between the shop floor and CEO. The objective is to determine how much of the management score is determined by firm hierarchy.

The scatterplot (Figure 39) shows that there is a linear relationship between the number of levels between shop floor and CEO and the management score. It is a negative relationship where the fewer the levels between shop floor and CEO, the higher the management score.

**Figure 39: Scatterplot and boxplot: hierarchy**



A linear regression (Table 18) established that hierarchy could statistically significantly predict the quality of management practices,  $F(1, 29) = 8.67$ ,  $p < 0.05$  and hierarchy accounted for 20.36% of the explained variability management scores.

**Table 18: Linear regression: hierarchy – shop floor to CEO**

. . regress Mgmt FloorCEO						
Source	SS	df	MS	Number of obs = 31		
Model	6.26400058	1	6.26400058	F( 1, 29) =	8.67	
Residual	20.9504978	29	.722430959	Prob > F =	0.0063	
Total	27.2144984	30	.907149946	R-squared =	0.2302	
				Adj R-squared =	0.2036	
				Root MSE =	.84996	
Mgmt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FloorCEO	.1329496	.0451502	2.94	0.006	.0406071	.225292
_cons	1.361464	.362836	3.75	0.001	.6193814	2.103547

We, therefore, reject the null hypothesis and conclude that in South African manufacturing firms, the fewer the levels between shop floor and CEO in the firm, the better the quality of management practices.

## 5.10 Summary of results

This chapter presented the results of the comparative study. Table 19 summarises the results of the hypotheses tests.

**Table 19: Summary of hypotheses findings**

Hypothesis	Result
<b>Hypothesis 1:</b> The larger the firm, the higher the quality of management practices in the firm.	Null hypothesis rejected
<b>Hypothesis 2:</b> The greater the autonomy of the plant, the better the quality of management practices in the firm	Null hypothesis rejected
<b>Hypothesis 3:</b> Non-family owned and managed firms have better quality management practices than family owned and managed firms	Null hypothesis rejected
<b>Hypothesis 4:</b> The more educated the managers in the firm, the better the quality of management practices in the firm	Null hypothesis not rejected
<b>Hypothesis 5:</b> Multinational firms have a better quality of management practices in the firm than firms with no international presence	Null hypothesis not rejected
<b>Hypothesis 6:</b> Firms that export their products have a better quality of management practices in the firm than firms that do not export	Sample too small for testing.
<b>Hypothesis 7:</b> The higher the level of market competition in the environment, the better the quality of management practices in the firm	Not tested due to managers not having knowledge of competitors
<b>Hypothesis 8:</b> The older the plant, the better the quality of management practices	Null hypothesis not rejected
<b>Hypothesis 9:</b> The shorter the tenure of manager in firm the better the quality of management practices	Null hypothesis not rejected
<b>Hypothesis 10:</b> The fewer the levels between shop floor and CEO in the firm, the better the quality of management practices	Null hypothesis rejected

## 6 Chapter 6: Discussion of results

The purpose of this chapter is to discuss the findings of this study. The initial sections reflect on the literature presented in chapter two in light of the findings. Following this a description is provided on how the results impact the theory and what insights were obtained that can push the theory forward. Finally a summary of the chapter is provided.

The objective of this research was to conduct a comparative study on management practices based on the work of Bloom & Van Reenen (2007) and the World Management Survey (WMS) managed by the Centre for Economic Performance at the London School of Economics. The objective was to compare South Africa to other countries that have been studied from a management practice perspective. This research also aimed to determine factors that matter most in the adoption of good management practices in South African manufacturing firms, the barriers to adoption, how management practices vary across firms and factors that lead to such variation.

Based on the early findings of Ichniowski, Shaw, & Prennushi (1997), Ichniowski & Shaw (1999) and the findings of the WMS through the studies of Bloom & Van Reenen (2007), Bloom, Mahajan, McKenzie & Roberts (2010), Bloom & Van Reenen (2010b), Bloom, Sadun & Van Reenen (2012b), Bloom, Genakos, Sadun & Van Reenen (2012), Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) and Bloom, Lemos, Sadun, Scur & Van Reenen (2014), considerable economics research has shown that firms experience higher productivity levels when they implement good management practices. This research contributes to the ongoing economics research through providing a South African manufacturing sector perspective.

The following dimensions of management practices were explored with reference to the work of Bloom & Van Reenen (2007) and the WMS.

- Lean operations
- Performance monitoring
- Target setting
- Talent management

Management practices in firms comprised of these dimensions.

### 6.1 Ranking of South Africa on management practices

Consistent with the findings of Bloom, Mahajan, McKenzie & Roberts (2010) and those of Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) that firms in developing countries are poorly managed, South Africa, a developing country, had lower management scores than developed countries studied by Bloom & Van Reenen (2007), ranking the lowest as

depicted in Figure 19. Similar to the study by Bloom & Van Reenen (2007), South African manufacturing firms were assessed across the four management areas: lean operations, performance monitoring, targets setting and talent management. The overall management score was an average of the scores of the four management dimensions.

Similar to the findings by Lemos & Scur (2014) on management practices in Mozambique, a developing African country, South Africa has a number of medium to large firms that have high quality management practices, however, the country's average management score is dragged down by the significant number of smaller poorly managed firms; this study had a small sample size with a high proportion of small to medium firms (Figure 18) that would have pulled down the country average. According to Bloom, Mahajan, McKenzie & Roberts (2010), the low mean of management practices in developing countries stems from the long tail of poorly managed firms. Unlike in developed countries where firms that underperform close down or improve, developing countries have persistently poor performing firms (Bloom, Mahajan, McKenzie & Roberts, 2010).

Compared to other countries that the World Management Survey (WMS) surveyed up to 2014, reflected in Figure 20, South Africa ranks higher than most developing countries, primarily in Africa. Specifically compared to other African countries South Africa ranks third after Nigeria and Kenya (Figure 21). A limitation of this study that may explain the results of South Africa's ranking is the small sample size of 31 where other countries studied exceeded 100 observations.

As revealed further in the sections that follow, and consistent with Bloom, Mahajan, McKenzie & Roberts (2010), the poor management in developing countries can be attributed to low or unknown levels of competition, proliferation of family owned firms, lack of autonomy of the plant and context and institutional factors such as trade unions, labour laws and scarcity of skills. For instance, the World Economic Forum (WEF) Global Competitiveness Report of 2014 – 2015 (World Economic Forum, 2015) ranks South Africa at 113<sup>th</sup> on labour market efficiency, citing that South Africa has “extremely rigid hiring and firing practices” (p. 39); the report ranks South Africa 144<sup>th</sup> on labour-employer relations, citing ongoing significant strain in labour-employer relations (World Economic Forum, 2015). The manufacturing industry, as a significant employer, is impacted by such issues and this in turn impacts the adoption of management practices.

### **6.1.1 Lean operations**

Compared to the findings of Bloom & Van Reenen (2007), South Africa ranked slightly higher than Brazil, China and India, with India ranking the lowest, on the lean operations

score (Figure 22). There are a number of reasons why South Africa, and developing countries more broadly, would have low management scores as far as operations management is concerned. One explanation provided by Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) for poor management is that firms in developing countries might not adopt quality measures because of low salaries that make repairing deficiencies inexpensive. South Africa has a high unemployment rate and labour is readily available. South African manufacturing firms, especially the smaller manufacturers, have highly labour intensive processes with limited automation. In such situations it is unlikely that firms would adopt lean operations practices such as total quality management and total production maintenance because it is just cheaper to hire more people.

According to Cua, McKone & Schroeder (2001), Total Quality Management, an important aspect of lean operations, is about involving customers, suppliers and employees in processes to ensure quality products. Low scores in lean operations suggests that South African manufacturing firms have not adopted such practices to a great extent.

Total Productive Maintenance is another key aspect of lean operations. According to Cua, McKone & Schroeder (2001), this practice entails planned maintenance of equipment and focuses on equipment technology which requires trained employees on an ongoing basis. The findings of this study suggest that practices such as this are not well entrenched in South African manufacturing firms, more especially in the smaller firms.

Compared to other African countries South Africa ranks high, on par with Kenya, on lean operations, as shown in Figure 23. This is an indication that developing countries perform poorly on lean operations management practices such as Total Quality Management, Total Productive Maintenance and Just in Time production. According to Shah & Ward (2007), the level of implementation of these management practices determines manufacturing performance and therefore the low scores in African countries suggests a lack of adoption of these practices.

### **6.1.2 Performance monitoring**

Figure 24 shows that South Africa ranked lowest on performance monitoring compared to other countries studied by Bloom & Van Reenen (2007). This means that South African manufacturing firms perform poorly on key management practices such as process documentation, continuous improvement, performance tracking in production, reviewing performance, performance dialogue and managing consequences of poor performance. According to Gibbons & Henderson (2013), an important source of productivity is the

ability to make improvements in the production process. A low score on this dimension of management practices indicates that there is not enough of a focus on continuous improvement practices in South African manufacturing firms, more so in smaller firms.

Compared to other African countries, Figure 25 shows that South Africa ranks third after Nigeria and Kenya. Low scores in the African countries suggest that firms in these countries have the bare minimum in terms of performance monitoring, only enough to inform day to day operations as opposed to more forward looking practices.

### **6.1.3 Target setting**

Figure 26 shows that South Africa ranked third lowest on target setting, higher than India and China, compared to countries studied by Bloom & Van Reenen (2007); based on the small sample size of 31 firms, manufacturing firms in the country perform poorly on balancing targets to focus on financial and non-financial targets, interconnection of targets to broader firm objectives, cascading targets down the organisational hierarchy, managing both short term and long term targets and dealing with underperformers.

Compared to other African countries, Figure 27 shows that South Africa ranks second highest after Kenya. While South Africa ranks second highest, overall scores of the African countries are low compared to those of developed countries and this suggests that developing countries are not well versed in the discipline of target setting; targets that are set in developing countries are not actionable nor are they achievable. According to Lemos & Scur (2014), to achieve higher scores in target setting management practices, firms need to set targets that are challenging and achievable and those targets must be measurable. The authors also emphasise that it is important to have a system in place where employees can comprehend the targets and their responsibility in achieving those targets

### **6.1.4 Talent management**

Compared to the findings of Bloom & Van Reenen (2007), South Africa ranked third lowest in the talent management rankings, with India, another developing country, ranking the lowest (Figure 28). An interesting note is that South Africa ranked higher than Australia, a developed country, on this dimension. Talent management entails developing and promoting high performers, delivering a unique employee value proposition and talent retention.

South African managers rely substantially on human resources processes in the firms, managed by human resources (HR) practitioners, as opposed to taking ownership and accountability for talent management. Firms that did have a talent management process in place had this process managed by HR practitioners and only went through the

motions of developing talented employees. A number of firms did not have talent management practices in place and based promotion on tenure and availability of positions to be promoted into.

Managers mentioned labour laws and trade unions as a barrier to talent management because these institutional factors demanded that available positions be advertised as opposed to individuals being promoted into roles. This constraint means that managers do not have the ability to promote individuals even as a retention mechanism for talented individuals.

Compared to other African countries South Africa ranked the second lowest (Figure 29) suggesting that manufacturing firms do not place a great emphasis on human capital management practices.

## **6.2 Variation in management practices across firms**

The spread of management practices across firms is wide across South African manufacturing firms (Figure 30 and Figure 31) and the spread is made significant by the fact that a score of five is indicative of best practice and one is indicative of poor practice. The significance of this spread is in the fact that firms that score less than two only have basic management practices in place, mostly administrative with no lean operations practices, limited performance monitoring and target setting and likely no talent management. There may be many reasons for this pattern of variation across firms, one of being the environment in the specific sector of manufacturing. For instance, some sectors may be highly automated whereas other highly labour intensive which would necessitate the firms to adopt very different management practices. There are also differences in the type of workforce where, for instance in the automotive sector a more educated workforce is employed than in the textile sector. However, according to Lemos & Scur (2014), contextual country effects have less than five percent impact on the variation in management practices across firms.

An insightful feature of the raw data in this research is that 42% of firms have a management score of less than 2. These are the firms with very basic management practices in place, typically smaller manufacturing firms.

The best management practices evolve over time according to Ichniowski & Shaw (2013), which means that at a point in time, not all management practices will necessarily have been adopted by all firms or by every worker in a particular firm. Hence it is expected that there will be differences in management practices across firms.

### **6.3 Most prominent management practices**

Figure 32 shows that in South African manufacturing firms, performance monitoring receives the most prominence over other management practices, followed by management of targets, with lean operations at second last and talent management receiving the least prominence.

### **6.4 Barriers to the adoption of management practices**

#### **6.4.1 Cost**

At least half of the respondents in this study cited cost as one of the reasons that the firm does not adopt certain management practices such as lean operations and performance monitoring. This is consistent with the view of Bloom & Van Reenen (2007). The authors cited cost as a key barrier, citing that even in instances where a management practice may be favourable firm productivity, upgrading to new practices is an expensive venture for most firms. When firms weigh the cost of introducing new management practices against the benefits that can be anticipated they tend to not implement or upgrade management practices.

#### **6.4.2 Effort**

While fewer firms mentioned effort as a reason to not adopt management practices, it was cited as a barrier to introducing or upgrading management practices. According to Bloom & Van Reenen (2007) and Brynjolfsson & Milgrom (2013), when practices in the current system are working or perceived to be working, managers perceive introduction of new practices as additional effort and may not be willing to undertake the additional effort. Brynjolfsson & Milgrom (2013) concluded that this effort to transition to new management practices combined with decentralised decision making could deter firms from implementing new practices.

#### **6.4.3 Skills**

With 25% of South African manufacturing firms citing that hiring managers with the right skills is an obstacle to implementing management practices and 30% of the firms citing that hiring employees with the right skills is an obstacle to implementing management practices, skills are a potential barrier in the adoption of management practices. This finding supports the view of Mol & Birkinshaw (2009); the authors posited that well qualified employees are most likely to be well versed in issues beyond their day to day work and therefore seek out practices that advance their firms. In the absence of the right skills it becomes more of a challenge to introduce management practices because employees and managers are not well versed on practices that could bring about improvements.

It is important that managers and employees understand the value of management practices for the practices to add value. Syverson (2011) posits management practices adopted may be related to the skills of those who implement the practices which would help in understanding the causal nature of management practices.

Without the right skills it is difficult to make a success of the introduction of management practices. In this regard, Bloom, Lemos, Sadun, Scur, & Van Reenen (2014) suggest that having workers who are clever enough to respond to continuous improvement initiatives is important.

South Africa in general is perceived to have a poor quality education, this is reflected by the low ranking on the World Economic Forum (WEF) Global Competitiveness Report of 2014 which ranks South Africa at 140 for the quality of the education system (World Economic Forum, 2015). Given the fact that the manufacturing industry is one of the largest employers in the country, scarcity of the right skills does become an issue for manufacturing.

#### **6.4.4 Employment laws**

16% of managers found employment laws in South Africa to be a major obstacle to the introduction of management practices. South Africa is generally perceived to have prohibitive employment laws (labour laws); the World Economic Forum ranks South Africa at 113<sup>th</sup> out of 144 countries for labour market efficiency and 143<sup>rd</sup> for rigid hiring and firing practices (World Economic Forum, 2015). For instance best practice, according to Bloom & Van Reenen (2007), is to let go of poor performers or to move them to less critical roles as soon as poor performance is identified, however, in South Africa, this can be a long drawn out process because workers cannot be dismissed without due process. This makes it prohibitive for managers to performance manage employees and bring in talent into firms.

#### **6.4.5 Trade unions**

This study found that 19% of managers found trade unions to be a major obstacle, with 16% finding trade unions to be a minor obstacle to implementing management practices or introducing new practices. Shah & Ward (2003) suggested that the implementation of any changes to the way employees work in highly unionised environments requires negotiation with the trade unions and this could be a barrier to the implementation of any management practices. South African manufacturing firms are highly unionised, with the average unionisation rate being 70% across the sector. This confirms a highly unionised environment that would require negotiation on any changes in the work environment.

Management practices such as lean operations can be perceived to reduce employment levels through creating a more efficient work environment, which would make trade unions more resistant to the introduction of such practices.

Management practices such as performance monitoring and target setting can be perceived to be unfair on workers where monitoring and tracking of performance is introduced and therefore trade unions could resist such practices.

The ability of firms to manage underperformance of workers, firing and displacement is hampered by trade unions in a number of countries (Lazear & Oyer, 2013) and this includes South Africa. Managers tend to tolerate underperformance longer because of trade unions.

#### **6.4.6 Obtaining a cost effective management consultancy**

Very few of the firms interviewed found management consultancy costs to be a barrier to the introduction of management practices. However, this was not based on the costs involved but rather the fact that firms tended not to work with management consultants. Most of the manufacturing firms worked with suppliers to the equipment that they procured for production and where issues were experienced, the issues would typically be machine related. Mol & Birkinshaw (2009) cited working with management consultants to bring about new knowledge to firms as a key determinant of what management practices firms adopted.

#### **6.4.7 Informational constraints**

Some firms in the South African manufacturing sector (22%) found that the knowledge of what management practices to introduce to be a major constraint to introducing new practices. This refers to firms not being aware of practices that they could introduce. Mol & Birkinshaw (2009) cited knowledge of management practices as a key determinant of what management practices firms adopted. Consistent with the findings of Bloom, Eifert, Mahajan, McKenzie & Roberts (2013), this study found that informational constraints were a factor in the lack of adoption of good management practices.

### **6.5 Supported hypotheses**

#### **6.5.1 Firm size**

This study found that there is an association between the size of the firm and management practices; specifically that the larger the firm, the better the quality of management practices in the firm. This is consistent with the findings of Cua, McKone & Schroeder (2001), Bloom & Van Reenen (2007) and Mol & Birkinshaw (2009) who found that the size of the firm has an impact on the adoption of management practices. The

explanation for this, according to Bloom & Van Reenen (2007) is that larger firms tend to have more competitors and face more challenges that compel them to have in place certain management practices. Larger firms also tend to operate at such a scale that management practices such as lean operations and performance monitoring are warranted. A more obvious explanation is also the fact that larger firms have more resources including human resources to implement good management practices.

### **6.5.2 Autonomy of the plant**

Bloom, Mahajan, McKenzie & Roberts (2010) cited the inability of firms to decentralise decision making and provide more autonomy to managers as an example of poor management practices. The authors found that in developing countries, firm owners tend to make most of the major decisions. This clear linear relationship between management practices and the autonomy of the plant is consistent with the finding of this study; this study found that in South African manufacturing firms, the higher the level of autonomy of the plant the better the quality of management practices. Firms that allowed for more autonomy at plant level through delegating decisions on hiring, capital investments, new product introductions or modifications and sales and marketing tended to have better quality management practices.

Consistent with the findings of Bloom & Van Reenen (2007) and Bloom, Mahajan, McKenzie & Roberts (2010), this study found that in smaller firms, owners of the firms tend to make most of the decisions such as investment, employment and production decisions. However, the reasons for this lack of delegation of decision making differ from what Bloom, Mahajan, McKenzie & Roberts (2010) suggest. The authors cite the nature of ownership of the firm, non-enforceability of law, fear of theft, lack of systems for quantifying inputs and outputs and limited positions for managers as reasons for the lack of autonomy and delegation of decision making. This study found that the lack of autonomy could be attributed to the size of the firm where in larger firms that was more autonomy at the plant than in smaller firms.

### **6.5.3 Firm ownership**

Bloom & Van Reenen (2007) concluded that the most common form of ownership was family ownership in both developing and developed countries. This is similar in South Africa, with the sample analysed reflecting that family ownership reflected in 32% of the firms. Bloom & Van Reenen (2007) found that in the United States family ownership was at 10% however in Europe family ownership was at 30%, similar to South Africa.

A key finding in the studies of Bloom & Van Reenen (2007) was that in many of the firms they studied, the CEO of the firm was a family member and this finding influenced how

management practices were realised in these firms. The finding in South Africa is consistent with Bloom & Van Reenen (2007); in the 32% of family owned firms that were interviewed, 90% had a family member as the CEO of the firm. According to Bloom & Van Reenen (2007), this is an indication that families do not trust non-family senior managers.

Also consistent with the findings of Bloom & Van Reenen (2007) is the finding that family ownership and management results in poor management practices. According to Bloom & Van Reenen (2007), family ownership matters when the CEO is selected through the tradition of the eldest son automatically becoming CEO.

#### **6.5.4 Hierarchy – number of levels between shop floor and CEO**

This study found that the fewer the number of levels between the shop floor and the CEO, the better the quality of management practices. This can be attributed to the fact that fewer levels bodes well for quicker decision making and more autonomy for managers.

### **6.6 Hypotheses not supported**

#### **6.6.1 Skill level**

Bloom & Van Reenen (2007) found that firms with more educated employees, as measured by the number of college degrees, have considerably better quality management practices, and that these firms were particularly good at human resources focused management practices.

This study did not find a correlation between the skill level of managers, measured by number of college degrees, and management practices.

#### **6.6.2 Multinationals**

Similar to the findings of Bloom & Van Reenen (2007), this study found a difference in management scores between multinational and non-multinational firms, with multinationals scoring higher than non-multinationals; however, this difference was not statistically significant.

According to Mol & Birkinshaw (2009), multinational firms are more exposed to other approaches in different contexts and therefore learn about practices that can be adopted. This implies that multinational firms overcome the informational constraint cited by Bloom, Eifert, Mahajan, McKenzie & Roberts (2013) and are able to have better management practices than non-multinationals that may contend with the informational constraint.

It is possible that sample size had an effect on the finding because the study had twice as much non-multinational firms as multinational firms. A recommendation for further research is that this hypothesis be tested with a larger sample size.

### **6.6.3 Market competition**

The fact that this study was not able to collect data on market competition, where respondents were asked to provide information on the number of competitors the firm had, is in itself an interesting finding. Given the finding by Bloom & Van Reenen (2007) that environments that are more competitive tend to have better management practices because competition causes firms to strive for better to survive and considering the low ranking of South African manufacturing firms compared to other countries studied by Bloom & Van Reenen (2007), the suggestion is that market competition is a contributor to the low management score for South Africa.

Bloom & Van Reenen (2007) mentioned that market competition has an impact on the effort that managers put in. The authors measured managerial effort through managerial hours worked and while they concede that working hours may not be a conclusive reflection of managerial effort and indeed found an insignificant association between increased competition and the number of hours worked by managers, there was a relationship between the two. This study found that the average working hours of managers per week was 40 hours, which does not reflect extra effort.

Bloom and Van Reenen (2007) also measured market competition through the extent of import penetration and found that higher trade competition is linked to better quality management practices. The authors also found a significant and positive association between the number of competitors a firm faces and better management practices.

Therefore while this study did not test for the impact of market competition on management practices, the fact that managers were not able to provide market competition information and taking the findings of Bloom & Van Reenen (2007) into account, the inference is that knowledge of market competition could be a factor in the low score of South Africa on management performance.

### **6.6.4 Age of the plant**

This study found that the age of the plant did not have an association with management practices. The expectation was that the older the plant the poorer the management practices because older factories tend to be set in their ways and would not adopt new management practices. This was based on the findings of Ichniowski, Shaw & Prennushi (1997), Cua, McKone & Schroeder (2001) and Shah & Ward (2003); According to the authors, managers in older plants tend to resist implementing management practices

even when they have the knowledge about such practices because the managers have invested in skills and relationships that would need to change if management practices changed.

Other characteristics of older plants that could lead to the conclusion that older plants would have poor management practices include the mistrust between shop floor and management that plagues older plants and old equipment that supports existing management practices.

This hypothesis did not consider that while a plant may be old, management does not necessarily have to be persistent with old practices; the firm may be under new management who may introduce management practices that would negate any effect of the plant age, new equipment that enables adoption of new practices such as lean operations could also negate the effect of plant age.

#### **6.6.5 Manager tenure**

Manager tenure could imply that the longer the manager is in a role the less likely they are to adopt new management practice or evolve current practices due to the fact that they are set in the way they do things. However this study found that manager tenure did not have a bearing on management practices of a firm. This could be because tenure does not negate the ability of managers to keep abreast of new practices that could lead to improvement, tenure does not determine the managers' ability to run performance monitoring and target setting practices such as consequence management, measurement and monitoring of targets. In other words, tenure does not define a good manager.

#### **6.7 Insights**

While the sample size was a limitation in this study, with 31 observations, this comparative study provides several insights into management practices in manufacturing firms in South Africa.

- South Africa, like other developing countries, ranks low on management practices compared to developed countries such as the United States, Japan and the United Kingdom. While the country has firms that perform well on management practices, especially larger firms, there is a long tail of badly managed smaller firms that pull down the country average.
- There is a substantial variation in management practices across manufacturing firms in South Africa.
- Firm size is an important and significant driver of management practice

difference across manufacturing firms.

- Plant or factory autonomy is an important and significant driver of management practice difference across manufacturing firms.
- Firm ownership is a key determinant for variation in management practices across manufacturing firms.
- Firm hierarchy (number of levels between shop floor and CEO) is a key driver of management practice variation.

## **7 Chapter 7: Conclusion**

According to the Manufacturing Circle (2014), a manufacturing industry body in South Africa, the manufacturing sector is a focal point for stimulating the growth of the economy; the sector employs 1.7 million people and accounts for 15% of South Africa's GDP, making it the third-largest contributor to the country's economy. Given the relevance of the manufacturing sector and its importance to the South African economy, it stands to reason that the sector requires a concerted effort at improving performance and management practices have been found, through the studies of Bloom & Van Reenen (2007), to be a key contributor to firm performance.

This study sought to determine the state of management practices such as lean operations, performance monitoring, target setting and talent management in manufacturing firms in South Africa in order to contribute to the discourse on management practices across countries, the barriers to adopting management practices and factors that detract or enhance the adoption of management practices.

### **7.1 Principal findings**

Compared to developed countries, South Africa ranks low on the quality of management practices in manufacturing firms. However when compared to developing countries South Africa ranks ahead of many developing countries in Africa and on par with countries such as Kenya, Nigeria, India and China, especially on specific management practices. South Africa ranks ahead of Brazil, China and India on lean operations.

Whilst this study was only limited to 31 observations, it revealed a significant variation in management practices across manufacturing firms in South Africa, with a long tail of badly managed firms more so in smaller firms. This long tail of badly managed firms drags down the overall average of management scores for the country. While this study had a small sample size, it has provided an indication in the differences that exist across firms on the extent to which firms have adopted management practices.

South African manufacturing firms focus more on performance monitoring which entails documenting processes and encouraging employees to make suggestions for improvement in the areas of responsibility and overall production processes. Performance monitoring also entails tracking and reviewing performance of both the production process and individuals on a regular basis and ensuring that meaningful performance discussions take place to root out underperformance and overcome any shortcomings.

The least emphasis is placed on talent management which entails practices related to managing human capital. Talent management is about recognising, developing and retaining talent; it is about identifying and rewarding good performers and it is about linking rewards, both financial and non-financial, being based on performance. It is of concern that the sample in this study reflected the least emphasis on this area of management practices because it has to do with human capital, the very employees who are responsible for operations on a day to day basis in the firms.

Although the sample size was a limitation in this research, the study found that firm size has an impact on management practices and that the larger the firm, the better the quality of management practices. Plant autonomy also has an impact on management practices; the more autonomy the plant has in making decisions such as hiring decisions and sales and marketing decisions, the better the quality of management practices. This study has also found that firm ownership has an impact on management practices, with family owned firms performing poorly on management quality compared to non-family owned firms. Another key finding of this study was that firm hierarchy, determined through the number of levels between the shop floor and the CEO, has an impact on management practices; the fewer the number of levels between the shop floor and the CEO, the better the quality of management practices.

## **7.2 Implications for management**

Given the significant gaps between poorly managed firms and well managed firms in South Africa, there are a number of areas for improvement for South African manufacturing firms, more so for the long tail of poorly managed, largely smaller firms. There are a number of recommendations for business and for policymakers to improve management practices.

### **7.2.1 For business**

Lean operations have been proven to reduce waste in production and improve overall production efficiency and effectiveness. Typically firms are not aware of lean management practices and good starting point is for managers to familiarise themselves with these practices in order to close the informational constraint gap and to be in a position to determine which practices are appropriate for the firm. This study revealed that most firms do not consider finding an affordable management consultancy to be a major obstacle. Management consultancies typically have the skills and experience to work with firms to introduce lean operations in production. Where cost is a constraint for the firm, the firm can work with the management consultancy to pay based on the realisation of tangible benefits of introducing lean practices. Therefore the

recommendation is for firms to acquire knowledge about lean operations and work with management consultancies to introduce these practices.

To realise improvements in target setting, firms must define targets that allow for benchmarking against better performers that are measurable, actionable, challenging and achievable. From a practical perspective, targets must be well understood by employees. Employees must see a clear link between the targets and their day to day job and be able to see how what they do in their roles impacts the targets.

Low scores in talent management suggest reactive processes to human capital management practices. Firms tend to cite employees as their most important asset, however, this is not reflected in the low scores achieved in talent management practices. To improve in this area managers in firms need to take more ownership of people management practices, with only guidance provided by human resources practitioners. Managers need to identify and develop talent within their own teams. Managers must be advocates to talent management, showing employees that developing and retaining talent is important in the firm. Firms must also reward managers who develop and retain talent as an incentive to ensure that this management practice is emphasised in the firm.

This study found that the fewer the levels between the shop floor and the CEO the better the quality of management practices. A recommendation in this regard is that firms must consider the firm hierarchy and reduce the amount of bureaucracy that often comes with many levels in the organisations. The higher the number of levels the poorer the decision making and this hampers that adoption of management practices that could contribute to increasing firm productivity.

Firms must address the barriers to the adoption of management practices. This study found that there are a number of barriers to the adoption of management practices in firms and addressing and overcoming these barriers will enable the adoption of management practices. These barriers are skills shortages, employment laws, trade unions, cost and knowledge of management practices.

#### **7.2.1.1 Skills**

Skills shortages have been cited a number of times over both by business and government. The WEF has also rated South Africa poorly on education. Clearly the country has a significant challenge in this regard. For the manufacturing sector and industry at large, this needs to be a focus area. The public-private partnerships that have already started in the country need to start gaining momentum and receiving greater emphasis to overcome this skills challenge.

While some firms already offer lean operations training to their production staff and management, this needs to be a norm in the industry and should be extended to other management practices such as performance monitoring, target setting and talent management. A number of firms in this study seemed to abdicate human resources management practices such as performance monitoring including managing under performance and practices such as talent management to human resources practitioners and this contributes to the issues of skills. Managers must be equipped with abilities on such practices to enable them to take better control of their staff in response to organisational needs.

The fact that talent management, which is all about people, received the least prominence in South African manufacturing firms is an indication that managing people as opposed to machines, is not prioritised. Managers need to build skills that enable to recognise and develop talent in order to retain the best employees and foster a culture of continual growth that rewards high performance.

#### **7.2.1.2 Employment laws**

Employment laws are out of the immediate control of the firm, however, it is important that the firm abides to employment laws and that the firm is seen by employees to be abiding to laws. This goes a long way to fostering good relationships between management and employees and also builds trust within the firm. Through various intermediaries such as industry bodies, the manufacturing sector can make submissions to authorities on constraints experienced and proposals on any amendments.

#### **7.2.1.3 Trade unions**

The South African labour landscape is highly unionised and further to this relationships between employers and trade unions are more often adversarial. Firms must seek to build better relationships with trade unions to enable dialogue that bodes well for introducing good management practices.

#### **7.2.1.4 Cost**

To engage management consultants to implement and support firms in introducing management practices comes at a cost and firms must weigh the benefits of introducing management practices to the cost associated. There are various ways that firms can overcome costs that may seem prohibitive and one of these ways is on holding management consultancies to a fee based on delivery of tangible benefits. This way the firm does not incur any costs if benefits are not realised.

### **7.2.1.5 Knowledge about management practices**

When managers know about management practices, they are likely to consider and adopt those practices that could make a difference. A recommendation is that firms focus on the education element for both managers and employees on various management practices. Firms can also embark on formal benchmarking exercises with their peers through benchmarking organisations; in this way firms get exposure to practices that their peers have adopted, benefits experienced, lessons learnt and general learning about management practices.

The Business Day newspaper reported that the R5 billion manufacturing competitiveness enhancement programme (MCEP) which was established by the South African government through the Department of Trade and Industry (DTI) has been depleted and is no longer available (Allix, 2015). This should serve as an impetus for manufacturing firms to consider other avenues for driving productivity and ensuring sustainability of their businesses and one of these avenues is the adoption of good management practices.

### **7.2.2 For policy makers**

Policy makers must enable the raising of education levels in South Africa. This will have a positive effect in the manufacturing sector because the more educated the workforce, the more likely it is to comprehend and appreciate principles of management practices such as lean operations and performance management. Education also assists managers to better appreciate the value that can be harnessed from introducing management practices and enables continuous improvement and innovation.

Policy makers are encouraged to partner more with business to identify the constraints experienced by business with respect to the introduction of management practices that could enable an increase in productivity by the manufacturing sector. Constraints such as relationships with trade unions, employment laws and skills can only be overcome through concerted and deliberate partnerships between policy makers and business where a joint plan can be executed for the greater good of the sector.

Specifically for the skills constraint experienced by the manufacturing sector, there are a number of Skills Education Training Authorities (SETAs) in South Africa that focus rightfully on technical skills. For the manufacturing sector the SETAs include the Clothing, Textiles, Footwear and Leather (CTFL) SETA, the Forest Industries SETA and Manufacturing, Engineering and Related Services SETA (MerSETA). A recommendation for policy makers is that the SETAs must partner with business to understand the exact needs in order to establish a curriculum that addresses the needs of business not only

on technical skills but also on skills that enhance the adoption of good management practices such as lean operations and performance management. MerSETA, for instance, was established to focus on metal and engineering, auto manufacturing, motor retail and component manufacturing, tyre manufacturing and plastics manufacturing. These are all necessary skills for the sector, the recommendation is augmenting these technical skills with good management practice skills.

Policy makers should also authorise dedicated sponsorship and funding for skills training that includes protected time off work for this training as part of an employee's entitlement to development. This is over and above the skills development levy that employers in South Africa are able to claim from a tax perspective when they train employees.

### **7.3 Limitations of the research**

One of the objectives of this study is to consider the variation in management practices across firms and conclusions on this are limited by the size of the sample and distribution thereof. This study only had 31 observations where similar comparable studies have a minimum of 100 observations. Furthermore, this research was biased towards smaller firms due to accessibility of managers to interview.

Management practices may be one element of many on factors that impact firm productivity, therefore in determining why firms do not adopt certain management practices to improve productivity, it may be that other factors that impact firm productivity have been prioritised over management practices. Factors such as threats in the environment of the firm that may cause individuals to work harder or reduce sales from the firm were not considered in this study. Examples of threats are retrenchments and an economic downturn. These threats may also encourage managers to adopt progressive management practices.

Interviews were conducted only with production, operations, and plant and factory managers to gather all the data collected. These individuals may have a limited understanding of some of the management practices that relate to human resources management. This study could be expanded to interviewing human resources managers who could provide more detail on some of the practices.

In this study only a single individual was interviewed for a particular plant, other researchers in the WMS interviewed more than one manager in the plant, sometimes interviewing human resources practitioners. Other researchers also re-ran their respective projects to ensure the rigour of the research. Time was a constraint in this study and did not allow for more extensive interviews.

This study is limited to manufacturing firms; it is possible that the type of industry and the size of firm may yield different results with respect to the quality of management practices, the weighting of the importance of each management practice and the reasons for the lack of implementation of good management practices.

#### **7.4 Suggestions for future research**

This study has provided insight into management practices in South African manufacturing firms and the areas where these firms do well and areas for improvement. However a key limitation of this study has been the size of the sample; at 31 observations the sample size does not provide a complete view of the manufacturing sector and may not be a representative sample. Therefore a recommendation for future research is to extend the study with a larger sample size of at least 100 observations in order to obtain a more representative view of the manufacturing sector. This will allow for more robust conclusions about management practices in the sector.

While the concept of productivity has been studied extensively in economics and management practices have been proven through various studies to be a driver of productivity, this study has not explored the impact of management practices on productivity in the South African context. A recommendation for further research is to extend the study to consider the impact of management practices on productivity, measuring productivity from a labour productivity perspective, measuring total factor productivity or the profitability of firms and testing for a correlation.

This study specifically focused on the manufacturing sector; because management practices have been proven through many studies to have an impact on firm productivity and performance, the recommendation is that this study should be extended to other sectors such as services, healthcare, education and other sectors that are critical to the economy of the country. There is an opportunity to understand the state of management practices in these sectors and contribute to their improvement.

The productivity of firms is ultimately linked to the economic performance of a country therefore South African manufacturing firms should aspire to better quality management practices that will contribute to improved productivity.

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## 9 Appendix A: Survey Questions

As a comparative study, this research utilised the World Management Survey (WMS) instrument for data collection to ensure that dimensions covered were comparable. The WMS instrument was utilised by Bloom & Van Reenen (2007) and was further utilised and referred to for the WMS work by Bloom, Mahajan, McKenzie & Roberts (2010), Bloom & Van Reenen (2010b), Bloom, Sadun & Van Reenen (2012b), Bloom, Genakos, Sadun & Van Reenen (2012), Bloom, Eifert, Mahajan, McKenzie, & Roberts (2013) and Bloom, Lemos, Sadun, Scur & Van Reenen (2014).

Interview Details		Company and Manager's Information		
Company ID: _____		a) Position: _____		
Company Name: _____		b) Tenure in post ( <i>number of years</i> ): _____		
Interviewer Name: _____		c) Tenure in company ( <i>number of years</i> ): _____		
Date (DD/MM/YY): _____		d) When was your factory built ( <i>number of years</i> )? _____		
Time (24 hour clock): _____		e) Country: _____		
Running interview <input type="checkbox"/> Listening to interview <input type="checkbox"/>		f) Region: _____		
		g) Number of competitors: _____ <i>(i.e. major domestic and international competitors)</i>		
Management Questions				
<b>1) Introducing Lean (Modern) Techniques</b> <i>Tests how well lean (modern) manufacturing management techniques have been introduced</i>		a) Can you describe the production process for me? b) What kinds of lean (modern) manufacturing processes have you introduced? How long has this practice been in place? Can you give me specific examples? c) How do you manage inventory levels? What is done to balance the line? What is the takt time of your manufacturing processes?		
Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> .99 <input type="checkbox"/>		Score 1: Other than JIT delivery from suppliers few modern manufacturing techniques have been introduced (or have been introduced in an ad-hoc manner)	Score 3: Some aspects of modern (lean) manufacturing techniques have been introduced, through informal/isolated change programmes	Score 5: All major aspects of modern/lean manufacturing have been introduced (Just-in-time, automation, flexible manpower, support systems, attitudes and behaviour) in a formal way
<b>2) Rationale for Introducing Lean (Modern) Techniques</b> <i>Tests the motivation and impetus behind changes to operations and what change story was communicated</i>		a) Can you take me through the rationale to introduce these processes? b) What factors led to the adoption of these lean (modern) management practices?		
Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> .99 <input type="checkbox"/>		Score 1: Modern (lean) manufacturing techniques were introduced because others were using them	Score 3: Modern (lean) manufacturing techniques were introduced to reduce costs	Score 5: Modern (lean) manufacturing techniques were introduced to enable us to meet our business objectives (including costs)

<p><b>3) Process Documentation and Continuous Improvement</b></p> <p><i>Tests processes for and attitudes to continuous improvement and whether learnings are captured/ documented</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How do problems typically get exposed and fixed? b) Talk me through the process for a recent problem. c) How can the staff suggest process improvements?</p> <p>Score 1: No process improvements are made when problems occur Score 3: Improvements are made in 1 week workshops involving all staff (to improve performance in their area of the plant) Score 5: Exposing problems in a structured way is integral to individuals' responsibilities and resolution occurs as a part of normal business processes rather than by extraordinary effort/teams</p>
<p><b>4) Performance Tracking</b></p> <p><i>Tests whether performance is tracked using meaningful metrics and with appropriate regularity</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) What kind of KPIs would you use for performance tracking? b) How frequently are these measured? Who gets to see this KPI data? c) If I were to walk through your factory could I tell how you were doing against your KPIs?</p> <p>Score 1: Measures tracked do not indicate directly if overall business objectives are being met. Tracking is an ad-hoc process (certain processes aren't tracked at all) Score 3: Most key performance indicators are tracked formally; tracking is overseen by senior management Score 5: Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools</p>
<p><b>5) Performance Review</b></p> <p><i>Tests whether performance is reviewed with appropriate frequency and communicated to staff</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How do you review your KPIs? b) Tell me about a recent meeting. c) Who is involved in these meetings? Who gets to see the results of this review? d) What is the follow up plan?</p> <p>Score 1: Performance is reviewed infrequently or in an un-meaningful way (e.g. only success or failure is noted) Score 3: Performance is reviewed periodically with both successes and failures identified; Results are communicated to senior management; No clear follow-up plan is adopted Score 5: Performance is continually reviewed, based on indicators tracked; All aspects are followed up to ensure continuous improvement; Results are communicated to all staff</p>
<p><b>6) Performance Dialogue</b></p> <p><i>Tests the quality of review conversations</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How are these meetings structured? Tell me about your most recent meeting. b) How would the agenda for the meeting be determined? c) What type of feedback occurs in these meetings? d) For a given problem, how would you identify the root cause?</p> <p>Score 1: The right data or information for a constructive discussion is often not present or conversations overly focus on data that is not meaningful; Clear agenda is not known and purpose is not stated explicitly Score 3: Review conversations are held with the appropriate data and information present; Objectives of meetings are clear to all participating and a clear agenda is present. Conversations do not, as a matter of course, drive to the root causes of the problems Score 5: Regular review/performance conversations focus on problem solving and addressing root causes; Purpose, agenda and follow-up steps are clear to all. Meetings are an opportunity for constructive feedback and coaching</p>
<p><b>7) Consequence Management</b></p> <p><i>Tests whether differing levels of performance (not personal but plan/ process based) lead to different consequences</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) Let's say you've agreed to a follow up plan at one of your meetings, what would happen if the plan weren't enacted? b) How long is it between when a problem is identified to when it is solved? Can you give me a recent example? c) How do you deal with repeated failures in a specific business segment?</p> <p>Score 1: Failure to achieve agreed objectives does not carry any consequences Score 3: Failure to achieve agreed results is tolerated for a period before action is taken Score 5: A failure to achieve agreed targets drives retraining in identified areas of weakness or moving individuals to where their skills are appropriate</p>
<p><b>8) Types and Balance of Targets</b></p> <p><i>Tests whether targets cover a sufficiently broad set of metrics and whether financial and non-financial targets are balanced</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) What types of targets are set for the company? What are the goals for your plant? b) Tell me about the non-financial goals?</p> <p>Score 1: Goals are exclusively financial or operational Score 3: Goals include non-financial targets, which form part of the performance appraisal of top management only (they are not reinforced throughout the rest of organisation) Score 5: Goals are a balance of financial and non-financial targets; Senior managers believe the non-financial targets are often more inspiring and challenging than financials alone (e.g. 60% market share by 2003)</p>
<p><b>9) Interconnection of Targets</b></p> <p><i>Tests whether targets are tied to the organization's objectives and how well they cascade down the organisation</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) What is the motivation behind your goals? b) How are these goals cascaded down to the individual workers? c) How are your targets linked to company performance and their goals?</p> <p>Score 1: Goals are based purely on accounting figures (with no clear connection to shareholder value) Score 3: Corporate goals are based on shareholder value but are not clearly cascaded down to individuals Score 5: Corporate goals focus on shareholder value. They increase in specificity as they cascade through business units ultimately defining individual performance expectations</p>
<p><b>10) Time Horizon of Targets</b></p> <p><i>Tests whether firm has a '3 horizons' approach to planning and targets</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) What kind of time scale are you looking at with your targets? b) Which goals receive the most emphasis? c) Are long term and short term goals set independently? d) Could you meet all your short-run goals but miss your long-run goals?</p> <p>Score 1: Top management's main focus is on short term targets Score 3: There are short and long term goals for all levels of the organisation. As they are set independently, they are not necessarily linked to each other Score 5: Long term goals are translated into specific short term targets so that short term targets become a "staircase" to reach long term goals</p>

<p align="center"><b>11) Target Stretch</b></p> <p align="center"><i>Tests whether targets are based on a solid rationale and are appropriately difficult to achieve</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How tough are your targets? Do you feel pushed by them?            b) On average, how often would you say that you meet your targets?            c) Do you feel that all groups receive the same degree of difficulty, in terms of targets? Do some groups get easy targets?            d) What is the rationale behind the targets?</p>			
	<table border="1"> <tr> <td data-bbox="639 285 915 380">Score 1: Goals are either too easy or impossible to achieve; managers low-ball estimates to ensure easy goals</td> <td data-bbox="915 285 1175 380">Score 3: In most areas, top management pushes for aggressive goals based on solid economic rationale. There are a few "sacred cows" that are not held to the same rigorous standard</td> <td data-bbox="1175 285 1437 380">Score 5: Goals are genuinely demanding for all divisions. They are grounded in solid, solid economic rationale</td> </tr> </table>	Score 1: Goals are either too easy or impossible to achieve; managers low-ball estimates to ensure easy goals	Score 3: In most areas, top management pushes for aggressive goals based on solid economic rationale. There are a few "sacred cows" that are not held to the same rigorous standard	Score 5: Goals are genuinely demanding for all divisions. They are grounded in solid, solid economic rationale
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<p align="center"><b>12) Clarity and Comparability of Goals</b></p> <p align="center"><i>Tests how easily understandable performance measures are and whether performance is openly communicated to staff</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) If I asked your staff directly about individual targets what would they tell me?            b) Does anyone complain that the targets are too complex?            c) How do people know about their own performance compared to other people's performance?</p>			
	<table border="1"> <tr> <td data-bbox="639 474 915 558">Score 1: Performance measures are complex and not clearly understood. Individual performance is not made public</td> <td data-bbox="915 474 1175 558">Score 3: Performance measures are well defined and communicated; performance is public in all levels but comparisons are discouraged</td> <td data-bbox="1175 474 1437 558">Score 5: Performance measures are well defined, strongly communicated and reinforced at all reviews; performance and rankings are made public to induce competition</td> </tr> </table>	Score 1: Performance measures are complex and not clearly understood. Individual performance is not made public	Score 3: Performance measures are well defined and communicated; performance is public in all levels but comparisons are discouraged	Score 5: Performance measures are well defined, strongly communicated and reinforced at all reviews; performance and rankings are made public to induce competition
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<p align="center"><b>13) Instilling a talent mindset/ Managing Talent</b></p> <p align="center"><i>Tests what emphasis is out on overall talent management within the organization</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How do senior managers show that attracting and developing talent is a top priority?            b) Do senior managers get any rewards for bringing in and keeping talented people in the company?</p>			
	<table border="1"> <tr> <td data-bbox="639 653 915 716">Score 1: Senior management <b>do not</b> communicate that attracting, retaining and developing talent throughout the organisation is a top priority</td> <td data-bbox="915 653 1175 716">Score 3: Senior management believe and communicate that having top talent throughout the organisation is a key way to win</td> <td data-bbox="1175 653 1437 716">Score 5: Senior managers are evaluated and held accountable on the strength of the talent pool they actively build</td> </tr> </table>	Score 1: Senior management <b>do not</b> communicate that attracting, retaining and developing talent throughout the organisation is a top priority	Score 3: Senior management believe and communicate that having top talent throughout the organisation is a key way to win	Score 5: Senior managers are evaluated and held accountable on the strength of the talent pool they actively build
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<p align="center"><b>14) Building a High-Performance Culture through Incentives and Appraisals</b></p> <p align="center"><i>Tests whether there is a systematic approach to identifying good and bad performers and rewarding them proportionately</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) How does your appraisal system work? Tell me about the most recent round?            b) How does the bonus system work?            c) Are there any non-financial rewards for top performers?            d) How does your reward system compare to your competitors?</p>			
	<table border="1"> <tr> <td data-bbox="639 831 915 894">Score 1: People within our firm are rewarded equally irrespective of performance level</td> <td data-bbox="915 831 1175 894">Score 3: Our company has an evaluation system for the awarding of performance related rewards</td> <td data-bbox="1175 831 1437 894">Score 5: We strive to outperform the competitors by providing ambitious stretch targets with clear performance related accountability and rewards</td> </tr> </table>	Score 1: People within our firm are rewarded equally irrespective of performance level	Score 3: Our company has an evaluation system for the awarding of performance related rewards	Score 5: We strive to outperform the competitors by providing ambitious stretch targets with clear performance related accountability and rewards
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<p align="center"><b>15) Removing Poor Performers/ Making Room for Talent</b></p> <p align="center"><i>Tests how well the organization is able to deal with underperformers</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) If you had a worker who could not do his job what would you do? Could you give me a recent example?            b) How long would underperformance be tolerated?            c) Do you find any workers who lead a sort of charmed life? Do some individuals always just manage to avoid being fired?</p>			
	<table border="1"> <tr> <td data-bbox="639 1031 915 1094">Score 1: Poor performers are rarely removed from their positions</td> <td data-bbox="915 1031 1175 1094">Score 3: Suspected poor performers stay in a position for a few years before action is taken</td> <td data-bbox="1175 1031 1437 1094">Score 5: We move poor performers out of the company or to less critical roles as soon as a weakness is identified</td> </tr> </table>	Score 1: Poor performers are rarely removed from their positions	Score 3: Suspected poor performers stay in a position for a few years before action is taken	Score 5: We move poor performers out of the company or to less critical roles as soon as a weakness is identified
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<p align="center"><b>16) Developing Talent and Promoting High-Performers</b></p> <p align="center"><i>Tests whether promotion is performance based and whether talent is developed within the organization</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) Tell me about your promotion system.            b) What about poor performers? What happens with them? Are there any examples you can think of?            c) How would you identify and develop your star performers?            d) If two people both joined the company 5 years ago and one was much better than the other what job opportunities would he/she have in the company?</p>			
	<table border="1"> <tr> <td data-bbox="639 1209 915 1251">Score 1: People are promoted primarily upon the basis of tenure</td> <td data-bbox="915 1209 1175 1251">Score 3: People are promoted upon the basis of performance</td> <td data-bbox="1175 1209 1437 1251">Score 5: We actively identify, develop and promote our top performers</td> </tr> </table>	Score 1: People are promoted primarily upon the basis of tenure	Score 3: People are promoted upon the basis of performance	Score 5: We actively identify, develop and promote our top performers
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<p align="center"><b>17) Distinctive Employee Value Proposition</b></p> <p align="center"><i>Tests the strength of the employee value proposition</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) What makes it distinctive to work at your company as opposed to your competitors?            b) If you were trying to sell your firm to me how would you do this (get them to try to do this)?            c) What don't people like about working in your firm?</p>			
	<table border="1"> <tr> <td data-bbox="639 1346 915 1409">Score 1: Our competitors offer stronger reasons for talented people to join their companies</td> <td data-bbox="915 1346 1175 1409">Score 3: Our value proposition to those joining our company is comparable to those offered by others in the sector</td> <td data-bbox="1175 1346 1437 1409">Score 5: We provide a unique value proposition above our competitors to encourage talented people to join our company</td> </tr> </table>	Score 1: Our competitors offer stronger reasons for talented people to join their companies	Score 3: Our value proposition to those joining our company is comparable to those offered by others in the sector	Score 5: We provide a unique value proposition above our competitors to encourage talented people to join our company
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<p align="center"><b>18) Retaining Talent</b></p> <p align="center"><i>Tests whether the organization will go out of its way to keep its top talent</i></p> <p>Score: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>a) If you had a star performer who wanted to leave what would the company do?            b) Could you give me an example of a star performers being persuaded to stay after wanting to leave?            c) Could you give me an example of a star performer who left the company without anyone trying to keep them?</p>			
	<table border="1"> <tr> <td data-bbox="639 1503 915 1545">Score 1: We do little to try and keep our top talent</td> <td data-bbox="915 1503 1175 1545">Score 3: We usually work hard to keep our top talent</td> <td data-bbox="1175 1503 1437 1545">Score 5: We do whatever it takes to retain our talent</td> </tr> </table>	Score 1: We do little to try and keep our top talent	Score 3: We usually work hard to keep our top talent	Score 5: We do whatever it takes to retain our talent
Score 1: We do little to try and keep our top talent	Score 3: We usually work hard to keep our top talent	Score 5: We do whatever it takes to retain our talent		

Organization Questions			
<p>a) How many people are in the firm? _____  <i>Please say "Now I want to talk about the firm hierarchy". Then iteratively ask "Who does a shop floor worker report to?", "Who would [their boss] report to".... Keep asking until you reach the CEO</i></p> <p>b) Number of levels in the firm BETWEEN the shopfloor and the CEO: _____</p> <p>c) Have the levels changed in the last 3 years?      Yes <input type="checkbox"/> No <input type="checkbox"/> -99 <input type="checkbox"/></p> <p>d) If Yes, number of levels added (negative for subtracted): _____            Please confirm back to them the reporting levels between Plant management and shopfloor</p> <p>e) Number of levels BETWEEN the shopfloor and the Plantmanager: _____</p> <p>f) How many people are in the plant? _____</p> <p>g) How many people directly report to the PLANT MANAGER (i.e. the number of people the PLANTMANAGER manages directly in the hierarchical layer below him)? _____</p>	<p>h) How much do managers decide how tasks are allocated across workers in their teams?</p> <p><input type="checkbox"/> Managers make all the decisions</p> <p><input type="checkbox"/> Managers make most of the decisions</p> <p><input type="checkbox"/> Decision making is about equal</p> <p><input type="checkbox"/> Workers make most of the decisions</p> <p><input type="checkbox"/> Workers make all the decisions</p>	<p>i) Who decides the pace of work on the shopfloor?</p> <p><input type="checkbox"/> Managers make all the decisions</p> <p><input type="checkbox"/> Managers make most of the decisions</p> <p><input type="checkbox"/> Decision making is about equal</p> <p><input type="checkbox"/> Workers make most of the decisions</p> <p><input type="checkbox"/> Workers make all the decisions</p> <p><input type="checkbox"/> Customer demand determines pace</p>	
<p>j) To hire a FULL-TIME PERMANENT SHOPFLOOR worker what agreement would your plant need from CHQ?</p>			
<p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>Score 1: No authority – even for replacement hires</p>	<p>Score 3: Requires sign-off from CHQ based on the business case, but is typically agreed (i.e. 80-90% of the time)</p>	<p>Score 5: The plant has complete authority</p>
<p>k) What is the largest CAPITAL INVESTMENT your plant could make without PRIOR authorization from CHQ? (<i>ignore form filling</i>) [PLEASE CROSS CHECK ANY ZERO RESPONSE BY ASKING "what about buying a new computer - would that be possible?", and then probe... _____]</p>			
<p>l) Where are decisions taken on new product introductions - at the plant, at the CHQ or at both?</p>			
<p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>Score 1: All new product introduction decisions taken at CHQ.</p>	<p>Score 3: New product introductions are jointly determined by the plant and CHQ.</p>	<p>Score 5: All new product introduction decisions take place at the plant level.</p>

<p>m) How much of sales and marketing is carried out at the plant level (rather than at CHQ)?</p>			
<p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>	<p>Score 1: None- sales and marketing is all at CHQ.</p>	<p>Score 3: Sales and marketing decisions are split between plant and CHQ.</p>	<p>Score 5: The plant runs all sales and marketing.</p>
<p>n) Is CHQ on the site being interviewed? _____</p> <p>o) How many production sites in the firm? _____</p> <p>p) How many production sites are abroad? _____</p> <p>q) What percent of production is outsourced? _____</p> <p>r) What percent of production is exported? _____</p>	<p>s) How has the credit crunch impacted the way you manage your firm, if at all?</p> <p>Cost Cutting _____</p> <p>Changed Product Mix _____</p> <p>Reduced Employment Levels _____</p> <p>Reduced Investment _____</p> <p>Cut Prices _____</p> <p>Any Other? _____</p>		
Ownership			
<p>a) Who ultimately owns the firm (the single largest shareholding block)? If multinational who owns the parent firm in the home country?  <i>If no entity owns more than 25% of the shares, tick the "Dispersed Shareholder" box</i></p> <p><input type="checkbox"/> Founder    <input type="checkbox"/> Family (+2<sup>nd</sup> gen)    <input type="checkbox"/> Private Individuals    <input type="checkbox"/> Managers</p> <p><input type="checkbox"/> Dispersed Shareholders    <input type="checkbox"/> Private Equity or Venture Capital</p> <p><input type="checkbox"/> Joint Venture    <input type="checkbox"/> Government    <input type="checkbox"/> Other _____</p> <p>b) Has ownership changed in the last 3 years?      Yes <input type="checkbox"/> No <input type="checkbox"/> -99 <input type="checkbox"/>            If changed, who owned the firm 3 years ago?</p> <p><input type="checkbox"/> Founder    <input type="checkbox"/> Family (+2<sup>nd</sup> gen)    <input type="checkbox"/> Private Individuals    <input type="checkbox"/> Managers</p> <p><input type="checkbox"/> Dispersed Shareholders    <input type="checkbox"/> Private Equity or Venture Capital</p> <p><input type="checkbox"/> Joint Venture    <input type="checkbox"/> Government    <input type="checkbox"/> Other _____</p>		<p>c) Is the firm owned by a foreign Multinational?      Yes <input type="checkbox"/> No <input type="checkbox"/> -99 <input type="checkbox"/>            If yes, which country is the Multinational from? _____</p> <p><i>Ask only if family/founder owns (or owned the firm 3 years ago)</i></p> <p>d) Is a family member CEO?      Yes <input type="checkbox"/> No <input type="checkbox"/> -99 <input type="checkbox"/></p> <p>e) Which generation? _____</p> <p>f) How many family members are working in management in the firm? _____</p> <p>g) When CEO control was passed down through the family was it given to the oldest son?      Yes <input type="checkbox"/> No <input type="checkbox"/> -99 <input type="checkbox"/></p>	

Human Resources/ Constraints on Management	
<p><i>Managers are individuals with line control of others - i.e. they direct their work and help set their pay</i></p> <p style="text-align: center;"><b>Managers Non-Managers</b></p> <p>a) Percent of employees who are _____</p> <p>b) Percent with a college degree _____</p> <p>c) Average actual hours worked per week _____</p> <p>d) Percent of managers who have left in the last 12 months (in plant) _____</p> <p>e) Percent employees who are union members _____</p> <p>f) Roughly how many times bigger is the CEO salary than a standard shopfloor salary. That is, does the CEO earn twice as much, ten times as much, or 100 times as much?            _____            Refused to answer: Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>g) Ignoring yourself, how well managed do you think the rest of the company is on scale: 1 to 10, where 1 is worst practice, 10 is best practice and 5 is average</p> <p>Overall _____</p> <p>Operations (production processes) _____</p> <p>Talent (people, promotions, incentives, etc.) _____</p> <p>Would you like me to send you a copy of this report when it is written? Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p><b>Constraints on Management:</b></p> <p>h) We have been discussing different aspects of management within your firm, looking back what do you think might constrain improving any of your management practices? For example, I will go through a few options, and could you tell me if these are a major, a minor obstacle or not an obstacle at all?</p> <p>Hiring managers with the right skills:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Hiring non-managers with the right skills:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Employment laws and regulations:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Trade unions:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Obtaining cost-effective management consultancy:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Knowing what new management practices to introduce:            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p> <p>Any Other? _____            Not an obstacle <input type="checkbox"/> Major Obstacle <input type="checkbox"/> Minor Obstacle <input type="checkbox"/></p>

Post - Interview			
a) Interview duration (minutes) _____			
b) Interviewee knowledge of management practices			
Score:	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>	Score 1: Some knowledge his site, and no knowledge about the rest of the firm	Score 3: Expert knowledge his site, and some knowledge about the rest of the firm
		Score 5: Expert knowledge about his site and the rest of the firm	
c) Interviewee willingness to reveal information			
Score:	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>	Score 1: Very reluctant to provide more than basic information	Score 3: Provides all basic information and some more confidential information
		Score 5: Totally willing to provide any information about the firm!	
d) Interviewee patience			
Score:	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>	Score 1: Little patience - wants to run the interview as quickly as possible. I felt heavy time pressure.	Score 3: Some patience - willing to provide richness to answers but also time constrained. I felt moderate time pressure
		Score 5: Lot of patience - willing to talk for as long as required. I felt no time pressure.	
e) Number of times mentioned the environment _____		Attitude on the environment (if mentioned)	
Score:	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/>	Score 1: Environmental Regulations seen entirely as a hindrance - bad for the firm	Score 3: Good environment important but also a constraint - mixed for the firm
		Score 5: Good environment very important and takes priority over other objectives - good for the firm	
f) Number of times rescheduled (0=never rescheduled) _____		j) Did the interviewee have a degree - guess if not told _____	
g) Seniority of interviewee		k) Manager studied abroad Yes <input type="checkbox"/> No <input type="checkbox"/>	
<input type="checkbox"/> Director <input type="checkbox"/> VP/General Manager <input type="checkbox"/> Plant of Factory Manager <input type="checkbox"/> Manufacturing/Production Manager <input type="checkbox"/> Technician		l) Interview language	
h) Age of interviewee (don't ask) - guess if not told _____			
i) Gender of interviewee			
		Male <input type="checkbox"/> Female <input type="checkbox"/>	

## 10 Appendix B: Letter of endorsement from the Manufacturing Circle

<p>2 June 2015</p> <p>Dear Manufacturer</p> <p><b>Request for Assistance in an MBA Research Project: Ms Nkae Mocumi</b></p> <p>We hereby request your assistance to participate in an MBA research project on manufacturing by Ms Nkae Mocumi. Ms Mocumi is an MBA candidate at the Gordon Institute of Business and is looking to conduct research into management practises in manufacturing firms.</p> <p>Her research will focus particularly on understanding how management practices differ across firms, looking specifically at the institution of programmes such as lean manufacturing, to ensure quality management, performance management, talent management and so forth.</p> <p>Ms Mocumi proposes gathering data through interviews with plant level / production managers whom she would be asking open-ended questions about management practices that they have adopted and the reasons behind that adoption or lack thereof. She anticipates that the interviews would take about 1hr - 1.5hrs.</p> <p>The Manufacturing Circle endorses the research effort and would like to request the assistance of manufacturers, both those who are members of the Manufacturing Circle and those who are not, to assist Ms Mocumi as far as possible to gain access to the correct individuals to conclude her research.</p> <p>Ms Mocumi has in return promised to make available a copy of her report and findings to participants, as well as to the Manufacturing Circle for distribution to its members.</p> <p>Sincerely,</p> <p></p> <p><b>COENRAAD BEZUIDENHOUT</b> Executive Director: Manufacturing Circle</p>	 <p>Manufacturing Circle c/o VDW &amp; Co PO Box 868 Femdale 2160 Tel: +27 11 061 5000 Mobile: +27 92 074 9692 e-mail: <a href="mailto:coenraadbez@gmail.com">coenraadbez@gmail.com</a></p>
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## 11 Appendix C: Ethical clearance

### **Gordon Institute of Business Science** University of Pretoria

Dear Nkae Mocumi

Protocol Number: **Temp2015-00993**

Title: **The impact and importance of management practices on firm productivity.**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

GIBS Ethics Administrator

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