

Methods to Improve Morale in State Owned Entities' Technical Departments

by
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Engineering (Engineering Management) in the Faculty of Engineering at
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Declaration

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Abstract

Methods to Improve Morale in State Owned Entities' Technical Departments

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Physical asset management entails the optimal utilisation of assets to meet a company's goals. Substantial studies have been conducted into most aspects of asset management. However, what is seldom discussed is the effectiveness and productivity of the tradesmen maintaining assets, and the impact of this on employee morale. The morale, teamwork ability and skills of maintenance teams will determine whether the organisation can practice effective asset management. This problem is escalated in South African State-Owned Entities (SOE), as these organisations are under pressure to reduce cost and increase performance. In addition to this, SOEs are often discussed and criticised in the media.

In existing literature, there is very little evidence of studies performed in a technical department, and none that focus on SOEs within South Africa, though similar studies have been conducted in other industries within developed countries. From the literature review, it is evident that monetary methods of morale improvement have not been effective in improving employee morale in a sustainable way. The literature review identified numerous morale improvement methods that have been successfully implemented. The goal of this study is to determine which of these methods are relevant to South African SOEs.

An exploratory, sequential, mixed-method research approach is followed with a pragmatic worldview. The first phase of this project entails the use of qualitative research through the means of a literature review. The second phase entails the quantitative data collection and analysis, using the survey questionnaire. The third phase entails the development and qualitative review using interviews of a quantitative Decision Support System (DSS).

Three SOEs participated in the study. Survey questionnaires, developed as part of this study, are utilised to identify and measure the factors affecting employee morale. Using regression analysis, it is found that no one model represents the relationship between employee morale and the factors affecting morale for the three organisations. A DSS is developed to be utilised to identify the significant morale affecting factors per

organisation. The DSS is then validated, first using face validation, subsystem verification, and validation, and finally user assessment. The user assessment is conducted using interviews.

The morale improvement DSS entails a questionnaire that can be completed by employees at a predetermined interval. The completed questionnaires are then captured in the DSS and the analysis is initiated. The output of the DSS is a report that provides the morale score, morale affecting factors in orders of significance, score per morale effecting factor, and morale score per demographic group. The validation process finds the morale improvement DSS to be valid, and that it assists in resolving an existing industry problem.

Uittreksel

Metodes om Werknemer Moraal te Verbeter in Ondernemings in Staatsbesit se Tegniese Departemente

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Fisiese batebestuur behels die optimale benutting van bates om 'n maatskappy se doelwitte te bereik. Daar is etlike studies gedoen oor die meeste aspekte van fisiese batebestuur. Wat egter selde bespreek word, is die doeltreffendheid en produktiwiteit van ambagsmanne wat die bates onderhou en die impak van die moraal van werknemers daarop. Die moraal, die vermoë tot spanwerk en die vaardighede van instandhoudingspanne sal bepaal of die organisasie effektiewe fisiese batebestuur kan beoefen. Hierdie probleem word in Suid-Afrikaanse Ondernemings in Staatsbesit (SOE) vererger, aangesien hierdie organisasies konstant onder druk verkeer om kostes te verminder en produktiwiteit te verhoog. Verder word SOE dikwels in die media bespreek en gekritiseer.

In die bestaande literatuur is daar min studies wat in 'n tegniese industrie gedoen is en geen wat op SOE in Suid-Afrika fokus nie, alhoewel soortgelyke studies wel in ander nywerhede in ontwikkelde lande gedoen is. Uit die literatuurroorsig blyk dit dat monetêre metodes om moraal te verbeter nie effektief is om uiteindelik die moraal van werkers op volhoubare wyse te verbeter nie. Die literatuurroorsig het talle moraal verbeterings metodes geïdentifiseer wat suksesvol geïmplementeer is. Die doel van hierdie studie is om te identifiseer watter van hierdie metodes relevant is vir Suid-Afrikaanse SOE.

'n Verkennende opeenvolgende gemengde metode navorsingsbenadering word gevolg met 'n pragmatiese wêreldbeskouing. Die eerste fase van hierdie projek behels die gebruik van kwalitatiewe navorsing deur middel van 'n literatuurroorsig. Die tweede fase behels die kwantitatiewe data-insameling en analise deur die opname-vraelys te gebruik. Die derde fase behels die ontwikkeling en kwalitatiewe hersiening deur gebruik te maak van onderhoude oor 'n kwantitatiewe Besluitondersteuningsstelsel (DSS).

Drie SOE het aan die studie deelgeneem. Opname vraelyste, wat as deel van hierdie studie ontwikkel is, word aangewend om die faktore wat die moraal van werknemers beïnvloed te identifiseer. Met behulp van regressie-analise word gevind dat geen enkele model die verhouding tussen die moraal van werknemers en die faktore wat die moraal vir die drie organisasies beïnvloed, verteenwoordig nie. 'n DSS is ontwikkel om gebruik

te word om die beduidende faktor wat moraal in elkeen van die drie organisasies beïnvloed, te identifiseer. Die DSS word dan eers met behulp van gesigvalidasie, subsisteem verifikasie en validasie en uiteindelik gebruikersbeoordeling gevalideer. Laasgenoemde word gedoen deur onderhoude te gebruik.

Die moraalverbetering DSS behels 'n vraelys wat werknemers tydens 'n voorafbepaalde periode kan voltooi. Die voltooide vrae word dan in die DSS vasgevang en die ontleding word afgeskop. Die uitset van die DSS is 'n verslag wat die volgende aandui: moraaltelling en faktore wat moraal beïnvloed; telling per faktor wat moraal beïnvloed; en moraal-telling per demografiese groep in 'n beduidende volgorde. Die proses van validasie bepaal dat die moraalverbetering DSS geldig is en dat dit bydra om 'n bestaande bedryfsprobleem op te los.

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- The anonymous participants* at each of the SOE, who provided their time to participate in surveys and interviews, and especially for their frank honesty.
- My friends and family, for their understanding and support.
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The Author

November 2018

* The representatives cannot be named to ensure the anonymity of the organisation and participants.

Dedication

*This thesis is dedicated firstly to my husband
without whose constant support and encouragement
I would not be where I am today
and secondly to my brother,
my angel,
who in both life and memory
has always ensured I never give up.*

Table of Contents

Declaration	i
Abstract	ii
Uittreksel	iv
Acknowledgements	vi
Dedication.....	vii
Table of Contents	viii
List of Figures	xii
List of Tables	xiv
List of Acronyms	xvi
Chapter 1. Introduction.....	1
1.1 Theoretical Background	1
1.2 Research Problem Statement and Research Questions	3
1.3 Research Objectives	3
1.4 Research Design and Methodology Overview	4
1.5 Delimitations and Limitations	5
1.6 Outline and Research Study	6
1.7 Chapter Summary	7
Chapter 2. Theory and Literature Analysis.....	8
2.1 Morale, Employee Engagement and Job Satisfaction	8
2.1.1 Defining Morale.....	9
2.1.2 Defining Employee Engagement	11
2.1.3 Defining Job Satisfaction.....	12
2.2 Business Impact of Low Morale.....	12
2.3 Measures of Morale	14
2.4 Morale Studies Conducted and their Findings.....	16
2.5 Causes of Low Morale	17
2.5.1 External Factors that Influence Morale	17
2.5.2 Organisational Causes	18
2.5.3 Management Causes.....	21
2.6 Methods of Improving Morale.....	23
2.6.1 Monetary Methods of Improving Morale	23
2.6.2 Non-Monetary Methods of Improving Morale	24
2.6.3 Summary.....	31
2.7 Change Management.....	31
2.8 Link Between Morale and Maintenance	33
2.9 Study Methods Used in Literature	34
2.10 Defining SOE.....	35
2.11 Chapter Summary	37
Chapter 3. Research Design and Methodology.....	38
3.1 Research Approach Selection	38
3.1.1 Philosophical Worldview.....	39
3.1.2 Research Design.....	40

3.1.3	Research Methodology	41
3.2	Chapter Summary	42
Chapter 4.	Morale Survey and Analysis	43
4.1	Questionnaire Considerations	43
4.1.1	Question Length	44
4.1.2	Question-Wording	44
4.1.3	Question Type	45
4.1.4	Question Order	45
4.1.5	Survey Medium Selection	46
4.1.6	Middle Alternative	46
4.2	Questionnaire Development	46
4.2.1	Exploration	47
4.2.2	Question Creation	47
4.2.3	Repeated Questions	47
4.2.4	Pretesting	47
4.2.5	Final Questionnaire	48
4.3	Data Collection Procedure	48
4.4	Quantitative Data Analysis	49
4.4.1	Sample Design	51
4.4.2	Data Management	51
4.4.3	Descriptive Statistics	57
4.4.4	Correlation Analysis	65
4.4.5	Statistical Test of Hypothesis	69
4.4.6	Statistical Modelling	71
4.5	Qualitative Data Analysis	80
4.5.1	Measure of Satisfaction	81
4.5.2	Evaluation of Work Environments	81
4.5.3	Impact of Budget Availability	83
4.5.4	Recommendation of Organisation	85
4.5.5	Motivation to Work Harder	85
4.5.6	Improvement to Work Environment	87
4.6	Chapter Summary	88
Chapter 5.	Morale Improvement Decision Support System	91
5.1	DSS Design	91
5.1.1	Output of DSS	93
5.1.2	DSS Requirements	93
5.1.3	Construction of the DSS	93
5.1.4	DSS Structure	98
5.2	Validation Considerations	101
5.2.1	Validation Process	101
5.2.2	Interview Design	103
5.3	Validation Procedure	106
5.3.1	Face Validation	107
5.3.2	Subsystem Verification and Validation	107
5.3.3	User Assessment	109
5.4	Final DSS	114
5.5	DSS Implementation Considerations	115
5.6	Chapter Summary	116
Chapter 6.	Conclusions and Recommendations	117
6.1	Research Overview	117

6.2	Contributions to Practice and Theory	120
6.3	Research Limitations.....	121
6.4	Recommendations and Future Research	122
6.5	Concluding Remarks.....	123
Chapter 7.	References	125
Appendices	129
Appendix A	Morale Survey.....	130
Appendix A.1.	Morale Questionnaire.....	130
Appendix B	Ethical Approval	136
Appendix B.1.	Initial REC Approval	136
Appendix B.2.	Amended REC Approval.....	139
Appendix B.3.	Participant Consent Form.....	142
Appendix C	SOE Correspondence.....	145
Appendix C.1.	Initial Email Template Used.....	145
Appendix C.2.	Application Letter	147
Appendix C.3.	Permission Letter	149
Appendix D	Analysis Results	150
Appendix D.1.	Data Capturing Format.....	150
Appendix D.2.	Data Processing Format	152
Appendix D.3.	Question Constructs and Dimensions	153
	Satisfaction.....	153
	Result of Morale.....	154
	Factors Affecting Morale.....	155
Appendix D.4.	Histogram per category.....	160
	Morale and Satisfaction	160
	Factors Affecting Morale.....	161
	Factors Affecting Morale.....	161
Appendix D.5.	Spearman Correlation Coefficient	164
Appendix D.6.	Regression Analysis per Organisation	166
Appendix D.7.	Factor Analysis	168
	Morale Score, Morale Measure, Results and Factors Factor Analysis	168
	Morale Score and Factors Factor Analysis	169
Appendix D.8.	Analysis of Variance.....	170
	ANOVA Factors to Improve Feeling Towards Work	170
	ANOVA for Factors to Encourage Employees to Work Harder	176
Appendix F	DSS.....	182
Appendix F.1.	Excel Vba Code.....	182
Appendix F.2.	DSS Survey Questionnaire.....	187
Appendix F.3.	DSS Output Report.....	192
Appendix F.4.	Excel Tool Activation Instructions.....	197
Appendix G	Face Validation Results	201
Appendix H	User Assessment Interview.....	203
Appendix H.1.	Interview Guide	203
1.	Process Overview.....	203
2.	Introduction	203
3.	Model Need Evaluation.....	204
4.	Validation of Research Done.....	204
5.	Organisation Specific Questions	205
Appendix H.2.	Interview Results	207
	Organisation A Engineering Manager.....	207

TABLE OF CONTENTS

xi

Organisation A Technical Manager	209
Organisation A HR Representative	212
Organisation B Engineering Manager	215
Organisation B Technical Manager	218
Organisation B HR Representative	221

List of Figures

Figure 1-1: Broad overview of the research approach	5
Figure 1-2: Study roadmap	6
Figure 2-1: McKinsey quarterly survey results (adapted from Dewhurst et al. (2009))	24
Figure 3-1: A framework for research (adapted from Creswell (2013))	39
Figure 3-2: Research process followed	42
Figure 4-1: Actual verse expectation trend line	56
Figure 4-2: Boxplot of survey results.....	60
Figure 4-3: Median response per organisation.....	60
Figure 4-4: Factors to improve participants feeling towards work	64
Figure 4-5: Factors to encourage participants to work harder	65
Figure 4-6: Construct correlation network diagram.....	67
Figure 4-7: Tree diagram cluster analysis	67
Figure 4-8: Morale score primary correlations	69
Figure 4-9: Absolute regression coefficient per organisation	75
Figure 4-10: Morale score, morale measure, results and factors scree plot.....	77
Figure 4-11: Morale score, morale measure, results and factors biplot	78
Figure 4-12: Morale score and factors scree plot.....	79
Figure 4-13: Morale measure and results biplot	79
Figure 4-14: Measure of satisfaction.....	82
Figure 4-15: Positive aspect of work environment	83
Figure 4-16: Negative aspect of work environment.....	84
Figure 4-17: Impact of budget availability	84
Figure 4-18: Recommendation of organisation as a good place to work	85
Figure 4-19: Motivation to work harder	86
Figure 4-20: Factors affecting work environments	87
Figure 5-1: DSS logical design.....	95
Figure 5-2: Survey capture tip	96
Figure 5-3: Invalidated entry message	96

Figure 5-4: Instruction worksheet.....	98
Figure 5-5: Extract of the Capture Survey worksheet.....	99
Figure 5-6: Analysis progress feedback.....	99
Figure 5-7: Analysis completion response.....	99
Figure 5-8: Extract of the Results worksheet.....	100
Figure 5-9: DSS Development Life Cycle.....	104
Figure D-1: Histogram for morale score.....	160
Figure D-2: Histogram per satisfaction measure.....	160
Figure D-3: Histogram per results of morale.....	161
Figure D-4: Histogram per morale factor.....	161

List of Tables

Table 3-1: Alternative research designs (adapted from (Creswell, 2013)).....	41
Table 4-1: Participants per organisation.....	49
Table 4-2: Negative questions	53
Table 4-3: Construct definitions	55
Table 4-4: Survey descriptive statistics	58
Table 4-5: Normality test, in descending order	59
Table 4-6: Construct average per organisation	63
Table 4-7: Variables with strong correlations.....	66
Table 4-8: Regression analysis	72
Table 4-9: PLS regression analysis using morale measures	73
Table 4-10: PLS regression analysis variable importance using morale measures	74
Table 4-11: PLS regression analysis using morale score	74
Table 4-12: PLS regression analysis variable importance using morale score.....	75
Table 4-13: Top factors from PLS regression analysis per organisation.....	75
Table 4-14: Summary of factor importance per analysis method	76
Table 4-15: Discriminant function analysis.....	80
Table 4-16: Squared Mahalanobis distances per organisation.....	80
Table 5-1: DSS Worksheets	100
Table 5-2: Summary of analysis results importance rating	108
Table 5-3: Interview participants per organisation	109
Table 5-4: Interview results	113
Table D-1: Data capturing format.....	151
Table D-2: Data processing format	152
Table D-3: Contracts of factors to measure of employee morale	153
Table D-4: Contracts of factors to measure results of low morale.....	154
Table D-5: Contracts of factors to measure the factors affecting morale.....	155
Table D-6: Spearman correlation coefficient.....	165
Table D-7: Regression analysis for Organisation A.....	166

Table D-8: Regression analysis for Organisation B.....	166
Table D-9: Regression analysis for Organisation C.....	166
Table D-10: Regression analysis per organisation.....	167
Table D-11: Morale score, morale measure, results and factors factor analysis loadings	168
Table D-12: Morale score and factors factor analysis loadings.....	169
Table D-13: Evaluate the variance between improved feeling and morale score.....	170
Table D-14: Evaluate the variance between improved feeling and job satisfaction	171
Table D-15: Evaluate the variance between improved feeling and organisational satisfaction.....	172
Table D-16: Evaluate the variance between improved feeling and employee engagement.....	173
Table D-17: Evaluate the variance between improved feeling and staff turn over.....	174
Table D-18: Evaluate the variance between improved feeling and hard work.....	175
Table D-19: Evaluate the variance between working harder and morale.....	176
Table D-20: Evaluate the variance between working harder and job satisfaction.....	177
Table D-21: Evaluate the variance between working harder and organisational satisfaction.....	178
Table D-22: Evaluate the variance between working harder and employee engagement	179
Table D-23: Evaluate the variance between working harder and staff turn over.....	180
Table D-24: Evaluate the variance between working harder and hard work and morale	181
Table G-25: Questions to gauge expectations.....	201
Table G-26: Questions to evaluate the process.....	202
Table H-27: Interview Responses: Organisation A Engineering Manager.....	207
Table H-28: Interview Responses: Organisation A Technical Manager.....	209
Table H-29: Interview Responses: Organisation A HR Representative.....	212
Table H-30: Interview Responses: Organisation B Engineering Manager.....	215
Table H-31: Interview Responses: Organisation B Technical Manager.....	218
Table H-32: Interview Responses: Organisation B HR Representative.....	221

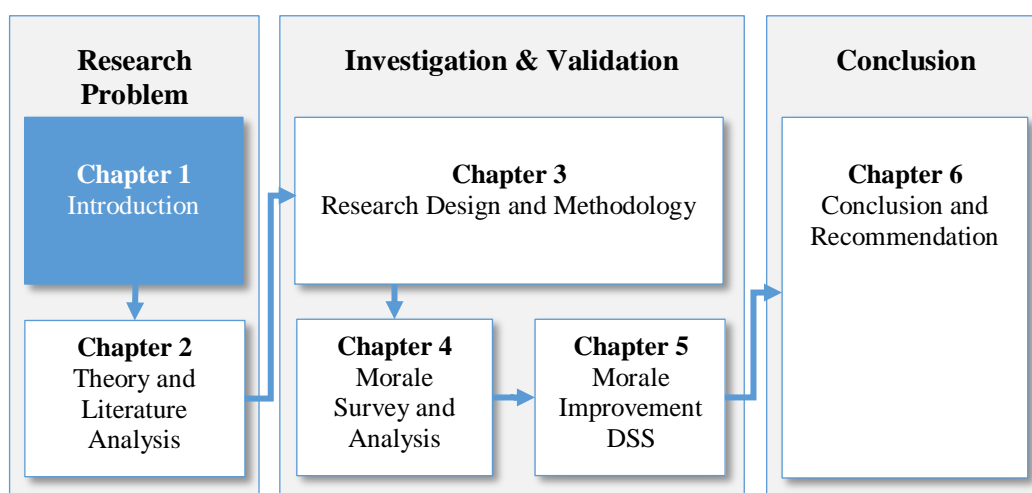
List of Acronyms

ACSA	Airports Company South Africa
AIM	Ambassadors in Management
ANOVA	Analysis of Variance
CSV	Comma-separated values
DSS	Decision Support System
EDP	Electronic Data Processing
HR	Human Relations *
ICT	Information and Communications Technology
IDC	Industrial Development Corporation
IT	Information Technology
IUDF	Integrated Urban Development Framework
IS	Information System
KPI	Key Performance Indicators
MAR	Missing at Random
MCAR	Missing Completely at Random
MIS	Management Information Systems
MRA	Multiple Regression Analysis
NDP	National Development Plan
NHS	National Health Service
NMAR	Not Missing at Random
OECD	Organisation for Economic Co-operation and Development
PLS	Partial Least-Squares
PRASA	Passenger Rail Agency of South Africa
REC	Research Ethics Committee
SPLUMB	Land Use Management Bill
SOE	State Owned Entity
V&V	Verification and Validation

* Also refers to Human Relations Departments

Chapter 1. Introduction

The objective of this chapter is to explain the research background and imperatives. This chapter starts with a roadmap of the document, explaining the logical flow used and noting where this chapter is located in the flow. This is followed by the theoretical background required to understand the research problem, and an explanation of the research problem. This chapter further provides an overview of the process used to undergo the research required to identify and validate a solution for the research problem. The delimitations and limitations for the project also discussed. The chapter concludes with a discussion of what can be expected in each chapter.



1.1 Theoretical Background

The understanding of asset management has changed as the discipline matured since the 1990s. Asset management is less concerned with “doing things with assets” than it is with using the assets to achieve a company’s goals (The Institute of Asset Management, 2012). Developing and choosing the best asset management strategy is a well-established study field, but it is important to remember how the actual (physical) work is done. Work is done not by the strategy, but by employees themselves. The morale, teamwork ability, and skills of maintenance teams determine whether an organisation can practice effective asset management (The Institute of Asset Management, 2012).

South Africa currently faces skills shortage of critical professions. A report released by the South African Department of Labour discussing the skill shortage in South Africa, states that there is a substantial shortage of skilled employees in all engineering professions and artisanal trades (Department of Labour Republic of South Africa, 2015).

These employees also lack the required management skills and experience. The shortage of qualified employees in the engineering professions often result in engineering and technologists performing jobs more suited to the other discipline, where for example, in the private sector, it is found that engineers perform tasks traditionally performed by technologists that remain scarce.

In contrast, in State Owned Entities (SOE), the study finds that technologists now perform tasks traditionally performed by engineers (Department of Labour Republic of South Africa, 2015). The Presidency (2013) green paper explains that the state partially or wholly owns an SOE. The SOE of a commercial nature could be referred to as government-owned business, government-linked company or parastatal. The legal status of these companies varies from being part of the government, to being a private company with the government as its shareholder.

The shortage of artisans is a result of the reduction of the apprenticeship programmes offered by SOEs, as explained by the Department of Labour Republic of South Africa (2015). These programmes were stopped or reduced when the SOEs were required to reduce their operating cost, due to privatisation, and meeting the demands of more competitive markets. To meet the economic demand, SOEs need to overcome the skills shortages. Many SOEs in South Africa has suffered due to the shortage of required skills in technical departments and at all other employment levels. Since artisanal trades represent scarce skills in South Africa (Department of Labour Republic of South Africa, 2015), the retention of these employees are crucial for sustaining the necessary workforce requirements, as well as to ensure the quality of the work completed. These are also the employees who will mentor future apprentices.

Forward-thinking companies have changed their focus to determine what motivates and inspires their employees and act accordingly (Dewhurst, Guthridge & Mohr, 2009). This is done to get the most out of their employees, without requiring substantial financial investment.

Ranganayakulu (2005) states that the success of an organisation depends mostly on human factors. People are viewed as the life organ of an organisation, which requires better management than its other aspects.

During the preliminary literature review, it was found that various case studies have been conducted in different industries, but that none of the studies focused on the engineering industry, or on the context of maintenance or asset management. Since people are an essential part of ensuring quality asset management, it is beneficial to companies and organisations for this knowledge gap to be filled (Cunningham & Hyman, 1996; Linz, Good & Huddleston, 2006; McPherson, 2008; Pollitt, 2007, 2008a,b; White, 2014). Completed employee morale has proven to be a common problem between the maintenance departments of SOEs, where the low morale of maintenance teams is an obstacle to improving the performance of these departments. Following discussions with managers in these organisations, these constitute a trend that warrants further research (Eventful Group, 2015).

1.2 Research Problem Statement and Research Questions

There is a perceived lack of the quality of maintenance work that is performed within SOEs (Ovens, 2015). These entities are currently experiencing challenges while being scrutinised by Government and the general public, due to certain consequential failures that have occurred, as well as for increasing operating cost. A contributing factor in this regard is the morale of the employees responsible for keeping the asset base operating.

The preliminary literature review suggests that there is no proven methodology for improving the employee morale of the personnel in the technical departments of SOEs. SOEs are further challenged by regular budget cuts, in a drive to reduce spending.

In summary, the problem is that: **there is no proven methodology that can be implemented in South African SOEs to improve employee morale.** This research aims to resolve this problem by addressing the following research questions:

1. How can employee morale be measured?
2. What are the theoretical causes of low morale?
3. Do maintenance employees in SOEs have low morale and what are the causes?
4. Does employee morale affect performance?
5. What methods of morale improvement will be most effective in South African SOEs?

By answering these research questions, the study aims to develop a Decision Support System (DSS) that can be implemented in SOEs to improve the morale of the employees in technical departments.

This research will mostly benefit companies with large maintenance teams that struggle with low employee morale and high absenteeism levels. As seen in the preliminary literature review, implementing a morale improvement strategy is likely to improve the effectiveness of the department without increasing departmental expenses. This is achieved by reducing the absenteeism levels and improving the quality of work. The beneficiaries of this study are technical managers and engineering managers of the SOE's technical departments, as well as those responsible for the recruitment and training of these managers.

1.3 Research Objectives

The primary objective of this research is to develop a DSS that can be implemented in SOEs to improve employee morale. The following secondary objectives support the primary objective:

1. determine how employee morale is measured;
2. determine the theoretical factors affecting employee morale;
3. determine what methods of employee morale improvement have been successful in other industries;
4. quantify the morale in technical departments of SOEs;

5. determine the leading factors affecting employee morale within SOE's maintenance departments;
6. develop a morale improvement DSS; and
7. validate the developed morale improvement DSS.

Objective one to three are completed through the literature analysis and will be discussed in Chapter 2. The study will achieve objective four and five by the analysis of surveys conducted in maintenance departments. This information, along with the understanding obtained from the literature analysis, is used to develop the DSS referred to in Objective Six. Finally, interviews are utilised to validate the DSS to achieve Objective Seven.

1.4 Research Design and Methodology Overview

The research follows an *exploratory sequential mixed method* design. The research approaches that are used in the study include a comprehensive qualitative literature analysis, quantitative surveys to obtain workplace morale information, and finally qualitative interviews to validate the proposed DSS. Figure 1-1 shows a broad overview of the process that is followed.

The research strategy will start with a detailed qualitative literature review so as to determine the aspects that result in low employee morale, and the methods that companies use to improve morale. The goal of the review is to determine what has been done and to ascertain relevant gaps in the literature.

The focus of the study is confined to the maintenance or technical departments in South African SOEs. This study entails a quantitative survey questionnaire that is distributed to maintenance teams within these organisations. A hard copy survey is used, since the majority of the participants may not have access to computers during their workday. The survey utilises a Likert scale design, asking participants how strongly they agree or disagree with statements (Bryman, 2016). This survey is focused on identifying the factors affecting morale in the department, and what participants feel will have the most significant impact on improving their morale. A convenience sample of Western Cape SOEs has been approached to participate in the surveys. The use of hard copy surveys requires the researcher to distribute and collect the surveys to the different teams.

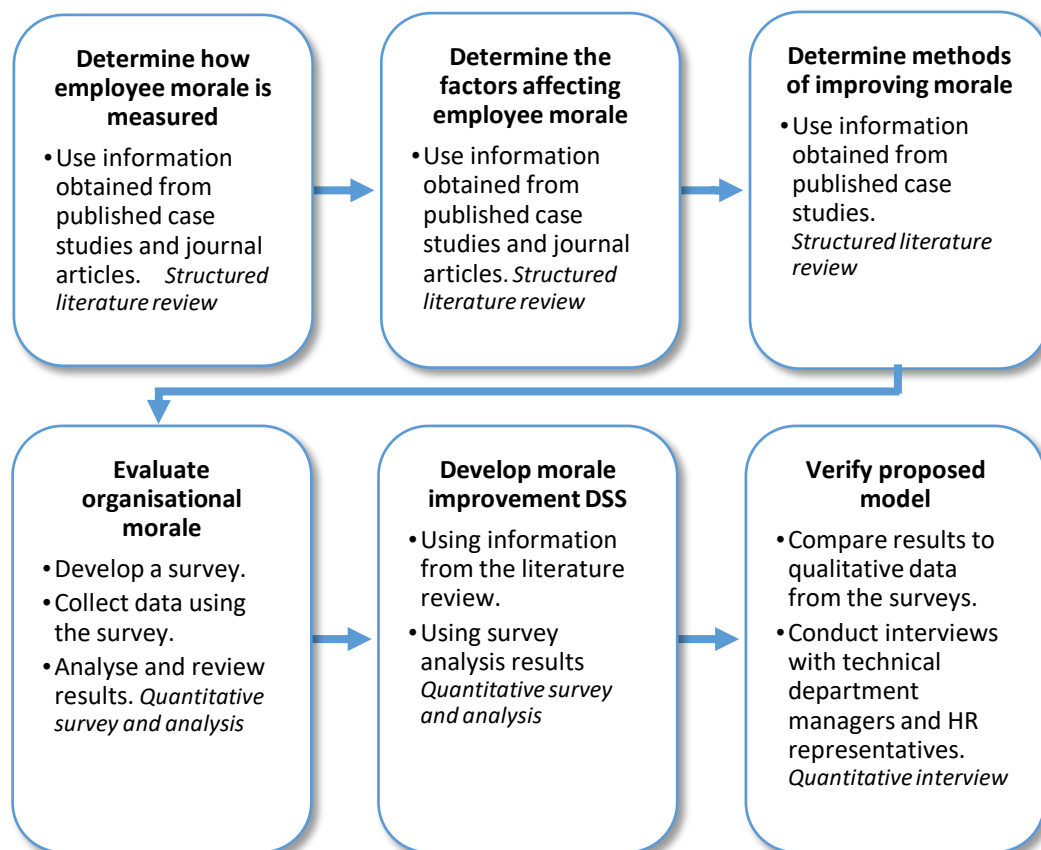


Figure 1-1: Broad overview of the research approach

A proposed morale improvement DSS is developed based on the survey analysis. This DSS is validated using qualitative interviews with heads of departments, technical managers, and HR representatives (Bryman, 2016).

1.5 Delimitations and Limitations

This study focuses on non-monetary methods of improving morale, since the implementation of monetary reward systems require additional funding and support from top management, and could be problematic when taking the current economic climate into account. The study is therefore limited to non-monetary methods of improving morale, which follows the trend of companies around the world who are reducing their financial incentive programmes (Dewhurst et al., 2009). It is assumed that the study participants have satisfactory salaries, in other words, they have sufficient income to cover the monthly household expenses. Furthermore, the study is limited to only workshop or maintenance personnel. Management level employees are excluded.

1.6 Outline and Research Study

The first two chapters cover the theoretical aspects of the study. Chapter One defines the research problem, while Chapters 2 discusses the theoretical knowledge available at the time of this study. Chapters 3 to 5 discuss the processes used and the results obtained from the engagement with industry. Finally, a conclusion is drawn in Chapter 6. Figure 1-2 shows the study roadmap.

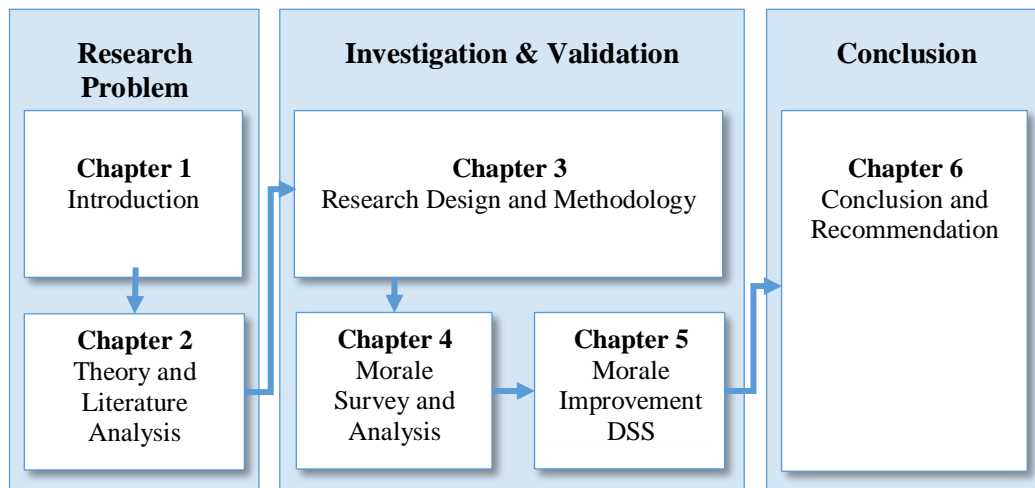


Figure 1-2: Study roadmap

Chapter 1: Provides a brief background to the study, and identifies the research problem and objectives. This chapter provides a brief overview of the research method utilised to resolve the research questions and objects. This chapter is then concluded with a discussion of the limitations and delimitations of the study.

Chapter 2: Provides a detailed literature analysis of the theory related to the research. This includes the impact of low morale within companies, a measure of morale, the cause of morale, methods of improving morale and the link between morale and maintenance. This section covers the theoretical knowledge that is needed to complete the study.

Chapter 3: This chapter discusses the research method that was used to achieve each objective and the reason for the selection.

Chapter 4: This chapter covers the development of the morale survey. This chapter includes the development of the survey, the process used to distribute the survey and obtain results from participants. This is followed by a discussion and analysis of the results. Finally, the chapter concludes with a discussion of the problems encountered.

Chapter 5: This chapter covers the development of the decision-making framework. The chapter starts with a discussion of the proposed framework, followed by an explanation of the process followed to validate the framework and concludes with the validation results.

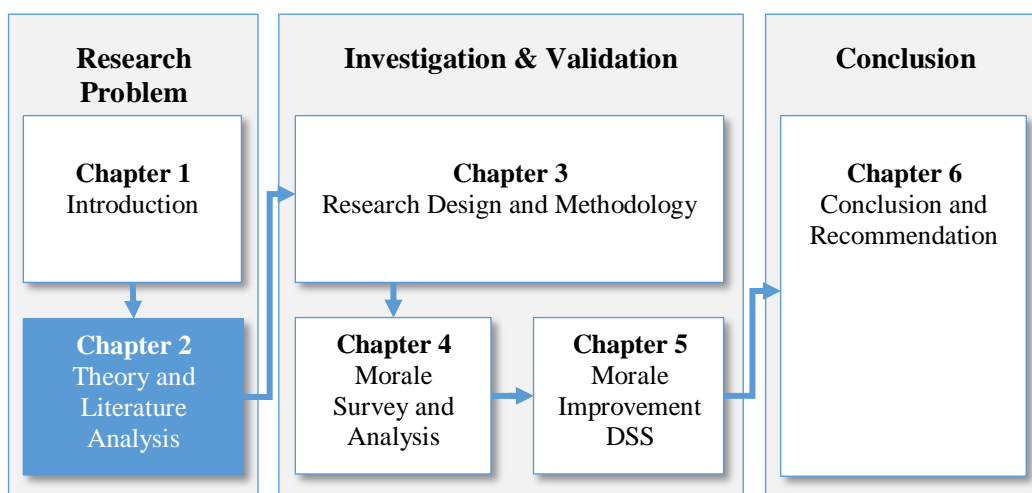
Chapter 6: In this chapter, the results are summarised and conclusions are drawn. Recommendations for future studies and implementations are made.

1.7 Chapter Summary

This chapter provides an introduction to the study by providing a brief overview of the theoretical background, problem statement and objective of the study. This is followed by an explanation of the research design and methodology used to achieve the objective and the delimitation and limitations of the study. The chapter is concluded by providing an outline of the research.

Chapter 2. Theory and Literature Analysis

The literature review covers the research, which has been conducted about employee morale in healthcare, teaching, customer service and retail industries. The literature review focuses on different definitions of morale; the impact of low worker morale in a business; how morale can be measured; causes of low morale; non-monitory morale improvement methods; and methods used to improve morale. Finally, the impact of change management and the link between morale and maintenance receives elaboration. The information discussed in this section is used in the design of the research survey used in this study. This chapter will address the first two research questions, viz.: how employee morale is measured; and the theoretical causes of low morale. Additionally, the first three research objectives determine how employee morale is measured, identify the theoretical factors affecting employee morale, and determine what methods of employee morale improvement have been successful in other industries.



2.1 Morale, Employee Engagement and Job Satisfaction

Three topics emerge from the literature that seems to be similar or are related, namely: Morale, Job Satisfaction and Employee Engagement. In some cases, these topics have been used interchangeably, while in other cases the one topic is causally related to the other. This section discussed the differences between morale, employee engagement and job satisfaction.

2.1.1 Defining Morale

Morale is a combination of an employee's feeling of enthusiasm, hope and confidence that they will be able to cope with the job in question (Ranganayakulu, 2005). The following are definitions for morale, many of which are older references that are still referred to in more modern articles:

- Flippo (1976) describes morale as a mental condition or attitude of an individual and group that determines their willingness to cooperate.
- Ranganayakulu (2005) puts it that morale is generally viewed as a feeling and related to esprit de corps, enthusiasm or zeal. A similar definition is the spirit of a group that ensure the members want the group to succeed (Bowles & Cooper, 2009).
- Mooney (1947: 127) provided the following definition: "the sum of several psychic quantities which include courage, fortitude, resolution and above all confidence."
- Haimann (1962: 453) describes morale as "...a state of mind and emotions affecting the attitude and willingness to work which in turn affects the individual and organisational objectives".
- Leighton (1949: 78) explains that "Morale is the capacity of people to pull together persistently and consistently in the pursuit of a common purpose."
- Bowles & Cooper (2009 2) meanwhile described morale to be "a state of individual psychological well-being based upon a sense of confidence and usefulness and purpose".

Ranganayakulu (2005) further explains that morale is the overall tone, climate, atmosphere or mood that forms the group's common purpose. It is an expression of the group's strength, dependability, pride and confidence in, as well as devotion to their work. Morale is a product of the following:

1. faith in the organisation;
2. the attitude that results in action;
3. feelings, hopes and sentiments that affect people's willingness to cooperate;
4. courage, confidence in the performance of a job; and
5. job satisfaction.

Baehr & Renck (1958) state that early research on morale was focused on fostering a group report or solidarity and the internalisation of management goals by employees. Despite the intervening years, their work provides the foundation of research into morale, and is cited in many of the newer sources in the field. Ranganayakulu (2005) echoes this by elaborating on the characteristic of morale as a group phenomenon. Morale consists of a pattern of attitudes of each of the group members. Group work is often not possible if there is low morale. Ranganayakulu explains that morale refers to the spirit of the organisation, and a managerial climate.

Covey & Gulledge (1994) state that management should first internalise upper management goals before implementing them. Linz & Semykina (2012) noted the following as motivation for the importance of morale: "a substantial part of individual well-being and life happiness relates to happiness at work."

According to a study done by Baehr & Renck (1958), for morale to be good, or for a high level of morale to be maintained, the most important consideration is a measure of success in achieving group goals, as well as some degree of personal and individual satisfaction. The studies done on individuals at this stage are focused on employees' prevailing needs, expectations, attitude, and motives. According to Baehr & Renck (1958), this has resulted in some of the most significant work in the field of human motivation in the industrial industry.

Ranganayakulu (2005) notes the difference between morale and motivation, even though their respective effects may be similar. Morale is a complex state of attitudes and feeling about work, whereas motivation is a function of wants and needs. Motivation results in actions, where morale results in sentiments that will lead to actions.

2.1.1.1 Morale Theories

There are numerous theories of morale; these can be classified into three categories, namely: needs psychology, the hierarchy of needs, and interactions among members.

Needs Psychology

The first is needs psychology. This theory refers to the individual's personal needs, and their drives to satisfy these needs. A distinction between basic and acquired needs ought to be made. According to Baehr & Renck (1958), basic needs are hunger, thirst and sex, while acquired needs are social for example achieved status, self-esteem and the need to be affiliated with other people.

Hierarchy of Needs

The second approach refers to the hierarchy of needs. According to Baehr & Renck (1958), the most systematic development of this concept was presented by Maslow. This theory entails that once a person's basic needs have been satisfied, higher needs emerge that dominate the person, until these are fully or partially satisfied. The foundation level needs in Maslow's theory mirrors the needs in the first approach and are defined as hunger, thirst, and sex. The higher needs follow the basic needs, which are of a social nature, and result in the realisation of self. Maslow refers to a person who has achieved lower needs as a self-actualising person (Maslow, 1972). Maslow goes further to state that all self-actualising people he has studied are dedicated people, devoted to a given task or duty, where a self-actualised person has achieved the needs of belongingness, affection, respect, and self-esteem.

Baehr & Renck (1958) state that further studies have indicated that pay is a basic need, and that only once this is satisfied do the higher self-actualisation needs become dominant. However, it should also be noted that these needs are eclipsed when the individual's sense of security is threatened, as well as when financial incentives are dominant. However, it should be pointed out that a more recent study by Dewhurst et al. (2009) states that providing financial incentive is not sustainable, especially in the current economic climate.

Interactions Among Members

The third approach is focused on the significance of the interactions among members of a working group. Baehr & Renck (1958) refers to a study done in Western Electric Company in the period from 1927 to 1932. This study showed that being part of the “special workgroup” had a more significant impact on outputs than changes made to the environment. Some of the changes that were investigated were illumination, wage incentives, hours of work, as well as length and position of rest periods (Roethlisberger & Dickson, 2003). This supports the more modern aspects discussed in Section 2.6.2.

Chair Analogy

Ranganayakulu (2005) explains morale using the analogy of a chair. Four aspects need to be in balance. If any of the four are disturbed, it is similar to a chair with a broken leg. The four aspects are:

1. the confidence of the individual in their group;
2. the confidence of employees in their leaders;
3. the confidence of team members in their co-workers; and
4. the confidence of employees in the environment they work.

2.1.2 Defining Employee Engagement

Employee engagement refers to the traits, state and behaviour that an employee demonstrates. It encapsulates the degree to which they feel involved, committed, passionate and empowered in their job. In turn, the employee expresses these feeling in their work behaviour (Mone & London, 2014).

Employee engagement entails the following facts (Mone & London, 2014):

1. **Involvement:** this requires the employees being engaged, challenged by their work, and energised to perform at their best;
2. **committed:** employees strive to have a long-term career in the company and for the company to succeed;
3. **meaning fullness:** employees find their work meaning full and understand how it helps the company succeed;
4. **empowerment:** employees feel empowered to do their work and have the required resources;
5. **manager support:** where employees, receive support for their career development efforts, job-related training, are recognised for a good job and experience a feeling of being valued; and
6. **loyalty:** where employees intend to remain with the company, are proud to work for the company and recommend it as a place to work.

Bowles & Cooper (2009) explain employee engagement to be a by-product of high employee morale, resulting from high employee morale. When the workplace psychosocial and physical environment is experienced positively by employees, they experience a sense of well-being, known as high morale. High morale levels trigger desired employee behaviours, including their willingness to go the extra mile, advocacy of the organisation, and helping others. All these are also associated with engaged

employees, but stem from a “sense of well-being” and high morale. Engagement is not possible without high morale.

2.1.3 Defining Job Satisfaction

Job satisfaction is a combination of various attitudes the employee has towards their job, job-related factors, and life in general (Ranganayakulu, 2005). This attitude affects the way the individual interprets and understands a given situation, or his relationship with others. It is a tendency to regard things either in a positive or negative light. An employee’s attitude may affect their job satisfaction, but the terms are not interchangeable. Employees’ attitude towards their job can be affected by numerous job factors and group relationships. Examples of job factors are steady employment, supervision, remuneration, working conditions, type of work, evaluation, and treatment. Examples of group relationships are family relationships, social status, relationship with labour, and relationship with social or political organisations. Ranganayakulu (2005) further explains that job satisfaction occurs when there is a balance between an employee’s expectations and received rewards.

Job satisfaction is one of the five aspects of employee morale, namely: faith in the organisation; the attitude that results in actions; feelings, hopes and sentiments that affect people’s willingness to cooperate; courage, confidence in the performance of a job; and job satisfaction (Ranganayakulu, 2005).

From the definitions discussed in sections 2.1.2 and 2.1.3, it can be deduced that job satisfaction and employee engagement are aspects and consequences of morale. An organisation can address employee engagement and job satisfaction by addressing the morale of the team. This will further be elaborated in the following sections.

2.2 Business Impact of Low Morale

Makawatsakul & Kleiner (2003) explain that low employee morale can spread to all areas and activities in a company. Lower morale tends to negatively affect the productivity and the overall work culture changes to discontent. Low morale can also result in employees experiencing a sense of loss and alienation, as well as a sense of chaos and uncertainty. Makawatsakul & Kleiner (2003) elaborated that low morale is especially problematic if middle management is demotivated, since they are an example to their subordinates, and their feelings tend to be transferred. A decrease in morale also reduces the entrepreneurial spirit of middle managers.

Linz et al. (2006) conducted a study on worker’s morale in Russia, comparing the results of worker morale surveys completed in 1995 and 2002. Due to political and economic conditions in the country, companies needed to find a method of improving their production without additional capital. Employees’ loyalty and willingness to work are critical assets to a company (Makawatsakul & Kleiner, 2003). The profitability of a company can be improved through better utilisation of existing assets. A similar problem was experienced in the international hotel industry during the course of 2001 when worldwide economic factors, including terrorist attacks and a foot and mouth outbreak, reduced room occupancy drastically (Pollitt, 2007). Most hotels countered lower

occupancy by offering discounts. The luxury hotel chain Red Carnation decided to combat the problem by improving the customer experience. Red Carnation provided an improved experience by focusing on the morale of their employees. As a result, room occupancy increased by 10 percent, and increased profitability.

Makawatsakul & Kleiner (2003) explain that good worker morale is required to have employees who are willing to put time and energy into solving problems, a crucial ingredient for excellent customer service. Employees need to understand the link between their future and the future of the company to ensure growth.

McPherson (2008) explains that low morale has an impact on two levels, viz. a team level and an organisational level. At a team level, employees will not enjoy coming to work and will not be able to work in teams as effectively as required, while at an organisational level, low morale determines the employees' cooperation or hostility to corporate changes. McPherson (2008) also states that in the long term, some professions that experience problems with low worker morale will become less desirable career options for future generations. Examples of these careers are teaching, nursing, and social work.

One easily measured effect of low morale is employee turnover. Red Carnation had an employee turnover of more than 80 percent. Turnover was reduced by focusing on improving employee morale, which decreased employee turnover to below 30 percent, subsequently reducing recruitment costs by £200 000 a year (Pollitt, 2007). Legal & Trade Collections (LTC) experienced a similar problem. The company had a staff turnover of 60 percent within the first three months after the appointment of a new executive team (Pollitt, 2008b). The problem was addressed by taking effective steps to improve the company's morale, and resulted in savings due to marketing, recruitment, and training costs.

High employee morale may assist a company to achieve sustained growth by ensuring a supportive culture (Pollitt, 2008a). Morale improvement programmes were successfully implemented at Dial-a-Cab, where doing so improved both customer service and professionalism. The company also managed to attract higher calibre candidates to resource the company's contact centre. One of the measures put in place to achieve this goal was to improve employee morale.

Salonen & Deleryd (2011) explain maintenance costs to be a substantial section of the total production costs. According to Salonen & Deleryd (2011), some studies have found these costs to constitute between 10 and 40% of the production cost, while Salonen & Deleryd (2011) also reported that this could be as high as 70%. Salonen & Deleryd (2011) further state that more than a third of maintenance costs are unnecessary, and the result of bad planning, overtime, and incorrectly performed preventative maintenance. Substantial savings can be achieved if maintenance can be done more effectively.

Dewhurst et al. (2009) explain in a McKinsey report that, from their studies, they have found that employee motivation has declined throughout the world. The McKinsey Global Survey Results of June 2009 show that morale has fallen to almost half the original ratings in most companies. Dewhurst et al. (2009) note that this is concerning in the current economic climate, since companies require engaged leaders and employees willing to go above and beyond expectations.

Ranganayakulu (2005) states that morale does increase productivity, but that morale and productivity are not entirely related. For example, morale can be improved by

changing shift patterns that have an adverse effect on productivity. Similarly, high productivity does not mean an organisation has high morale, since productivity can be achieved by close supervision, time sense, and other methods. Ranganayakulu (2005) further argues that as morale constitutes a person's attitude towards work, and all expressed attitudes are not put into practice, high morale will not necessarily result in increased productivity. However, Ranganayakulu further states that if an organisation has high productivity, but low morale, the productivity will reduce, because low morale results in resistance and dissatisfaction, which in turn reduce productivity.

Linz & Semykina (2012) argue the study of job satisfaction and morale to be essential to asset managers, in the formulation of strategies to enhance worker performance.

With regards to morale, a person with high job satisfaction provides a positive reflection of the organisation in the community. Increasing the organisation's goodwill in the community will attract talented employees possibly assisting with skill shortages (Ranganayakulu, 2005).

Additional benefits of having employees who are highly satisfied with their jobs include reduced absenteeism and staff turnover (Ranganayakulu, 2005). This ultimately reduces training costs.

Numerous definitions for morale are discussed in section 2.1.1, but the one common thread is "willingness to perform tasks". Bowles & Cooper (2009) point out that this concept carries much weight. Morale is more than merely wanting the group to succeed, but also refers to a psychological state driving the desire to participate, which necessarily contributes to making endeavours more successful.

Even though morale does not affect an organisation's profit directly, it does affect the organisation's ability to perform optimally, as employee morale affects both the performance of employees, as well as the rate of absenteeism. On a secondary level, it has an impact on organisational costs related to staff turnover, as increased training will be required. In addition to this, recruitment is assisted if employees are positive about their work and organisation. A business case can be made to support efforts within an organisation in order to improve employee morale.

2.3 Measures of Morale

The measurement of morale has been done since 1947 following the Second World War (Bowles & Cooper, 2009). Linz et al. (2006) explain that at the date of their study the available literature measured the morale of employees in various ways, with no concise methodology reported to have been used within the available literature. The problem with measuring morale is that it is not an action or output that can be quantified, but rather, a feeling. There is also no consensus in the literature about whether morale is a group phenomenon, or an individual experience. Defining this could affect how morale is measured.

Linz et al. (2006) note that some measures of morale attempt to measure the positive consequences of high morale, for example, employee persistence and energy when solving problems, cohesion, cooperation, and enthusiasm to change. This measurement can be achieved by measuring job satisfaction and organisational commitment. Measurements can be done through employee surveys and interviews. Examples of

survey questions that can be used are the following (Linz et al., 2006; Makawatsakul & Kleiner, 2003; McPherson, 2008):

- How satisfied are you with your job?
- How satisfied are you with the type of work you are currently doing?
- How proud are you to tell people about the company you work for?
- Do you feel part of the organisation?
- Would you recommend the company to friends or family who are looking for work?
- Do you feel like you are making a contribution to the organisation through your work?
- Do you expect recognition for good work?
- Are you recognised for good work?
- How much confidence and trust do you have in your line manager?
- Do you feel the company offers equal opportunity?

Alternatively, negative consequences of morale can be measured by absenteeism, staff turnover (also referred to as quit rate), grievances, complaints, and strikes (Linz et al., 2006; Makawatsakul & Kleiner, 2003). Makawatsakul & Kleiner (2003) further explain that this is accompanied by a lack of trust in the company and its management. The absenteeism and staff turnover can be measured using human resource reports, or through recruitment statistics or survey questions (Linz et al., 2006). The authors of the Russian study reported that participants' opinions about strikes and quitting are strongly affected by the communist mentality. Similar situations ought to be considered in this study. Job availability in a particular field could also affect an employee's reaction to questions about their likelihood of quitting. Finally, the mental health of an employee could be assessed. An example of this would be employee stress levels, depression and anxiety (Linz et al., 2006).

Baehr & Renck (1958) found that there are 76 items that affect how an employee experiences their work environments. The morale of employees is a complex function of these items. These items were categorised into 14 categories:

1. job demand;
2. working condition;
3. pay;
4. employee benefits;
5. friendliness and co-operation of fellow employees;
6. supervisor-employee interpersonal relations;
7. confidence in management;
8. technical competence of supervisor;
9. effectiveness of administration;
10. adequacy of communication;
11. security of job and work relations;
12. status and recognition;
13. identification with the company; and
14. opportunity for growth and advancement.

Baehr & Renck (1958) in some cases used the same question as a measure of different categories. For example, *there are plenty of good jobs here for someone who wants to get ahead*, can be used as a measure of confidence in management, status and recognition, identification with the company, and opportunity for growth and advancement.

Baehr & Renck (1958) further refined the 14 categories into five factors that affect employee morale. They found these factors to be stable for all industries and types of organisations.

1. *Organisation and management*: refer to the employees' relationship with management and the organisation. It can be seen as the image the employee has of their management and the organisation. This includes the employee's ability to identify with the organisation and their security for present and future, and the organisation's concern for the employee's welfare.
2. *Immediate supervision*: refers to the employee view of an attitude toward their direct supervisor. This takes into account their satisfaction with the supervisor human relations, and administrative ability.
3. *Material reward*: refers to the pay and other benefits an employee receives.
4. *Fellow employees* refer to the friendliness of other employees and their ability to work together without friction.
5. *Job satisfaction*: refers to the feeling the employee experiences when doing a job, and the belief that they are doing something worthwhile for the organisation, as well as their personal growth and development.

2.4 Morale Studies Conducted and their Findings

Clark (1998) states that most categorisations of good and bad jobs are focused on pay and hours of work. A study was done using 7 000 employees in OECD (Organisation for Economic Cooperation and Development) countries to determine the measures of a good job. The following categories were identified for the study: remuneration; hours of work; future prospects, including promotions and job security; how hard or difficult the job is; and job content, including interest, prestige, and independence, and interpersonal relationships.

From the results, pay was found to be the least important job characteristic (Clark, 1998), while job security was found to be the most important characteristic. The rankings were found to be consistent across gender and countries. In general, women are somewhat more content than men, and older employees have higher morale than younger employees. Clark (1998) further states that employees will arrange themselves into jobs that offer what they value most. For example, a person who values pay most will tend to jobs that pay well, while others will move to jobs that value other attributes most. This last finding made by Clark (1998) shows the importance of ensuring the values and requirements are met so as to ensure employee and skill retention.

The regression analysis conducted by Clark (1998) found the following correlations between job satisfaction and different job characteristics:

- there is a strong correlation to income for men;
- there is a strong correlation to hours of work for women;
- there is a negative correlation to hard or difficult work for younger employees;
- income becomes more important as employees get older;
- while promotion opportunities become less important as employees age.

It should be noted that this study is representative of developed countries, as the countries that form part of the OECD are developed. The findings may be different for a developing country such as South Africa. The study also does not state the skill or education level of the participant, or the industry.

Mone & London (2014) note *recognition* of employees to be one of the most important factors contributing to employee satisfaction. The following were identified as obstacles to employee recognition.

1. lack of knowledge, the managers in question, did not know what to do or how to do it;
2. time constraints, managers reported not to have sufficient time;
3. perception, managers reported fear of showing favouritism; and
4. budget constraint, managers, reported recognition cost too much.

The majority of the morale studies literature is based on developed countries. The only exceptions were studies done in Russia by Linz et al., as well as India and Ranganayakulu. Even in the research conducted by Linz & Semykina (2012), where data was available for developed and developing countries, the focus was on developed market economies.

2.5 Causes of Low Morale

The literature refers to numerous causes of low morale. For this discussion, the causes have been divided into three categories, namely external causes; organisational causes; and management causes. From the literature, it can be seen that as the causes of low morale move closer to the employee, the impact becomes more profound.

2.5.1 External Factors that Influence Morale

External factors resulting in reduced morale are those items that are not in the control of the organisation's management. These include sports results, the country's economic and political condition, and safety. Employee morale is not only caused by factors within the organisation, but also external ones, for example, personal relationships, family, and friends (McPherson, 2008).

McPherson (2008) believes that many companies in Manchester benefit from the success of the Manchester United Football Club's success, similarly, productivity increases following the occasions when countries win significant sports events.

Linz et al. (2006) explain the impact that the country's economic and political condition had on the morale of employees in Russia. Starting in 1992, the country experienced several changes that took approximately ten years to stabilise. During this time, all sectors suffered substantial financial constraints. In this study, they hypothesised that economic conditions and uncertainty had an impact on morale in Russia. This was found to be true, since morale improved between the study done in 1995 and 2002. The most common change that occurred during this period was an improvement in macroeconomic conditions. Other aspects could affect this morale increase, but the authors felt that this was the most likely cause. A later study done by Linz & Semykina (2012) supports this view, and states that job satisfaction is lower in formerly socialist economies than it is in developed market economies. There are theories that this can be attributed to differences in cultural values.

A feeling of safety is crucial to the level of morale of employees, for example, the healthcare industry experienced a reduction in staff morale when employees did not feel safe (McPherson, 2008).

Similarly, environmental factors, for example, pollution that could cause illness or harm to employees, will have a negative impact on morale (Ranganayakulu, 2005).

Employees with better health are able to interact with colleagues and have higher production in contrast to those who are ill. This can be affected by the availability of food and the physical welfare of employees, where Ranganayakulu (2005) reports that some companies provide a subsidy for food to increase employee morale.

It should be noted that personal health was not identified to be a factor affecting morale in the other articles and books discussed in this literature review, other than as the definition of needs. The reference listed above was published in India, which contrasts strongly with the other sources reviewed.

2.5.2 Organisational Causes

Organisational causes of low morale are those items that are in the control of the organisation's top management. These items are a result of the organisation's structure, performance, and operating policies. These include job security, salaries, work pressure, skill mix, budget cuts, as well as regular changes and policies.

Concern and fears over *job security* can paralyse the operation of an organisation, and lead to a decline in trust and motivation of employees (Makawatsakul & Kleiner, 2003). Lack of motivation will reduce a company's overall productivity, and is a common cause of morale problems when a company is in the process of downsizing. Downsizing involves a systematic reduction in the workforce size, to improve operational performance and reduce company costs. The effect of the uncertainty caused by this process on an employee's morale is often underestimated. Makawatsakul & Kleiner (2003) demonstrated the effect that uncertainty can have on the employees following downsizing. Makawatsakul & Kleiner (2003) used the results obtained by a Canadian consulting firm, Murray Axmith, who surveyed in 1995 what companies are undergoing

the process of downsizing. This study showed that 61% of companies surveyed reported a reduction in morale, where 50% experienced a decrease in company loyalty and 37% experienced decreased job satisfaction.

The National Health Service (NHS) implemented a programme where lower-level employees were trained to complete some of the duties of the higher level employees (Cunningham & Hyman, 1996). This increased a “them and us” attitude in the organisation. The change in attitude occurred as more senior employees grew concerned about their diminishing roles. Employees were not comfortable with less qualified employees performing their work.

Dewhurst et al. (2009) explain that when a company starts a process of layoffs, the morale in the company decreases. The company is more likely to lose their top employees, as these are the first to go.

Job availability also has an adverse effect on morale in an organisation. Linz et al. (2006) found that some Russian employees wanted to change jobs, but could not find suitable available alternatives. A lack of opportunities trapped workers in an environment that was not conducive to effective work.

Buddelmeyer, McVicar & Wooden (2013) state that there has been an increase in contingent *forms of employment*. This includes temporary employment, fixed-term contracts, labour-hire or casual appointments. Buddelmeyer et al. (2013) further state that there is a negative relationship between contingent work and job satisfaction, but note that the magnitude of this relationship is small, and depends on the type of employment.

Buddelmeyer et al. (2013) explain that there are three main causes for the lower morale in these employment groups, the first being the characteristic of this employment type, as there is a lack of any type of guarantee of permanency. Second, contingent employment is associated with inferior working conditions. This includes reduced opportunities for skill development and career growth, low wages, and lack of other benefits, for example, paid leave. Finally, contingent employees may be marginalised by other employees, because some employers treat them differently to regular employees.

In contrast, some employees may prefer these forms of employment, as it offers more freedom and flexible employment arrangements. There are also cases where seasonal employment can offer higher wages than permanent employment (Buddelmeyer et al., 2013).

Buddelmeyer et al. (2013) argue that the current literature on the topic of contingent employee satisfaction was done with small, non-representative samples often only using employees from one organisation. Buddelmeyer et al. (2013) further suggest that studies should consider the broader population.

The study that was done by Buddelmeyer et al. (2013) aimed to evaluate the following four hypotheses, namely:

1. non-standard contingent forms of employment will be associated with lower levels of job satisfaction, but the magnitude to these effects will be small;
2. the magnitude of the effect will differ dependant on the type of contingent employment;
3. the effects of nonstandard contingent employment will differ between men and women; and

4. the negative effect of nonstandard contingent employment will be less pronounced among both relatively young workers and relatively old workers, as well as workers combining employment with full-time study.

Linz & Semykina (2012) suggest that morale is affected by a combination of a person's opinion about their value, their confidence in doing their job sufficiently well to receive a *reward*, and their expectation of getting the desired reward. In addition to this, the discrepancy between expected and actual reward plays a role. Types of reward fall into one of two categories of extrinsic and intrinsic. Extrinsic forms of reward are those the employee receives for doing a job, namely pay, promotion, and praise from seniors. Intrinsic forms of reward are associated with the job that is done, for example, the chance to develop new skills, or doing something worthwhile.

McPherson (2008) explains that it is a common complaint among teachers that their salaries do not keep pace with inflation. McPherson's case study was done in Lancashire County in England, but this is a problem experienced by teachers in numerous countries. Linz et al. (2006) also commented on the fact that Russian companies were not able to reward employees for operational improvements and resulted in employees being unmotivated to make further improvements. Linz et al. (2006) and his colleagues further explain that in the 1990s, one-third of all companies found it difficult to make timely salary payments.

Linz et al. (2006) hypothesised that *monetary gain* is related to employee morale. They found that employee morale was linked to the employees' expectations, where employees had very low expectations of receiving additional or increased payments. They also hypothesised as to whether monetary rewards or other measures had the most significant impact on morale. From their study, they found that monetary rewards had the most significant positive effect on morale. This will be further discussed in Section 2.6.2.

The morale of teachers and headmasters has been reduced by an increase in *work pressure* by the addition of new performance measures. Performance-driven focus prevents some social workers from working according to their professional values (McPherson, 2008).

Many companies utilise employees in positions for which they are not equipped as they do not have the required *skills mix* (Makawatsakul & Kleiner, 2003). This increase in job requirements can lead to burnout, frustration, and declines in organisation commitment. These new tasks most often result from cases when employees decide not to appoint from outside people to specific positions, but would prefer to use someone from their current employee pool. These choices occur in companies that are in the process of downsizing; where the organisation expects the newer, smaller workforce to complete all the duties that were completed by the previous larger workforce.

Budget cuts have been found to be one of the causes of low morale under social workers since it undermines their professional values (McPherson, 2008). The availability of public sector budgets for growth was also identified as a cause of low morale.

McPherson (2008) found that *regular changes* affect the morale of employees working in the public sector. These changes are implemented by the central government, who are impatient for improvements.

When generating *policies* and *procedures* most companies only consider the fairness, consistency and transparency to customers, but not how it affects employees (McPherson, 2008). These policies often make the employee's daily tasks harder and act as an obstacle.

A case study conducted in Dial-a-Cab's call centre found that most of the employees at the company felt that they are not part of the company's corporate culture (Pollitt, 2008a). It was found that this reduces the morale of the centre and the quality of work.

Clark (1998) explains that *work hours* had become a recent topic in literature reporting on the large disparity between North American and European hour of work and length of the work week.

More suitable *working conditions* influence employee morale (Ranganayakulu, 2005). Ranganayakulu (2005) further states that the *structure of an organisation* can also have an impact on morale, as upward communication is very difficult in a tall organisational structure. A flatter structure improves communication, and reduces absenteeism, accident, and strikes. In addition to this, it allows scope for self-actualisation. The lack of personal touch often characterises larger organisations, where, as the organisation grows, people become impersonal to one another as employees are managed by rule, policies, and procedure (Ranganayakulu, 2005).

2.5.3 Management Causes

The final category of causes that impact employee morale is management-related causes. This refers to the employee's direct line managers, with whom they engage on a daily basis.

McPherson (2008) found that there are two things influencing morale, viz.: the *quality of leadership* and *people management skills* of line managers. McPherson (2008) worked in companies that had sufficient budgets to allow growth, where as a result customer satisfaction was very good, but employee morale was low. In contrast, experience showed that other companies managed to achieve high morale, even though their budgets were drastically reduced, and the organisation received substantial criticism in the local media.

Teams that are well established, that work well together and who trust their line manager will not be adversely affected by outside occurrences, for example, staff vacancies, increased pressure, budget cuts, and organisational changes (McPherson, 2008). Camaraderie does not resolve the problem in the workplace, but rather assists teams to meet the new challenges.

Makawatsakul & Kleiner (2003) explain how a break in communication reduces organisational morale when difficult organisational decisions are made, for example, downsizing. When the reason for these changes is not conveyed successfully, this can result in employees experiencing the changes as sinister, which will lead to rumours.

From an employee survey conducted by the British National Health Service (NHS), it was found that most managers are appointed to manage budgets, rather than people (Cunningham & Hyman, 1996). Their short-term performance goals are only financial. This limits their ability to implement long-term changes in employee relations. The survey also found that managers in each NHS Trust lacked the skills needed to achieve and support changes, as well as handling employee relation problems. This becomes clear

when evaluating how problems like the increase of absenteeism are approached. The less experienced managers in the NHS tend to resort to punishment rather than identifying the root cause of a problem.

Pollitt (2007) explains in the case study done at a hotel chain that the leading cause for the lowering service standards was the experience level of their management and supervisory employees. Their skills level resulted in an increase in staff turnover, which would have had an adverse effect on the company's reputation. These supervisors could not successfully motivate their teams, effectively delegate work, communicate consistently, and meet management goals, since they were spending most of their time "fire-fighting". An employee survey conducted in this organisation found that only 54% of supervisors communicated clearly and delegated effectively; 39% of managers often gave individual performance feedback; and only 61% encouraged team spirit. The organisational head found that these supervisors were willing to work and learn, but did not know how to improve their departments.

McConnell (1994) explains that the following eight events were found to be the most effective methods of reducing employee morale:

1. punish all mistakes;
2. make practising corporate values optional;
3. cease training and improvement methods;
4. create detailed job descriptions for all and enforce them rigidly;
5. manage by departmental results alone, rather than by work processes;
6. create a "do as I say, not do as I do" environment;
7. ask for suggestions, then ignore them; and
8. create a policy stating that our people are our most important asset; then retrench a sizeable sized group at the first sign of tough times.

Managers ought to identify the needs of employees and satisfy these needs (Ranganayakulu, 2005).

Many organisations have tried to implement employee *empowerment* models into their organisations to improve morale. The implementation has resulted in *decreased staff morale*, an example of this is the NHS Trust in England. Managers and line managers were required to take greater responsibility for their team, with less assistance from human resource departments. Some of these new duties included discipline, grievances, appraisal and trade union duties. Problems arose where managers and line managers were given responsibilities for which they were not trained, nor had experience in conducting. In the case study conducted in the NHS, it was found that greater emphasis was placed on financial constraints than on training of managers in employee relation skills. The survey found that half of the managers lacked skills in at least one aspect of employee relations, and that they were unprepared for the required tasks (Cunningham & Hyman, 1996).

Employee participation in decision-making will enhance employee morale (Ranganayakulu, 2005). This allows for the integration of an employee's self-interest with the interests of the organisation.

Staff in the healthcare environment were found to have low morale due to their sense that they were *undervalued* (McPherson, 2008).

2.6 Methods of Improving Morale

This section attempts to answer two questions. The first, if a monetary reward, i.e. *more money* would improve employee morale. The second question is as to what will improve employee morale in the long term.

Ranganayakulu (2005) characterises morale to be a long-term condition, where morale can be improved in the long run, but where no single short-term action will improve it.

2.6.1 Monetary Methods of Improving Morale

Dewhurst et al. (2009) explain that many studies have shown that for employees with satisfactory salaries, financial reward only provides a short-term boost in morale and energy. However, the passive impact cannot be seen over a more extended period. In a struggling economic situation, it is essential to balance employee performance and financial investment in improving employee morale and engagement.

Dewhurst et al. (2009) explain that, during the June 2009 quarterly survey of employees, it was found that the following three items were the most effective monetary reward methods, viz.: stock options, cash bonuses, and an increase in base pay. These were compared to the top three non- monetary reward methods, namely: praise from immediate managers, leadership attention, and an opportunity to lead projects or task forces. The non- monetary reward methods caused employees to feel that their company valued them, where their well-being was a priority, with the company endeavouring to create career growth opportunities (see Figure 2-1). Dewhurst et al. (2009) also state that this is in line with other studies that they have evaluated.

Dewhurst et al. (2009) further explain that during their study, they conducted interviews with HR directors of many companies, and found remuneration costs to have been reduced by 15% or more, due to the current economic climate. They also found that 70% of organisations studied adjusted their rewards and motivation programmes during a period of 12 months before the time of the study (Dewhurst et al., 2009). Two-thirds of the companies noted cost reduction to be one of the three leading causes for these changes.

Dewhurst et al. (2009) also investigated the reason behind more companies not having changed their strategy to include non- monetary motivators. The leading cause that they were able to identify was that company executives are hesitant to move away from the traditional managerial wisdom that money is all that counts. The second reason they found is the non- monetary motivators require more time and commitment from senior managers. This proves very difficult for some managers, who are not comfortable with the level of engagement needed as some may prefer to remain in their offices. This results in a lack of interaction between managers and employees resulting in a reduction in morale and employee engagement.

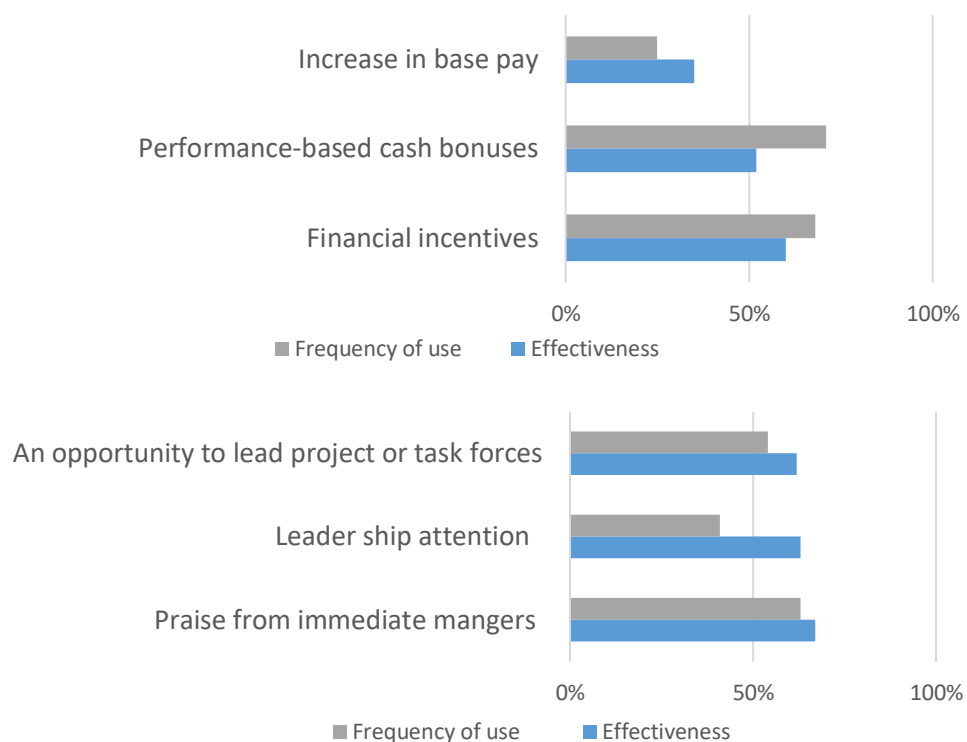


Figure 2-1: McKinsey quarterly survey results (adapted from Dewhurst et al. (2009))

Baehr & Renck (1958) state that in an actively growing economy, satisfaction derived from monetary encouragement would be de-emphasised, or taken for granted. In comparison to a higher need according to the Maslow scale, such as self-esteem and status will have a more significant impact, where in times of economic depression, financial needs are likely to be prominent. When Baehr & Renck (1958) studied the correlation between different factors, they found the “pay” an employee receives to show less correlation to the other elements affecting morale. Once the employee received the minimum salary, they are required to fill their needs, where remuneration no longer has an impact on how they experience their work environment. If the “payment” they receive is below the minimum, they will not function in the workplace. Once this is achieved, focus is shifted to the emotional needs, where the higher needs according to the Maslow needs hierarchy.

A study done by Linz & Semykina (2012) has a contrasting result, where it was found there is a positive correlation between job satisfaction and the participants own earnings. They also found a positive or negative correlation between satisfaction and peer earnings.

2.6.2 Non-Monetary Methods of Improving Morale

The literature refers to various methods of improving morale in developing industries. In many cases, these methods are used by companies to gain a commercial advantage over their competitors. In the study conducted by Linz et al. (2006) on the morale of employees in Russia, they also found that monetary rewards have the most significant

positive influence on improving morale, but if this is not possible, then managers ought to develop a work environment that is friendly, and will ensure mutual respect. One of the factors assisting in increased morale in Russia between 1995 and 2002 is that nearly every metropolitan area in Russia opened an institute offering management training based on programmes followed in America.

McPherson (2008) states that managers cannot improve morale in their teams, but that a manager can mitigate the causes of low morale. This is contradicted by other literature stating that management training can improve morale (Pollitt, 2007). The findings can also be interpreted to mean that training will assist in resolving the problems causing employee morale to deteriorate, and doing so will ensure that an environment is generated that allows for the employee relationships to be mended.

Various industries have successfully utilised *training* as a method of improving employee morale. This section covers six case studies of companies who successfully used training for improved morale.

Hotel Case Study

The first case study was conducted for a chain of luxury hotels implementing a targeted management training programme (Pollitt, 2007). The programme reduced staff turnover from more than 80 to below 30 percent. This significantly reduced recruitment costs, and resulted in savings that were more than double their expectations. As a result, the hotel did well, without cutting room pricing during financial problems within the sector, where the majority of competing hotels were required to minimise room prices. The hotel managed this by improving the quality of the service they offered guests. Improved leadership and management in the hotels were central to achieving this target. The hotel chain worked with Kensington and Chelsea Colleges to develop a two-tier Ambassadors in Management (AIM) training programme focused on the needs of the organisation. The first section, AIM 1, provides supervisors with the skills to achieve the Chartered Management Institute certificate in team leading, which covers:

- organising and developing oneself and one's department;
- handling and communicating information effectively;
- maintaining and developing effective working relationships; and
- improved written communication in English.

AIM 2 covers a six-month-long experience programme and further training towards industry goals. Candidates who complete this programme will receive an Institute of Leadership and Management introductory certificate in first-line management. This course covers the following topics:

- motivational skills required in supervisory roles;
- delegation, planning and organising;
- understanding customers and fulfilling their needs and expectations; and
- how to ensure a more productive and efficient workforce through managing time and stress in oneself and others.

New skills and behaviour were taught through role-playing activities during off-job training. This training method fostered cross-company networking, which the organisation felt to be crucial to the individual's success. Additionally, managers working

with trainees were briefed on how to reinforce what was learnt when candidates returned to the workplace through coaching.

At the time when the case study was published, the programme was in its fifth year, and 72 managers had graduated from the programme. The hotel chain experienced the following results from the programme:

- 39 candidates were promoted internally;
- an employee survey showed:
 - a 10% increase in the impression that the company is committed to training and development of staff;
 - a 12% increase in the employees experiencing more management encouraged teamwork and that managers communicate expectations; and
 - a more significant portion of employees indicated that they are satisfied and reasonably satisfied with their jobs;
- 50% reduction in staff turnover;
- Improvement in the quantity of coaching feedback received.
- Managers more regularly praised their teams when they did good work.

Lancashire County Council Case Study

The case study conducted in the Lancashire County Council found the employees' relationship with their managers to be crucial to ensuring good morale in the organisation (McPherson, 2008). Employees need to get along with the managers, trust their managers, and feel valued. If this is in place, daily pressures will not negatively affect them. McPherson (2008) suggests that managers cannot improve morale, but can improve employees work environment through the following actions:

- effective communication;
- ensuring a skilled workforce;
- clarity of roles and responsibilities;
- ensuring a performance-orientated culture;
- success should be measured against targets; and
- progress is informed by best practice.

As a result, employees are happier when they know what to do; what is expected of them; what their responsibilities are; and whether they are equipped with required skills and resources. Thus, McPherson (2008) found that improving morale in the public sector can be achieved by not putting obstacles in the way of staff's efforts and management skills; and developing an organisational culture that takes care in how change is managed. The Lancashire County Council implemented a process of coaching for all senior management from a management consultant who observed their work-related situations, and provided feedback. This evaluation assisted senior managers to better understand the impact their behaviour had on colleagues and employees, a process which has been extended to all managers.

One of the significant changes implemented is that all senior managers need to be more accessible (McPherson, 2008). Increased communication was achieved by the implementation of notice boards and blogs. The focus of the communication was no

longer strategies and policies, but rather values. The goal was to have discussions and not lectures.

Dial-a-Cab Case Study

Dial-a-Cab has used training to increase morale in its call centre by including the call centre employees in the cooperate culture, through a career development programme (Pollitt, 2008a). This has also increased employee engagement, professionalism and customer service. The company found that even the most hardworking staff would experience a reduction in motivation without continuous development. This is especially the case with repetitive work, as it is with the work done in a call centre. In an attempt to reduce the monotonous nature of the call centre work, the employees process both incoming and outbound calls.

The organisation decided to offer call centre employees the opportunity to complete a Level 2 National Vocational Qualification, rather than just providing employees with basic training courses (Pollitt, 2008a). This was selected since it can also be used to assist in benchmarking performance. The qualification assists in testing employee skill levels, and in developing skills that require further improvement. The organisation has also assisted team leaders in obtaining the team-leader National Vocational Qualification.

Dial-a-Cab has been able to improve and refine customer service policies, since the training assisted in employees' understanding of the whole customer service process, as well as the role of the team leader (Pollitt, 2008a). The organisation has identified items that were added to the training programme. For example, how to handle difficult customers.

The addition of this programme has assisted Dial-a-Cab in attracting a higher calibre of candidate to fill vacancies, which further improves standards (Pollitt, 2008a), as a result of which they have since managed to nearly double their capacity. The organisation has a clear development and promotional path linked to the qualifications, which makes it very attractive to new employees, and motivates existing employees.

Legal & Trade Financial Services and Revenues Management Services Case Study

A study was conducted in Legal & Trade Financial Services and Revenues Management Services, which is the same company that works under separate branding (Pollitt, 2008b). The organisation resolved the problem of a very high staff turnover through initiating a new training and development programme. The first step was to conduct an aptitude test on recruits, where the company specifically required employees that could be assertive without being aggressive, and who could deal with difficult customers and aggressive callers, with sufficient skills to negotiate payment plans. The organisation developed a simulation where new employees could practice their skills in a less stressful environment. This resulted in a 30% reduction in staff turnover.

P&O Ferries Case Study

P&O Ferries implemented a desktop training programme that increased their turnover by £8 million a year (Pollitt, 2008b). This training programme entailed weekly coaching sessions that ensured that team leaders, managers and trainers were able to focus on the individuals' needs. The following benefits were achieved from this programme:

- sales-booking conversion increased from 45% to 60 %;
- sales of meals increase by 25%;
- complaints reduced to less than 0.2 per 1 000 passengers; and

- average call-handling time reduced to four and a half minutes.

Direct Line Case Study

Direct Line successfully reduced staff turnover from 50 to 12 percent through the implementation of their new Developing Excellence and Rewarding Excellence programmes (Pollitt, 2008b). The Developing Excellence programme entails a training programme that covers customer focus, communication, continuous improvement, teamwork, managing self, and information collection. The Rewarding Excellence involves a tier system that rewards employees for achieving a set of behaviour and technical performance requirements. This encourages progress and improvement. The Rewarding Excellence programme was implemented first, but did not progress until the Developing Excellence programme was implemented.

In contrast, a study conducted by Dewhurst et al. (2009) found that training programmes, along with paid or partially paid leave, are some of the least effective methods of improving morale. One primary difference between training programmes in general and the training programmes in the case mentioned above studies is that in the case discussed above, the training programmes followed by clearly defined career growth opportunities (Pollitt, 2007, 2008a). In summary, training for the interest of training is not an effective method of improving morale. If the training programmes are done correctly, the lessons learnt can endure and permeate into other departments and levels (Covey, 2003). For this to be achieved, Covey (2003) suggests that the training should be focused on the effectiveness of people. Employees should be recognised as the highest value asset, considering that they produce everything else.

A study conducted by Dewhurst et al. (2009) found *leadership attention* to be one of the top three most effective methods of improving morale (Figure 2-1). An example of where this was effectively implemented is when a global pharma-centred company was in the process of developing a new corporate strategy, and the CEO hosted focus groups of talented managers in order to generate and discuss ideas that could be implemented to create more value for the business. Similarly, a major beverage company required that every executive committee member was to meet with critical people in their product group.

During an interview with an HR director of a mining and basic material company, Dewhurst et al. (2009) were informed that the company found one-on-one meetings between staff and leaders to be very motivational. In contrast, many of the companies interviewed found that meetings with large group communication events to be one of the least effective non-monetary motivators.

Constant and effective communication is vital to ensuring good morale in an organisation (Makawatsakul & Kleiner, 2003). Employees needed to understand the reason for business decisions, both decisions that will affect them positively, and negatively. Communication should be honest, especially when dealing with aspects that could result in negative feelings among employees, and should be done in a timely fashion. This is also relevant when implementing change. It is vital to communicate throughout the change period, not only the start.

Dewhurst et al. (2009) explain that engagements between manager and employee are crucial to ensure employee morale is sustained. They have found that in some cases, managers are not willing to engage with employees, and will “hide” in their offices. This reflects uncertainty about the company’s current situation and standpoint.

Mone & London (2014) note recognition to be one of the most important factors contributing to employee satisfaction, finding that it has a positive impact on retention, engagement, productivity, and profitability. This also increases employee morale and pride, which encourages employees to set their own challenging goals and find innovative ways to achieve them. It will also build employee resilience, overcome setbacks, identify new opportunities, and manage their work. Ranganayakulu (2005) explains that no individual persons' contribution is more important than another's, but notes that each person ought to be recognised for the contribution they have made.

Makawatsakul & Kleiner (2003) states that progressive companies had implemented *consultations* throughout the company to assist employees to process the hardships associated with adverse or unpleasant events that have occurred in the organisation. An example of this is assisting remaining employees with feelings they experience after downsizing. The goal of this is to motivate employees in order to boost morale.

Makawatsakul & Kleiner (2003) suggest that fun *activities* can be arranged outside of the work environment to boost the morale of the organisations. These activities should be designed to test and develop problem-solving abilities. Most importantly, employees need to have fun together so as to build or rebuild the relationships required for effective teamwork and co-operation. Award ceremonies can be used to make employees feel valued.

Covey (2003) contradicts the effectiveness of team building activities by arguing that is a quick win, which does not ultimately provide a sustainable solution if the organisation's culture is not changed, by changing the behaviour of individuals. This can be achieved by increasing personal trustworthiness.

Cunningham & Hyman (1996) conducted a case study on the National Health Service (NHS), where they implemented a process of *empowerment* in order to improve employee morale. The results from two Health Trusts were evaluated. Empowerment entails giving greater responsibility to lower level employees to enhance job satisfaction for these employees. They found that the morale of employees reduced by this process, because they were not trained for their new roles. They felt that if everyone was adequately trained, the empowerment process may have been successful, however, it is not possible to verify this from extant literature. The managers in the organisation have found that they are more committed to their work. One health trust found 58% of managers to have reported an increased commitment, while the other health trust reported a 77% increase in commitment. In contrast, more than a quarter of the non-managers have stated that they strongly disagree with the statement that their commitment to the organisation had increased. This is a less successful method of improving employee morale.

Cunningham & Hyman (1996) explain the theoretical benefit of empowerment as referred to in the literature. Empowerment ought to generate a work environment characterised by trust, which has a higher tolerance for well-intended errors, and a more flexible workforce. Encouragement becomes more common than criticism and blame. This is achieved by greater teamwork and enhanced training. The process results in a transformation of management and employee attitudes. Employees have a more significant influence on decision-making, which allows for more innovation. Higher performance targets are reached because employees have more control over their work, which results in increased commitment. For this to be successful, managers need to let go of their traditional responsibilities, ought to encourage teamwork, and should coach

their employees. It is clear that the main reason for the limited success experienced in the example of the NHS was because employees were not trained for their new objectives.

In contrast, Dewhurst et al. (2009) found that empowerment through providing employees with the opportunity to lead projects as a possible impact on employee morale, especial in these challenging times. This method of motivation is only used in half the companies they surveyed (Figure 2-1). According to Dewhurst et al. (2009), these opportunities develop leadership skills and capabilities that have long-term benefits to companies. An HR director in the basic materials industry explains that their company found that the implication of special projects made employees feel they were part of the answer and part of the company's future (Dewhurst et al., 2009). Similarly, a leading beverage company identified 30 high-performing managers to take part in a leadership programme, who were tasked with creating a series of projects identified and led by those amongst these individuals. Covey (2003) states for empowerment to be effective and sustained, the organisation requires a culture of high trust. Trust, it ought to be underscored, is not a quick fix that can be implemented in a short period.

Benn & Martin (2015) echoes the view that empowerment has a positive impact on job satisfaction. These authors conducted a study on implementing environmental projects and found that by empowering employees through involvement and participation has shown an increase in job satisfaction and employee retention. This participation and increased communication have proved to break the barriers between specialists and innovators, improving the organisation's performance by saving time and building commitment. They have also found that increased participation results in increased attachment to the organisation. This is supported by Ranganayakulu (2005), who explains that a sense of participation increases employee morale. This is achieved by managers that gave employees a chance to participate in decision-making.

McConnell (1994) explains that leadership is often confused with management. Leadership in this document refers to the act of leading people in the organisation, and not leadership with regards to technology and product development. *True leaders* aim to develop leaders and always have the goal that the student will surpass the mentor. An effective leader must have a vision and a purpose towards which they are working. If a manager does not have a clear goal in which they believe, they will not be able to lead their team to achieve the required results. A good leader will drive out fear by reducing the uncertainty experienced by members of the given department.

In the study conducted by Baehr & Renck (1958), where the research team calculated the inter-correlation between many factors affecting morale, they found that immediate supervision had a high correlation with every other expect for material reward. Baehr & Renck (1958) further state that this supports the view of many other studies, namely that the attitude towards immediate supervisors or managers is central to employee morale.

Professional and occupational training is essential to ensure that the employees have the required skills to complete their jobs (Covey, 2003). This includes the softer skills that will build the employee's character, which will, in turn, improve performance. This approach focuses on the factors that are essential for the individual's intellectual and emotional intelligence, which is done by focusing on the following need for physical, social, emotional, spiritual and mental well-being. While discussing the healthcare industry Covey (2003) avers that spending the budget on developing soft skills constitutes a waste. However, according to Covey (2003), developing soft skills is more laborious

than job-related training. He further states that this is the only way for an individual to gain the required knowledge.

Workforce management can be utilised as a method to improve employee morale (Ranganayakulu, 2005). This includes activities such as grievance handling; implementing safety measures; discipline rule; and welfare activities. This method of improving morale was not identified by literature other than Ranganayakulu's book. As with other difference identified for his study, it can be assumed that he is focused on areas that have achieved less of the employee's needs than what is the case in the other literature. Ranganayakulu (2005) further argues that employees should be treated as human beings, not as machines.

2.6.3 Summary

From the literature, there seems to be contradictory information about the effectiveness of methods of improving morale, for example, the implementation of training programmes that have effectively enhanced the morale of employees in the hotel and call centre case studies (Pollitt, 2007, 2008a). However, in both these cases, the training was followed by career growth opportunities for those employees who were willing and competent. In contrast, Dewhurst et al. (2009) found that training is not an effective method of motivation. From this, it can be concluded that training is not relevant, where there is no career growth benefit, and the process will not have the same positive effect on employee morale.

Similarly, the NHS had mixed results with the implementation of empowerment (Cunningham & Hyman, 1996), where in some cases employees felt that the empowered employees were taking their work. In contrast to other industries, empowerment was implemented they experience very useful results (Dewhurst et al., 2009). In the NHS, the implementation was done by teaching employees the skills they require in order to do some of the tasks assigned to other employees. In the case of the beverage industry, this was implemented by allowing employees to identify and implement special projects that will enable the company to grow.

In conclusion, the methods of improving morale are not the only necessary consideration, but the process used to implement the desired improvement should also be considered. The change management used to perform the improvement as well as the new strategy ought also to be considered.

2.7 Change Management

Covey & Gullledge (1994) state that one common characteristic of all organisations is the need for change. Managers first need to internalise the lessons or goals determined by the chief executives or board of directors before they can carry this information over to their employees. Thus, the change first needs to start with the leaders themselves, before they can influence change in the organisation.

Every organisation requires a change at each level, viz. organisational, managerial, interpersonal, and personal levels (Covey & Gullledge, 1994). Corporate level change

entails an organisation's mission, vision and values, while managerial change involves the following:

- how the job is done;
- skills level and management style;
- how employees relate to one another while doing their job; and
- the degree and nature of empowerment throughout all appointment levels.

Change at an interpersonal level entails the way people relate to one another (Covey & Gulledge, 1994). This includes how they communicate, their behaviour patterns, and the degree of trust within the organisation. Finally, personal change indicates the degree of a person's willingness to adapt to new or improved thought processes. This also includes behaviour patterns, values and own trustworthiness, and competence with which employees view one another within the organisation. All changes require an integrated change at all four levels.

Covey & Gulledge (1994) explain that there are two types of change, namely outside-in, and inside-out change. Outside-in change refers to organisational structure change and can be accomplished in less time than inside-out change. Inside-out change entails changes to the corporate culture and behaviour; this change is required to sustain the structural changes. Structural change can be accomplished by implementing the following: reorganise, restructure, reinvent, and re-engineer. This method of change is often done first by management to accomplish goals as it is most tangible, but is insufficient to accomplish the required change. Inside-out change is also required, where organisations are more than just structures. Organisational behaviour is determined by the collection of the behaviour of individuals. Thus, *organisational change cannot take place without personal change*. This change is not limited to behaviour but also attitude, management, leadership styles and all interpersonal relationships within the organisation. Covey & Gulledge (1994) further state that it is crucial for leaders to release that they cannot change people, only themselves. People will behave differently when they see the problem.

Covey & Gulledge (1994) further elaborate on the perceived problem that organisations resist change. They explain that organisations do not resist change, but that the people in the organisation do. They oppose being changed, and the unknown consequences of being changed. The employees involved in the change do not trust the effects resulting from a given change, the motivation behind the change, and whether the change is the right or wrong solution. The resultant uncertainty leads to fear, lack of trust in management, as well as in the organisation as a whole. The more significant the perceived change, the larger the reluctance to change the current status quo.

Covey & Gulledge (1994) address one of the most significant barriers to change as being insufficient two-way communication. They explain that managers often fail to understand problems and barriers. In contrast, they are focused on the change they want to implement. The problems and proposed solutions need to be discussed in open dialogue with the employees and all other stakeholders. Covey & Gulledge (1994) further state that difficult situations, for example, downsizing, are only addressed after rumours have been communicated to employees. When people do not fully understand a change, they tend to distrust, fear and resist it. People who are affected by a change that is not part of the change process and analysis feel violated when asked to implement or take part in that change. Thus, it is crucial to ensure that all who are affected by the change

feel they were part of the process to implement it. People need to believe as well as see evidence of the fact that the benefits of the change will outweigh the pains of going through the required changes.

Benn & Martin (2015) explain that a high level of participation also allows for a higher acceptance of new ideas and change. They have found that there is a strong correlation between participation and the understanding of the need for change.

It is important to note that the suggestion by Covey & Gullledge (1994) as to how to implement change mirrors the statements made by Dewhurst et al. (2009) in their discussion of leadership interaction and the positive effect it has on morale. Employees want to feel they are part of the solution, and that the solution should not be forced on them.

2.8 Link Between Morale and Maintenance

Shandler & Egan (1994) state that quality is created by people, not by techniques or technologies. This is key to the motivation for this research.

During a roundtable discussion held in March 2015 (Eventful Group, 2015), the facilitator asked delegates what they felt were the most significant problems faced by the industry that relates to physical asset management. The delegates were a combination of technical and engineering managers from private and public companies within the Cape Town area. The delegates in attendance ranged from engineering managers, to reliability managers and maintenance managers. The prevailing responses received to the question of what the most significant problems are, were people, i.e. maintenance personnel related. These include the skills level of the workforce, middle management skills, relationship management, and the quality of captured information. The asset management discussion moved from discussing equipment, to discussing the members of the maintenance departments, and how they are instrumental in ensuring required performance.

As discussed in Section 2.1, low employee morale often results in a reduction of quality of work. It is important to note that it is the employees who conduct the maintenance activities, where the work is not done by the selected maintenance model used (The Institute of Asset Management, 2012). It does not matter how advanced the model or strategy is if the maintenance teams do not do the work correctly. There will not be successful physical asset management without the support and dedication of the maintenance teams. The aspects that make the most significant difference between good and poor asset management are employees and their knowledge, competence, motivation, and teamwork. Having these elements in place enables an organisation to perform effective asset management and this, in turn, drives production and profitability.

As discussed by Wahid, Corner & Tan (2011) a quality culture is only embedded in a company when:

- the behaviour of the employees matches the company slogan;
- the customer inputs are actively sought and used to improve quality continuously;
- the employees are engaged and involved;
- work is done as a team;

- the top management is committed and involved;
- sufficient resources can improve quality;
- training can ensure that employees can maintain the required skill level;
- reward and promotion systems are based on the contribution to the quality and continuous improvement;
- employees are viewed as internal customers; and
- suppliers are treated as partners.

The items listed above can only be achieved if the employees are engaged and have high work morale. It is critical that the organisation must be ready for change before the required quality improvement strategies can be implemented (Wahid et al., 2011).

2.9 Study Methods Used in Literature

From the literature, the most common method used to determine the morale of a workforce is the use of survey questionnaires. The best examples of using surveys, were the studies about the morale of workers in Russia (Linz et al., 2006) and the NHS (Cunningham & Hyman, 1996). Each of these studies provided detailed results of the survey findings and comparison between different control groups.

A survey or questionnaire is the responses obtained from people for a series of standardised, closed questions (Falissard, 2012). The second most common method used are interviews. This was utilised when people's opinions were required. Good examples of this method are the study of NHS morale (Cunningham & Hyman, 1996) and the study about management skill in the hotel industry (Pollitt, 2007). In each of these cases, interviews are used in conjunction with other research methods.

The majority of sources found on topics relevant to the study were case studies done on companies that implemented morale improvement strategies. Each of these case studies explains the problems experienced before the implementation, the process followed and the benefits achieved. A good example of a case study conducted on a successful implementation is the study conducted on career development at Dial-a-Cab (Pollitt, 2008a). While a good example of a less effective change implementation is the study about the implementation of empowerment in the NHS (Cunningham & Hyman, 1996).

Dewhurst et al. (2009) used data from a survey to quantify the effectiveness of different morale improvement methods. This was followed by an interview with the HR manager to obtain more qualitative information to support the results.

For the study by Benn & Martin (2015), these authors used a mixed method approach, which entailed surveys of employees and semi-structured interviews within only two organisations.

Clark (1998) surveyed 7 000 employees, where the survey entailed 20 questions. The results of the survey were split into the following six topics:

- pay;
- hours of work;
- future prospects, including proportions and job security;

- the difficulty of a job;
- job content including interest, prestige and independence; and
- interpersonal relationships.

Clark (1998) found that the one benefit of his study was that the questions relating to many of the job attributes are not measurable, for example, future prospects, including proportions and job security; the difficulty of a job; job content including interest, prestige and independence; and interpersonal relationships. Other items do not have a linear relationship to job quality. For example, for one person, a 35-hour work week is too long; while for another, the same time is too short. Their attributes cannot be evaluated in any other way than asking the participants. The use of surveys allows the study to be conducted about the employee's experience of the circumstances, and not an outsider's observation (Clark, 1998).

Benn & Martin (2015) analysed the survey data using the path analysis methodology, while Buddelmeyer et al. (2013) used an ordered logit model. This model has shown to be less sensitive to small sample bias. The study that was done by Clark (1998) utilised regression analysis to evaluate the relationship between job characteristics and job satisfaction. The regression analysis also shows to which variables job satisfaction is most strongly correlated. Clark (1998) found that this was a useful summary method for certain job characteristics. This method also allowed the result to be broken down into sex and age analysis. In the study done by Linz & Semykina (2012), the association between anticipated rewards and job satisfaction was evaluated using ordered probit regression analysis.

2.10 Defining SOE

A State-Owned Entity (SOE) is often also referred to as a State-Owned Enterprise or Public Entities. This is an independent organisation that is partially or wholly owned by the government (Ovens, 2015). These organisations operate in line with a given Act to perform a specific function. South Africa started a process of formal transformation in 1994, where the various State-Owned entities were transformed into state-owned companies. The goal was to improve service delivery through effectivity and efficient operation. This would be achieved by maintaining the balance between private and public. This balance allows the organisation to take advantage of private sector efficiencies, while maintaining public sector accountability.

Ovens (2015) explains that SOEs play a significant role in achieving the goals of the 2013 National Development Plan (NDP). Some of the outcomes of relevance are:

- ensuring proper maintenance and refurbishment of ageing urban infrastructure, where additionally, there should be a transition to sustainable infrastructure delivery;
- the spatial transformation of towns and cities ought to be supported by investment in public transport; and
- urban development and infrastructure investment ought to take place in areas supported by mass transport corridors.

Ovens (2015) argues that effective and efficient planning should be done by SOEs to ensure coherent urban growth and development. In addition to this, some SOEs influence development patterns due to the structural elements, for example, transportation network,

bulk, energy, and ICT infrastructure. Examples of these are Eskom, the Passenger Rail Agency of South Africa (PRASA), Transnet, and Petronet. These organisations are crucial to ensuring urban efficiencies, especially in relation to mass public transport. In the report developed by Ovens (2015), the main issues were identified for each SOE. For the majority of the SOEs, maintenance backlog and optimisation were identified to be challenges needing to be addressed.

Ovens (2015) also identified principles in the Spatial Planning and Land Use Management Bill (SPLUMB) that are dependent on SOEs. The first is “effective and efficient transport networks, stems and services” (Ovens, 2015: 6). This is required in order to achieve integration of land development for social, economic, industrial, and physical functions. The second principle relevant to this study is the optimised use of existing infrastructure resources, which is achieved by the maintenance of existing infrastructure, and the expansion of the existing infrastructure.

As elaborated above, SOEs play a critical role in urban development, but there are concerns regarding the performance of some of these organisations. In some cases, the current investment levels made by these organisations are insufficient and the maintenance programme is falling behind. The NDP suggests that this could be affected by institutional and reporting structures, and the given organisation’s difficulty in adopting innovations (Ovens, 2015).

Ovens (2015) clusters SOEs into the following five categories: power generation; transmission and distribution; ICT; transport; major landholder; and providers of development support. At the time this report was compiled, the following companies were classified as South African SOEs (Communications & Information System, 2015):

- Power generation, transmission
 - Eskom
- ICT
 - Telkom SA (Ltd)
- Transport
 - Airports Company South Africa (ACSA)
 - Cape Town International Airport
 - King Shaka International Airport
 - OR Tambo International Airport
 - Passenger Rail Agency of South Africa (PRASA)
 - South African National Road Agency
 - Transnet (Ltd)
- Major landholder
 - Eskom
 - Denel (Pty) Ltd
 - Transnet (Ltd)
- Providers of development support
 - Industrial Development Corporation [Ltd] (IDC)

The following SOEs were listed in the Government list (Communications & Information System, 2015), but were not included in the clustered list provided by Ovens (2015).

- Alexkor Limited
- Ithala Development Finance Corporation (Ltd)

- Khula Enterprise Finance (Ltd)
- Pebble Bed Modular Reactor (Pty) Limited (PBMR)
- PetroSA (Pty) Ltd
- Rand Water
- South African Airways (SAA)
- South African Express
- South African National Parks (SANParks)
- South African Nuclear Energy Corporation SOC Ltd (NECSA)

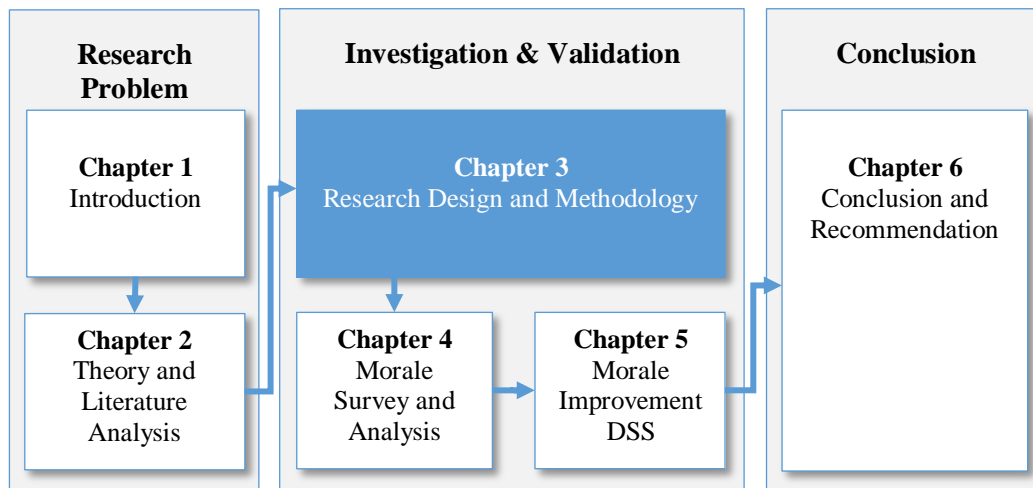
2.11 Chapter Summary

In this chapter, a literature review is conducted as relevant to the objectives of the study. The first three secondary objectives are addressed by this chapter. The first objective is to determine how an employee can be measured; the second is to identify the theoretical causes of low morale; and the third is to identify which methods have been successfully implemented. This was addressed by studying the literature on morale, and how morale is measured, and secondly by analysing past case studies done in this field. This information has formed a base for the design of the surveys, and finally the morale improvement decision support system.

Chapter 3. Research Design and Methodology

Research design allows for the organisation of the research project ensuring maximum evidence is gathered to answer the research question. From the literature review, it is evident that various morale related case studies have been conducted in different industries, but very few in the engineering industry or the context of maintenance or physical asset management. It is beneficial to companies and organisations if this knowledge gap is filled since people are an essential part of physical asset management, ensuring quality.

The goal of this chapter is to discuss the research design and the methodology used for this study. The chapter starts with a discussion about the research approach selection. The process entails an overview of philosophical worldviews, followed by a discussion of research design, and finally research methods. The chapter concludes with a discussion of the research process selected for this study and motivation as to why this is most suitable. The information discussed in this section is used as a base for the following chapters.



3.1 Research Approach Selection

Research design can be viewed as the blueprint of how the research will be conducted, while research methodology is the process and tools that will be utilised (Mouton, 2001). Tashakkori & Teddlie (2010) explain that the purpose of *research design* is to organise a research project or problem from initiation. The organisation ensures the researcher can

maximise the possibility of gathering evidence that will result in answering given research question. Research design entails the selection of the research approach and the strategy of inquiry (Creswell, 2013). Denzin & Lincoln (2011) explain *research methodology* to be the strategies of enquiry, including the skills, assumptions, portrayals and material practices that the researcher methodologically uses when they move from research design to the collection of empirical material.

The framework developed by Creswell (2013) is utilised for selecting the most suitable research approach (Figure 3-1). A research approach details all the steps that are taken during research from the broad assumptions to the detailed methods used for data collection, analysis and interpretation. Each research approach has three components: the first is the philosophical assumption; the second is the distinct methods or procedures; and the specific method used (Creswell, 2013). The broad research plan or proposal occurs at the interaction of these three components. The final decision on which research approach ought to be used is based on the nature of the research problem (Creswell, 2013).

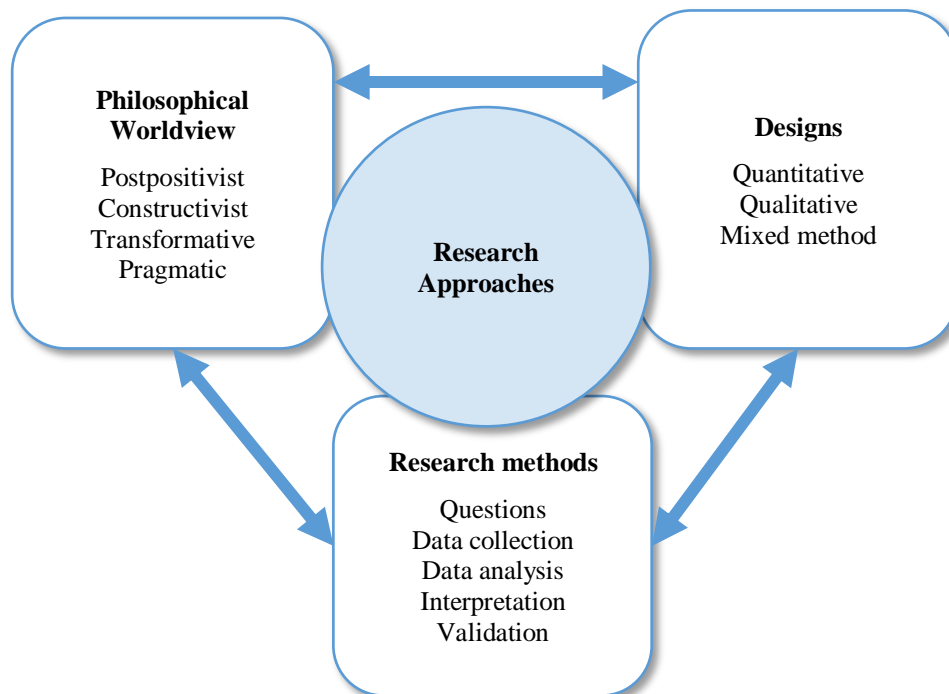


Figure 3-1: A framework for research (adapted from Creswell (2013))

3.1.1 Philosophical Worldview

The worldview in this context refers to “a general philosophical orientation about the work and the nature of the research that a researcher brings to the study” Creswell (2013: 6). The researcher is often unaware of the influence their worldview has on the research they are conducting, where this can be prevented by identifying the individual’s worldview. The following are factors that can affect a researcher’s worldview:

- discipline orientation

- students
- advisors and mentors
- past research experiences
- beliefs held by the researcher

There are four worldviews most widely discussed in the literature: post-positivism, constructivism, transformative, and pragmatism (Creswell, 2013). For this study, the worldview that has the largest influence is *pragmatism*. This worldview is focused on using all possible methods to solve the research problem. Creswell (2013) explains that pragmatism is not committed to any one philosophy, but rather applies a mixed method that utilises quantitative and qualitative methods as needed (Azorin & Cameron, 2010). The researcher is free to choose the method that best meets their needs (Creswell, 2013). One of the characteristics of the pragmatist worldview is that the truth is determined to be that which works at that specific time (Khan, 2015).

3.1.2 Research Design

There are three research approaches that form part of research design, viz. qualitative, quantitative, and mixed-method (see Table 3-1). Creswell (2013) further explains that these methods are not as distinctive as expected. *Quantitative research* design entails the collection and analysis of numerical data (Bryman, 2006). This is done through an adoption of a deductive approach to the relationship between theory and research, with an emphasis on the testing of theories. By way of contrast, *qualitative research* design places emphasis on words rather than quantification and analysis of data (Bryman, 2006). A simplified explanation is that qualitative research is focused on using the word while quantitative is focused on using numbers. *Mixed-method research* lies between qualitative and quantitative (Creswell, 2013). Across the literature, there have been numerous debates over the merit of each quantitative and qualitative research method (Azorin & Cameron, 2010; Bryman, 2006). According to Bryman (2006), these debates have been resolved by the introduction of a mixed-method research approach.

Mixed-method research follows an inductive approach to the relationship between theory and research, with an emphasis on generating theories rather than proving them. The inductive design approach focuses on the ways a researcher interprets their social world and allows for individual's views as well as the social reality to constantly shift and as they are engaged (Bryman, 2006). A researcher could also employ a multiple-method analysis that utilises more than one quantitative or qualitative method, but does not mix these methods. Mixed method research combines portions of qualitative and quantitative research methods within a single project or study (Azorin & Cameron, 2010; Bryman, 2006). This is not using qualitative and quantitative data in tandem, but both should be mutually illuminating (Bryman, 2006). This allows the researcher to offset the weaknesses of one method with the strengths of the other (Azorin & Cameron, 2010; Bryman, 2006). This has the added benefit offering a broader perspective than those achieved by using only one method (Azorin & Cameron, 2010).

Table 3-1: Alternative research designs (adapted from (Creswell, 2013))

Quantitative	Qualitative	Mixed methods
<ul style="list-style-type: none"> • Experimental designs • Non-experimental design, such as surveys 	<ul style="list-style-type: none"> • Narrative research • Phenomenology • Grounded theory • Ethnographies • Case Study 	<ul style="list-style-type: none"> • Convergent parallel • Explanatory sequential • Exploratory sequential • Transformative • Embedded • Multiphase

Table 3-1 shows the possible research designs for each research approach.

The research approach that is best suited to address the research questions for this project (Sections 1.2) is *exploratory sequential mixed method*. This methodology entails first conducting a research phase. The results of the qualitative phase can be used to develop an instrument that best fits the intended sample for the second, quantitative phase (Creswell, 2013). The results of each phase builds on the next phase. The benefit of this multi-phased approach is that it allows for the development of a better measurement tool. This can be viewed as a three-phase procedure. The first phase entails exploration, the second phase the development of a measurement tool, and the third the administration of the tool, respectively (Creswell, 2013). Data collection occurs during the first and third phase.

One of the main aspects of the project that is considered during the identification of research methods is the participant groups and source of information used in each phase of the project, as the same group should not be used for *exploratory sequential mixed method* research projects. This is in line with the requirements for this project, as the first qualitative phase of the project is conducted on the basis of existing literature, where participants of the survey questionnaire portion of the study will not be the same as for the interviews.

The second reason why this method is selected is that it allows for the strengths of both qualitative and quantitative to be used while offsetting the weaknesses of each and allows for a complete understanding of the research problem (Creswell, 2013), as the method allows the researcher to compare different perspectives obtained from quantitative and qualitative data. In addition, these quantitative results can be explained using follow-up qualitative data collection.

3.1.3 Research Methodology

The final aspect of the research framework (Figure 3-1) that needs to be addressed is the research methods to be used at each phase of the study. Examples of available research methods are questions, data collection, data analysis, interpretation, and validation (Creswell, 2013). Using a mixed-method approach will ensure a complete understanding of the problem. The quantitative data from literature is collected and analysed to pinpoint the most common cause of low employee morale in the companies investigated. This is achieved using a survey to obtain the numeric data required to analyse the problem. This method of research is a widely used research method to determine the morale of employees and evaluate the causes (Cunningham & Hyman, 1996; Linz et al., 2006; Wahid et al., 2011). The data obtained is evaluated using a

regression analysis similar to the Linz et al. (2006) study (Section 2.3). The survey is then followed by semi-structured interviews in order to obtain insight about the results found in the surveys, and to validate and review the proposed DSS (Figure 3-2).

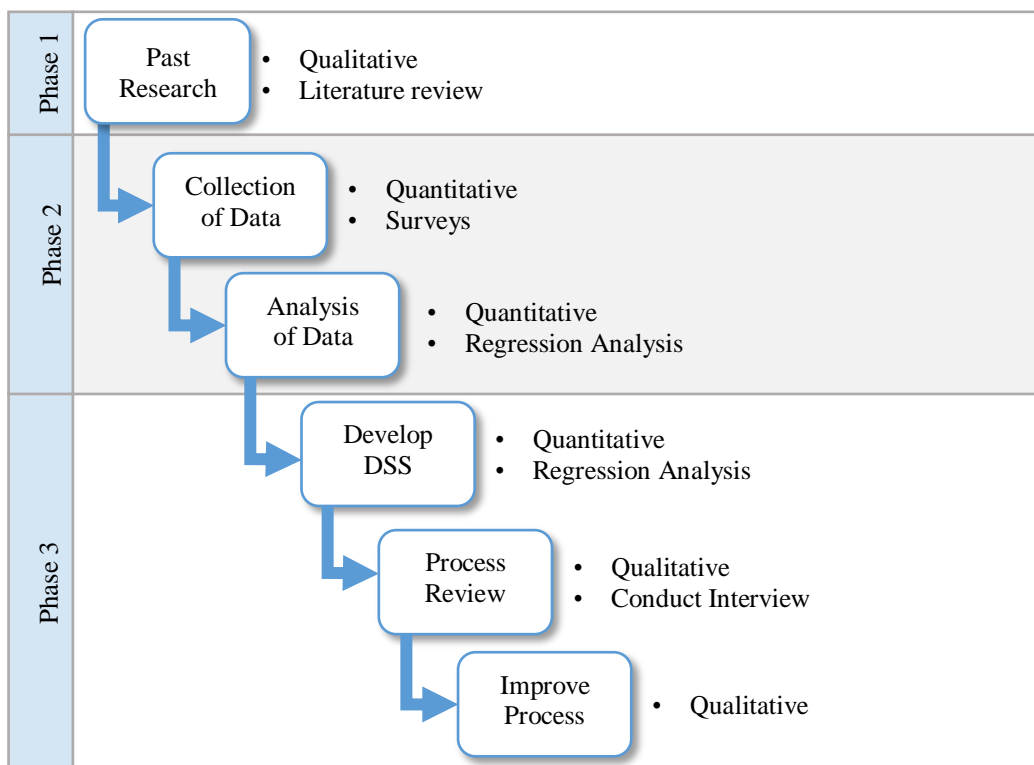


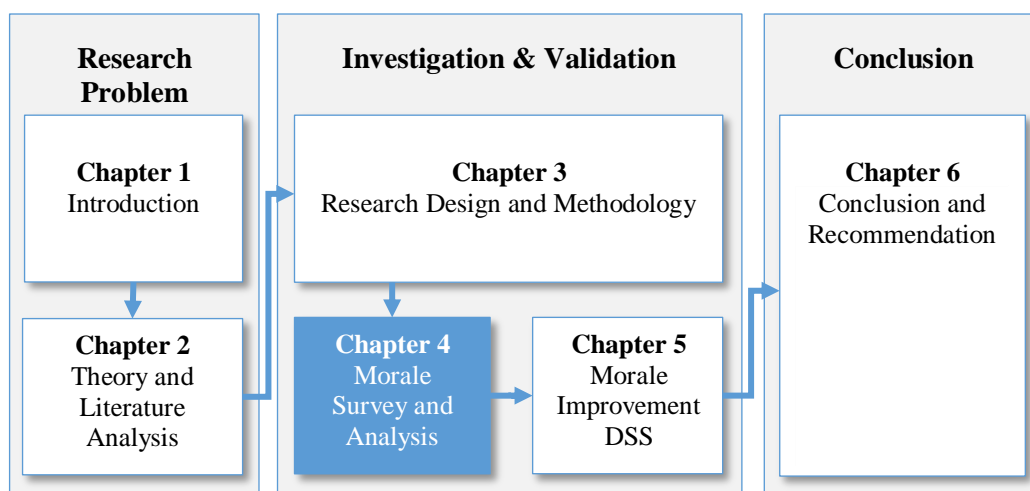
Figure 3-2: Research process followed

3.2 Chapter Summary

In summary, an *exploratory, sequential mixed-method* research approach is followed with a *pragmatic worldview*. This entails collecting both quantitative data from close-ended survey questions and qualitative data from the open-ended interview questions in different phases of the research project. The next chapters will each discuss a different phase of the study as depicted in Figure 3-2. Chapter 4 covers Phase 2 activities and Chapter 5 covering Phase 3 activities

Chapter 4. Morale Survey and Analysis

In Chapter 1, seven research objectives were identified. This chapter address two of these objectives, namely, quantification of morale in technical departments of SOEs, and determining the main cause of morale problems within SOEs maintenance departments. The research questions that will be answered in this chapter are: do maintenance employees in SOEs have low morale and what are the causes; does employee morale affect performance; and what methods of morale improvement can be implemented in SOEs. This chapter covers the design, use and analysis of the survey questionnaires, with the goal of addressing the two research objectives, and answering the three research questions.



4.1 Questionnaire Considerations

Surveys are a tool for society to look at itself, “a telescope on society” (House, Juster, Kahn, Schuman & Singer, 2004: xii). Heeringa (2010) states that modern society has adopted the survey method of research as the principal tool to evaluate itself. Groves, Fowler Jr, Couper, Lepkowski, Singer & Tourangeau (2011: 2) define a survey as “[A] systematic method for gathering information from (a sample of) entities to construct quantitative descriptors of the attributes of the large population of which the entities are members”. The use of surveys is not a modern concept but has proven to be very useful and relevant still today. The reason for the success of surveys is that it is a highly effective, well tested method for obtaining information from people, allowing for modern

random sampling procedures that make it possible for a small number of people to represent a larger population (Schuman & Presser, 1996).

In the case of this study, a questionnaire is used as the means for the quantitative data collection. The following section discusses the development of the questionnaire based on past survey literature and a standard set of survey development guidelines. A discussion of the results obtained from the systematic collection of data follows thereafter.

There are various considerations that could have an impact on how a respondent reacts or answers survey questions. These include question length, wording, order and the question type chosen. A brief overview of these risks is provided in support of this study's survey design.

4.1.1 Question Length

Payne (1951) advises that a question ought not to be longer than 20 words. However, this theory has since been disputed. A study by Laurent (1972) shows there is a strong correlation between the behaviour of the interviewer and respondent. In the cases where the interviewer had high levels of behaviour and asked longer questions, the respondent provided more information.

It should also be noted in the cases discussed by Converse & Presser (1986) and Laurent (1972), the questions were conducted in an interview format, as opposed to a written format. For this study, this consideration is consequential, since the targeted participants in some cases have a low level of literacy. Converse & Presser and Payne (1986) has been widely cited in reference to developing surveys, with over 2 000 and 1 400 citations, respectively. Laurent is less widely cited, but receives support from Converse & Presser.

4.1.2 Question-Wording

Payne (1951) states that researchers spend substantial time on the statistical method used to reduce statistical errors by a tenth of a percent, but do not focus sufficiently on improving the wording of questions.

Converse & Presser (1986) explain that the use of simple language can be achieved by ensuring that simple, straightforward language is used in the questions. The language, including the grammar used, should be in line with that used by the intended participants. This is the "spoken" language of the intended participants. Elevated word choice should be avoided by using the simplest synonym in each case. However, Converse & Presser (1986) further states that the language used should not be "chatty" or over-familiar, where a delicate balance ought to be obtained.

The final guideline listed by Converse & Presser (1986) is in relation to general information. Respondents may not know or may have forgotten information that may be crucial to understanding and answering the survey question.

A standardised measure is central to surveys, as with most other research. To achieve this, the wording of questions ought to be kept consistent across all respondents (Converse & Presser, 1986).

4.1.3 Question Type

Belson & Duncan (1962) found that more information can be yielded using the checklist method than with open questions. Two of the possible contributing reasons for this is the poor writing ability of the respondents and their ability to recall the required information (Belson & Duncan, 1962; Converse & Presser, 1986). Belson & Duncan (1962) further state that the risk of using a checklist is that a longer checklist reduces the likelihood of a respondent volunteering additional information that was not included in the checklist. However, the study did show that the checklist yield improved response when compared to open questions. Belson & Duncan is a dated reference, but as with the other references used in this section, remains relevant, as there has not been substantial changes in the field of survey design.

Converse & Presser (1986) further explain that the disadvantage with closed questions is that the respondent must choose from amongst alternatives provided, instead of answering in their own words. However, this also allows for a more consistent reference frame for all respondents.

In conclusion, Converse & Presser (1986) suggests closed questions if there is enough information to carefully prepare questions due to the benefit of greater specificity. The advantage of both open and closed questions is achieved by using an open question as the follow up to a closed question. This gives the benefit of additional guidance for the analysis of closed questions.

4.1.4 Question Order

Survey respondents are sensitive to the context in which a question is asked, as well as to the wording of the questions (Converse & Presser, 1986). Care should be taken to ensure the previous question does not alter the respondent's interpretation of the current question. This view was echoed by Turner (1984), who explains the importance of the order of interview questions. If the more general question is asked, followed by a vague question, the respondent will respond differently to the vague questions. Turner is a relatively dated reference, but as with the other references relating to survey design, this remains relevant, as there have not been substantial changes in the field of survey design.

Respondents will bring their answers in line with what was answered in the previous question (Converse & Presser, 1986). To avoid leading respondents, general questions ought to be asked before specific questions, in a 'funnel effect'.

4.1.5 Survey Medium Selection

The idea of surveys have been in use for many millennia; it originated in the use for counting people as part of censuses (Wolf, Joye, Smith, Smith & Fu, 2016). The modern implementation of surveys that are based on the use of a random sample and statistical inference is only approximately a century old. During the period since modern surveys have been implemented there have been many changes in the data collection methods implemented (Wolf et al., 2016).

- After the Second World War, most surveys were conducted face-to-face, or through the post in cases where enough of the targeted people were considered to be literate.
- In the following generation, telephonic surveys were utilised.
- In the following generation web surveys were seen as the preferred medium. The reason for this shift was that following the use of cell phones, there is no longer a central list of phone numbers that can be used to identify the target audience.
- A design using combined survey modalities used to combat the reduction in response rate observed in recent years.

4.1.6 Middle Alternative

The middle alternative in a question refers to the middle option when respondents have three options to choose from. The middle alternative is the neutral selection. It has been found not to be unusual for 20% of interviewers to select the middle alternative if it is offered as an option (Converse & Presser, 1986). However, Converse & Presser also stated that the distribution of result in the other categories tends not to change, as more respondents would select the middle alternative instead of “don’t know”. A solution for this is to remove the middle alternative. Doing so will reduce the information lost to it. Converse & Presser advised that a measurement of intensity ought to follow such a question.

Questions to measure intensity are used in two cases, the first as mentioned above, as a follow-up for when the middle measure has been removed, and the second when measuring attitude (Converse & Presser, 1986). One of the most popular attitude measurements is the ‘agree or disagree’ statement question (Converse & Presser, 1986).

4.2 Questionnaire Development

The process followed to develop the survey is based on the process described by Converse & Presser (1986). The process entails the following steps: exploration, re-use questions, pretesting, and final survey.

4.2.1 Exploration

This first phase of survey development entails setting the research purpose, and then determining the goal of the study (Converse & Presser, 1986). This includes having knowledge of work that has already been done as discussed in Section 1.3. The research objectives that will be addressed through the use of the questionnaire is the quantification of the morale score, determine the morale affecting factors that influence SOEs, and provide the information required for the morale improvement DSS.

4.2.2 Question Creation

Converse & Presser (1986) advise the best place to start is to use questions that have been tried and tested. Throughout the literature review (Sections 2.3 to 2.6), questions were identified that provide the basis from which the survey is developed. These questions are reviewed, and in many cases, reworded due to the need to change the language to suit the target group and environment.

4.2.3 Repeated Questions

As discussed, various considerations impact the respondents' answers to a single survey question. To mitigate possible adverse effects of questions, comparison of the same topic is included multiple times in the survey, each time in a different format (Converse & Presser, 1986). This is similar to Baehr & Renck (1958), who measure employee morale, referred to as employee inventory. This was constructed by analysing hundreds of items in an attempt to cover all the influences that affect the employees. Both financial and non-financial incentives were investigated to provide on the job and off the job satisfaction. These items attempt to pinpoint both individual satisfaction and those achieved from being a member of a group. The goal of this was to describe an employee's work environment using words to which the employees can relate. The challenge is that many surveys use terms to which the employee completing the survey cannot relate. In other words, there is a risk that the employee does not view their environment in the way that the survey presents views.

4.2.4 Pretesting

Due to time constraints, pretesting is limited, but this often seems to be the case (Converse & Presser, 1986). In this research study, full pre-testing could not be done as the researcher could not find an organisation with a similar structure to the targeted SOEs. An SOE could not be used as there was a limited number of participants available for the study.

4.2.5 Final Questionnaire

External factors are excluded from the final survey as these items are difficult to measure. There is a very large variety of external factors, including the impact of sports results, participants' physical health, and participants' level of debt. Ideally, in order to indicate the impact of these items, a study should be done just before and just after the occurrence of such a factor. The study beforehand should act as a control or baseline to the one following the external factor. In addition to this, there should be no other changes during this period.

Another factor ignored in the survey is the consideration of working hours. This was done as all the organisations studied are in the same country and are all SOEs within similar industries. These organisations' working hours are governed by South Africa's labour laws, and should be consistent between the SOEs.

The final developed survey is included in Appendix A.1.

4.3 Data Collection Procedure

Following the questionnaire design, an application to the Research Ethics Committee (REC): Human Research (Humanities) was submitted to apply for ethical clearance. The obtained approval is available in Appendix B.1. One of the requirements of the REC is that each participant ought to complete a participant consent form, where they agree that they were informed of their rights, and that the survey was completed voluntarily. An example of the consent form is available in Appendix B.3.

The process used is confined by opportunity and utilised employees from SOEs that have a depot within the Cape Town region. In some cases, where the person no longer worked at the SOE, they provided contact details of their former maintenance departments. In total, 16 organisations or divisions were contacted. Four of the 16 responded, and three of the four organisations were willing to participate in the study. The sampling of SOEs were based on the researcher's network of industry contacts. For organisations where no contacts existed, an internet-based search provided details for people in the required position, who were then contacted via the LinkedIn messaging function. A short explanation of the study was given, and their emails were requested, so as to provide the full details of the study. In all but one of these cases, the person's email address was provided, but no response was received on the email sent to the contacts identified through LinkedIn. The response rate at an organisational level was 25%. This includes one organisation where the application was rejected; where if the organisation in question is viewed as a non-response, the achieved response rate is 19%.

An example of the email used is available in Appendix C.1. With examples of the questionnaire, consent form and application letter in Appendix C.2 and the permission letter sent as attachments with this email in Appendix C.3. The application letter is an official request to conduct the study at the organisation approached.

Following REC and organisational approval, the survey sessions were arranged with the different organisations. In each case, care was taken to ensure the minimal operational impact on each organisation. The survey sessions at each organisation followed a similar process, a representative from the organisation introduced the researcher to the

participants. This was then followed by an explanation of why the research was being conducted, a motivation as to why the participants should take part, and the prospective use of the data. The participants' options and rights were explained once the participants understood the goal of the research. Only at this stage were the survey and consent forms distributed. Once all the participants received the required documents, the consent forms and submission were explained. The consent form was submitted back in a separate box from the completed survey to ensure the surveys remain anonymous. Each survey was to be submitted into a box labelled with the team's name.

With the survey being voluntary, not all employees attended, and they were free to leave at any point during the session. Table 4-1 shows the number of participants per organisation. The attendees per organisations refer to the number of employees who entered the venue where the survey was conducted. This number could not be confirmed, as in some of the sessions, some participants stayed for a short while and then left, due to them not wanting to participate, or being called to resolve operational problems. In addition, in certain cases, participants came in after the start of the session. For each such occasion where a participant entered late, they were briefed on the goal of the study and their rights. The figures presented is the best attempt at confirming the sample group and its size. The response rate per organisation is calculated.

Table 4-1: Participants per organisation

Organisation	Teams	Attendees	Participants	Response rate (%)
Organisation A	9	106	87	82.1
Organisation B	7	70	68	97.1
Organisation C	1	26	26	100.0
Total	17	202	181	89.6

4.4 Quantitative Data Analysis

The view expressed in a survey is often expressed as a set of distinct and separate opinions. Employees are not a calculating machine that adds one for every positive encounter, and minuses one point for every dissatisfaction. The employee's view as expressed in the survey is a fraction of their more complex and broad pattern of attitudes. It is essential to have a well-defined rationale to assist the interpreter in understanding the different opinions that characterise the way they feel about their work environment. The framework proposed by Baehr & Renck (1958) is based on the observation that there are many apparent and indefinable similarities between different employees' opinions. For example, a member of an immediate work group will have similar views due to shared experiences. This has a broader implication, where employees of a specific company develop opinions that are similar because they are working for the same company.

One item that should be taken into account when evaluating data obtained from questionnaires is the particularity that questions are fundamentally open to interpretation (Falissard, 2012). The meaning of a response can then be evaluated based on the correlation to the responses given to other questions. Falissard (2012) further explains that the global picture is built as additional information is obtained from each analysis that is completed. This is also why exploratory data analysis is often used to evaluate questionnaire survey data.

One way to analyse results ought to be to focus on areas of high or low result within a group or organisation. These areas can be referred to as patterns of attitude. In addition to this intercorrelation between measures should be calculated.

Heeringa (2010) explains there are six steps in survey data analysis. The steps are as follows:

1. definition of the problem and objectives;
2. understand the sample design;
3. understand the design variables, underlying constructions and missing data;
4. analyse the data;
5. interpret and evaluate the results of the data analysis; and
6. report the estimates and inferences from the survey data.

The first step entails defining the problem to be addressed. During this study, the survey is first used as an observation tool to measure the level of morale in the organisation. Once the morale level has been determined, it is used for decision-making by analysing the relationships among measures. The second step entails understanding sample design. The sample design for this study is covered in Section 4.4.1.

Step three entails understanding design variables, underlying constructions, and missing data. The fourth step in the analysis process is a statistical analysis that lies at the heart of the process. This entails obtaining the results that describe the population using confidence intervals and the extent of relationships using statistical modelling. The next step leads directly to the analysis and entails the evaluation of the results (Heeringa, 2010). This stage also takes into account the effect of sampling errors. Steps three to five are covered in the remainder of this section. The final stage is the formatting of results in the end product. The end product of this study is determined using the analysis done in this chapter but is addressed in Section 5.1.

In addition to Heeringa (2010), Falissard (2012) explains a process that can be used to analyse survey data. The process presented is as follows:

1. data management;
2. description of variable distribution;
3. estimation of the strength of relationships between variables;
4. a statistical test of hypothesis; and
5. statistical modelling.

The first step in the process proposed by Falissard (2012) is data management, which entails the import and manipulation of data sets containing variables as well as the verification and manipulation of the variables. A descriptive analysis for the variable distribution follows the first step and is achieved through the calculation of the means, variances, and minimum and maximum values (Falissard, 2012). This information is graphically represented using histograms and box plots.

The third step entails the analysis of the relationship or association between two variables. These relationships can then be verified using statistical hypothesis testing and is used to evaluate if the relationships were observed by chance. The final stage in the process is statistical modelling. The goal of this is to determine a pattern of associations between the received responses and a set of potential predictors.

A combination of the analysis processes by Falissard (2012) and Heeringa (2010) best suits the outcome of this study. The process by Falissard (2012) is used to achieve the third and fourth steps in the Heeringa (2010) process. The final modified process used for data analysis is as follows:

1. Definition of the problem and objectives
2. Understand the sample design
3. Data management
 - a. Understand the design variables
 - b. Understand the underlying constructions
 - c. Missing data
4. Analyse the data
 - a. Description of variable distribution
 - b. Estimation of the strength of relationships between variables
 - c. A statistical test of hypothesis
 - d. Statistical modelling
5. Interpret and evaluate the results of the data analysis
6. Reporting of the estimates and inferences from the survey data

The definition of the problem and objectives have been stated in Sections 1.2 and 1.3. The rest of the data analysis process is detailed in the following sections.

4.4.1 Sample Design

Convenience sampling was used to gain access to each of the SOEs from which point the participants were made available to attend the survey where they were invited to participate. Convenience sampling is a nonprobability method used for selecting a sample (Heeringa, 2010). It should be taken in to account that there is no theoretical basis to measure bias and variability of the sample group. To prevent the adverse effect of this on the study results the researcher should carefully evaluate and report the potential selection biases, and other possible survey errors.

For this study, the survey population was limited to a small number of people working for SOEs. The population was then further focused on employees working in the maintenance departments with the highest employment level targeted being supervisors.

Sample size in surveys refers to the number of units chosen from which data is collected. There is a distinction between designated sample size, the number of units selected to participate and final sample size which is the number of complete surveys (Lavrakas, 2008). In the case of this study, the sample size could not be determined in advance as it is limited by an organisations' willingness to participate in the study.

4.4.2 Data Management

The survey results were initially captured in Microsoft Excel. The spreadsheet is structured ensures that each participant is represented by a row while each column represents a question. Formatting was used to distinguish each "block" of questions easily. The block of questions refers to the physical layout of the questionnaire. For data

capturing purposes, each questionnaires' number was also written on each completed questionnaire. This was used as the unique identifier for each participant along with the organisation, department, and team. An extract of the captured data set is shown in Appendix D.1.

The Excel data was transferred to Dell STATISTICA, since this software provides the best combination of function for statistical data analysis. Following the transfer, the data was prepared to be used in STATISTICA by ensuring the format and the calculation of constructs was correct.

4.4.2.1 Data Cleansing

Before commencing with analysis, the data was first cleansed, which entailed addressing results where the participant provided multiple responses for the same questions and provided results other than the required selection. The questions with negative wording were addressed to ensure they can be used in correlation with questions that used positive wording. In the cases where very few selections was made in a specific category, the categories were re-evaluated. Each corrected data field are indicated in yellow in the data set (Appendix D.2).

When the surveys were initially captured the cases where two or more answers were given an "X" was entered. Each of these cases were considered, and the value furthest from neutral was selected. For example, if the participant selected 5 and 4, 5 was used. In the cases where the selected value was not sequential, the average is used, for example, where 2 and 4 was selected, 3 was used. In the cases where there was not a clear average, and where the selections were positive and negative, for example, where 2 and 5 were selected, the response was left blank.

In the cases where the sixth option was selected, the closest valid entry was selected. For example, for the question to determine the participants' highest qualification, one participant wrote Grade Nine. This was then edited to be "1", that represents "Grade 10". As this indicates that the participant did not finish school. For the standard Likert scale questions where the participants wrote a 6, or made a cross to the right of the strongly agree, section 5 was used.

In a few cases, the participants drew a line through questions instead of responding. In these cases, the response was left blank.

For the questions with a negative wording, the value used in the calculation was six minus the value selected by the participant. The negative questions are listed in Table 4-2. These results are indicated in red in the data set.

The first six questions in the survey cover demographic information about the participant. This included race, gender, highest qualification, employment type, age and duration of employment. In a few cases, a very small number of participants selected a specific option. Each of these cases was modified to allow for more accurate category evaluations to be done. This was done in the following cases:

- For the question pertaining to race, three participants selected 'other'. These responses were left blank.

- For the age question, one participant stated himself to be under 20. The following category was adjusted to include this response to be <30 instead of 20-30.
- For the employee-type question, one participant selected ‘other’ and one participant selected ‘temporary’. This response was combined with the Fixed Term Contract responses in a new category called Contract.
- For the highest qualification question, one respondent selected Bachelor Technologist. This response was grouped with a National Diploma.

Table 4-2: Negative questions

Q#	Question
2.7	I am underpaid for the work I am doing.
2.8	I am underpaid for my skill level.
2.10	I feel I am kept in the dark by management.
2.30	My line manager keeps postponing tasks.
2.40	I find my job dull and repetitive.
3.15	Negative media attention has changed my opinion of my employer.
3.21	The policies of the organisation are limiting my work.
3.22	I am frustrated by the company policies.

4.4.2.2 Missing Data

Heeringa (2010) explains that no survey set is immune to missing data problems. If the surveys that contain missing data are ignored, the study results may run a risk of having a potential bias.

There are three patterns with regards to what data is missing: systematically by design, partial completion, and item non-response (Lavrakas, 2008). Missing by design occurs when the researcher chooses not to pose a specific question to a participant. Partial completion occurs when all data after a point in the questionnaire is missing. The questions following this point are usually treated as non-responses, where an analysis ought to be done to determine why the participant did not continue (Lavrakas, 2008). Finally, item ‘non-response’ occurs when data is missing for some questions for some respondents. There are three reasons for this to occur, viz. information is not given by the participant; the given answer does not fall within the selected scale; and the data was lost. The most problematic case is when the participant does not respond.

Lavrakas (2008) advised that the reason why the data question was not answered ought to be evaluated. There are three distinctions in missing data: missing completely at random, missing at random, and not missing at random. If the data is missing completely at random (MCAR) the participant inadvertently skipped a question. In these cases, the results is unbiased, as there are no systematic differences between respondents and non-respondents. In these cases, the main problem encountered is a reduction in statistical power.

The data is said to be missing at random (MAR) when the data is missing, because the participant has trouble responding. For example, in the case of elderly participants that have difficulty recalling.

The third cause of missing data is where the question skipped based on the response itself (Lavrakas, 2008). In other words, the participant read the question, knows the answer, but does not provide a response. Finally, data could be not missing at random (NMAR). In this case, the participant knows the answer, but chooses not to respond (Lavrakas, 2008). This form of missingness is non-ignorable. An NMAR missingness model ought to be used in the analysis in order to prevent bias.

In the case of this study, a distinction can be made between the qualitative questions and quantitative questions. The majority of missing data was due to a block of questions that were missed. This occurred as these questions were printed on the back of the first page. This can be defined as MCAR.

The first possible method of addressing missing data is listwise deletion which entails deleting any entry that contains a missing field (Lewis-Beck, Bryman & Liao, 2003). The disadvantage of utilising this method of addressing missing data is that it eliminates a large portion of the data set. An alternative method to address missing data is conditional mean imputation. An example of this is to replace the missing fields with estimated values. The forecasted values could be estimated using a regression line to estimate the value based on other values provided. This method does generate approximately unbiased estimates if the data set is MCAR (Lewis-Beck et al., 2003).

STATISTICA is able to run the analysis on a data set that contains missing data as the default option is to ignore these values. This prevented the need to replace the missing values with forecasted results.

4.4.2.3 Constructs

A construct is an underlying theme or topic measured by the survey questions (Lavrakas, 2008). The validity of a construct is determined by evaluating the Cronbach's alpha score. Cronbach's alpha can be used to measure the internal consistency among a set of survey questions (Lavrakas, 2008). This measure is an indication that the participant will provide the same response to the same item if the study is repeated. A construct's validity can be determined using Cronbach's alpha, that ranges between 0 and 1. A higher alpha value indicates a higher coherence and radiality. The critical values of 0.70, 0.75 and 0.8 are proposed. If the alpha is smaller than 0.70, it is recommended that the construct should be modified. If the calculated alpha is more significant than 0.90, it ought to be considered if all items included in the construct need to be measured. The use of constructs allows for a topic to be covered by numerous questions in the survey questionnaire as discussed in Section 4.2.3.

The topics covered in the survey are divided into three categories:

- Satisfaction - these constructs are used to measure the satisfaction of the employees in general with regards to work and with their job.
- Results of Morale - these constructs are used to evaluate the results of the level of morale. This included the employees' opinion of the organisations, their level of engagement, their willingness to work hard, and staff turnover.

- Morale influencing factors - these constructs were used to evaluate each of the causes identified and discussed in Section 2.5.

The values used for the statistical analysis is the average of all the results obtained for a specific topic. For this study, the questions were classified to cover various topics. These topics are listed in Appendix D.3. Table D-3 to Table D-5 list the questions included in each construct, the construct code used in the analysis, and the Cronbach's alpha value. Table 4-4 provides a list of all the constructs used and the corresponding code and a description of the construct.

Table 4-3: Construct definitions

Construct	Code	Description
Job Satisfaction Rating	SatisfactionJob	Rating to show how satisfied participants are with their jobs, this included the work they are doing and their work environment.
Organisation Satisfaction Rating	Satisfaction Organisation	Rating to show how satisfied participants are with their the organisation.
Employee Engagement Rating	EmpEngagement	Measure to show how engaged employees are.
Staff Turn Over/ Quit Factor Rating	TurnO	Indicates participants drive to look for work or to resign.
Relation between work hard and morale	MoraleHW	Participants opinion with regards to weather they work harder when they have higher morale.
Growth Prospects Rating	Growth	Participants option with regards to their growth prospects.
Expectations verse Reality Rating	ExpectVsActual	Rating to evaluation the difference between expectations and results.
Manager Hard skill Rating	Manager_HardSkill	Participants option about their line managers hard skills.
Manager Soft skill Rating	Manager_SoftSkill	Participants opinion about their line managers soft skills.
Manager Value Alignment Rating	Manager_ Values	Participants opinion about their line managers values.
Organisational Performance Rating	Organisation	Participants opinion about and pride in the organisation.
Employee Pressure Rating	Pressure	The amount of pressure employees feel in their work environment.
Remuneration Rating	Remuneration	Whether employees are satisfied with the remuneration received.
Personal Skill Level Rating	SkillLevel	Whether employees feel theirs skills are utilised and they have the required skills.
Team Unity Rating	TeamUnity	How well the team functions as a unit.
Drive for Challenges Rating	Challenge	How much the participants enjoy/ dislike challenges.
Job Security Rating	Security	Weather participants are confident in their job security.

Table 4-3: Construct definitions (continued)

Construct	Code	Description
Risk of Retrenchment	SecurityRet	Weather participants are concerned about retrenchment.
Change Experience Rating	Learn	Weather participants enjoy regular changes in their work and work environment.
Interest in Work Rating	Dull	Weather participants feel their work is dull and repetitive.
Impact of Budget Rating	Budget	Weather participants are affected by budget changes. This include budget availability and unitisation.

In all cases, but for the measure whether the participants' expectations were met, the construct is the average of all the responses included in the construct. In the case of the construct to measure whether the participants' expectations were met, the average of responses to measure the actual results is divided by the average of responses to measure expectations. This is translated into a score between 1 and 5 to allow it to be compared to the other results. A score of 3 should be achieved if the expectations equal the actual results. A score of 1 should be achieved if the average results are equal to one and the average expectation results is equal to five. Similarly, the inversed situation can be used to determine a minimum value. This is used to calculate the trend line. A logarithmic trend line has the best fit (see Figure 4-1). This trendline equation is used to adjust the results.

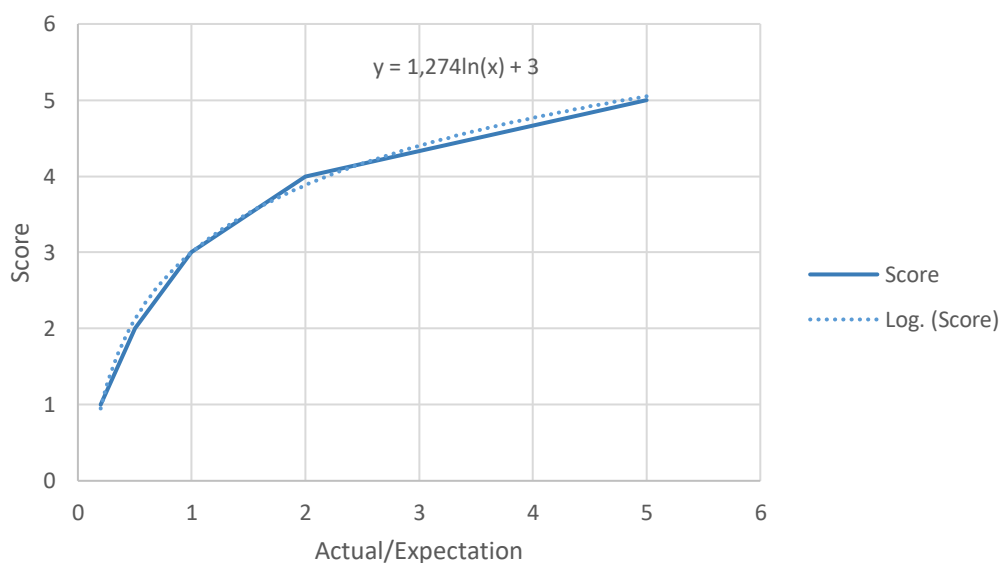


Figure 4-1: Actual verse expectation trend line

A morale score is calculated by creating an additional construct that combined the following variables:

- the questions used to measure Job Satisfaction;
- the questions used to measure Organisation Satisfaction; and

- the questions used to measure Employee Engagement.

The Cronbach's alpha score for this construct is 0.78 and the Standardised alpha is 0.81.

Result Interpretation

Each of the constructs used as factors that influence morale have a Cronbach's alpha score greater than the critical value of 0.7, thus all these constructs are relevant (Table D-5). Similarly, the constructs for the measures of morale and the morale score are also greater than the critical value (Table D-3). The only construct that has a Cronbach's alpha score smaller than the critical value is the measure for staff turnover. In this case, the achieved score is 0.613. As the construct could not be adjusted to improve the score and the construct is not used the final regression analysis the construct is acceptable, caution is taken during the result analysis.

4.4.3 Descriptive Statistics

Descriptive statistics entails the calculation and evaluation of the mean, median and standard deviation. Even though this is a fundamental analysis method, it has been proven to show how the variable is distributed comprehensively.

Falissard (2012) explains the mean from a geometrical point of view as the centre of gravity for variables. The Median is the measure of central tendency that divides the data into two equal parts. If the data set has an even number of variables, the median lies between the two central values (Montgomery & Runger, 2010). If the data distribution is symmetrical, the mean and median are equal (Falissard, 2012). These values are used to provide insight into the magnitude of the variables.

By way of contrast, standard deviation is used to describe how distant the values are from one another. Falissard (2012) explains this as the variability or scatter in the data. If the data fits the bell curve distribution, about two-thirds of the observation can be found between the mean plus one standard deviation and the mean minus one standard deviation.

Falissard (2012) explains that the minimum and maximum for each variable are useful, as these can be used to identify impossible or unusual observations. In such case where the data was obtained using Likert scale surveys, the minimum and maximum is only used to identify an area where the data was captured incorrectly. These errors are corrected before the analysis is re-run.

4.4.3.1 Likert Scale Results

The descriptive statistics are calculated for each construct: this includes the valid number of responses, the percentage of valid responses of the total responses, the mean and the standard deviation. The results are displayed in Table 4-4. A description for each construct is available in Appendix D.3. Table D-3 to Table D-5. In a few cases the expected minimum of one and expected maximum of 5 is not obtained. This occurs as a result of no participants selecting 1 or 5 in the respective questions.

The descriptive statistics provided in Table 4-4 shows essential information, but do not represent the actual distribution of the variables (Falissard, 2012). Histogram density curves can be used and shows a smoothed estimate of the distribution (Falissard, 2012). The results are listed in Appendix D.4.

Statistical errors can be prevented by confirming if the data used in the analysis is normally distributed (Ghasemi & Zahediasl, 2012). The Shapiro-Wilk test is the preferred method, as it provides a better power than the Kolmogorov-Smirnov and Lilliefors correction test methods (Mohd Razali & Bee Wah, 2011). The result of the test, W , lies between zero and one (Mohd Razali & Bee Wah, 2011). Very small results indicate that normality can be rejected, while results close to one is an indication of normally distributed data. Table 4-5 summarises the result of the normality test.

Table 4-4: Survey descriptive statistics

Construct	Valid N	Mean	Median	Minimum	Maximum	Lower	Upper	Range	Quartile	Std.Dev.
Morale	180	3.60	3.64	1.08	5.00	3.29	4.00	3.92	0.71	0.60
SatisfactionJob	178	3.12	3.17	1.00	5.00	2.33	4.00	4.00	1.67	1.01
SatisfactionOrganisation	169	2.90	3.00	1.00	5.00	2.00	4.00	4.00	2.00	1.12
EmpEngagement	180	3.80	3.90	1.00	5.00	3.55	4.20	4.00	0.65	0.65
TurnO	180	2.84	2.80	1.00	4.40	2.40	3.40	3.40	1.00	0.78
MoraleHW	176	3.89	4.00	1.00	5.00	3.50	5.00	4.00	1.50	1.15
Growth	174	2.60	2.60	1.00	5.00	2.00	3.20	4.00	1.20	0.90
ExpectVsActual	157	2.63	2.67	1.34	3.52	2.38	2.97	2.17	0.59	0.38
Manager_HardSkill	179	2.91	3.00	1.00	5.00	2.20	3.60	4.00	1.40	0.91
Manager_SoftSkill	181	2.56	2.57	1.00	4.29	2.00	3.14	3.29	1.14	0.81
Manager_Values	179	2.72	2.75	1.00	5.00	2.00	3.50	4.00	1.50	1.04
Organisation	170	2.83	2.82	1.00	5.00	2.45	3.18	4.00	0.73	0.60
Pressure	178	3.27	3.33	1.00	5.00	2.80	3.80	4.00	1.00	0.71
Remuneration	179	2.54	2.50	1.00	5.00	1.75	3.25	4.00	1.50	0.93
SkillLevel	180	3.77	4.00	1.00	5.00	3.40	4.20	4.00	0.80	0.76
TeamUnity	179	3.38	3.33	1.00	5.00	3.00	4.00	4.00	1.00	0.92
Challenge	176	4.05	4.00	1.00	5.00	4.00	5.00	4.00	1.00	0.98
Security	177	3.46	4.00	1.00	5.00	3.00	4.00	4.00	1.00	1.12
SecurityRet	166	2.81	3.00	1.00	5.00	2.00	4.00	4.00	2.00	1.37
Learn	168	3.17	3.00	1.00	5.00	2.00	4.00	4.00	2.00	1.23
Dull	160	3.04	3.00	1.00	5.00	2.00	4.00	4.00	2.00	1.19
Budget	159	3.49	4.00	1.00	5.00	3.00	5.00	4.00	2.00	1.24

Table 4-5: Normality test, in descending order

Construct	Shapiro-Wilk (W)
Organisation	0.986
Pressure	0.984
Manager_HardSkill	0.984
TurnO	0.981
Growth	0.981
Manager_SoftSkill	0.979
Remuneration	0.974
Manager_Values	0.971
TeamUnity	0.964
SatisfactionJob	0.960
Morale	0.951
ExpectVsActual	0.941
Dull	0.916
SatisfactionOrganisation	0.914
Learn	0.898
SkillLevel	0.897
EmpEngagement	0.894
Budget	0.889
SecurityRet	0.887
Security	0.878
MoraleHW	0.802
Challenge	0.796

Normality Test Result Interpretation

As none of the Shapiro-Wilk test results are small, the normality of each construct is not rejected.

A box plot is used to graphically represent the median, first and third quartiles and the minimum and maximum. The descriptive statistics are shown in Figure 4-2. The response median differs between the organisations and is shown in Figure 4-3.

The morale score is quantified by calculating the mean for all the results obtained for each of the measure of morale into one score. The list of questions included is shown in Table D-3. The quantified morale score for each organisation is as follows:

- Organisation A – 3.53
- Organisation B – 3.55
- Organisation C – 3.95

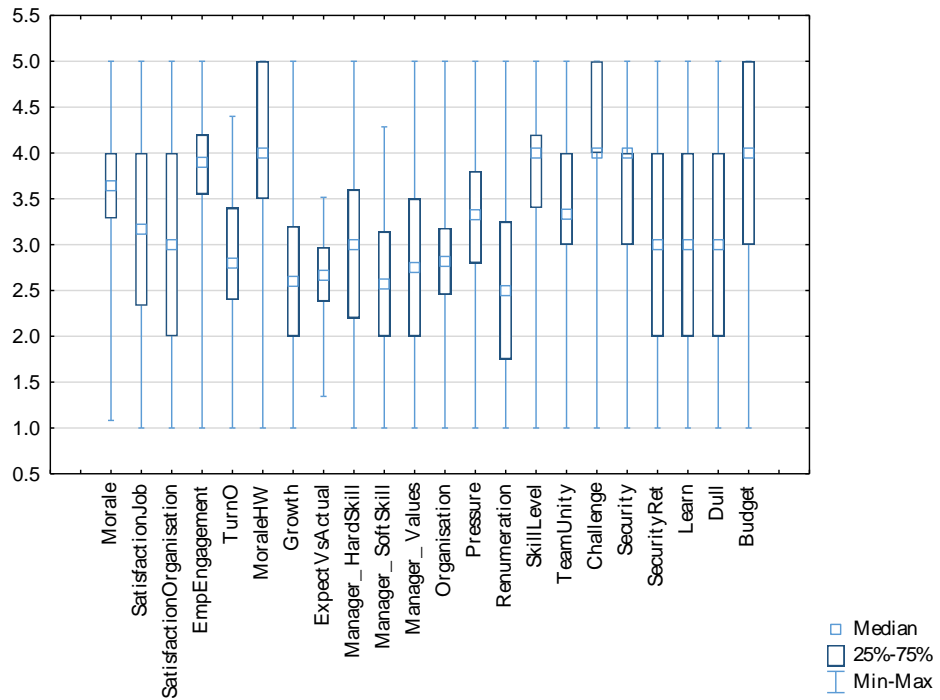


Figure 4-2: Boxplot of survey results

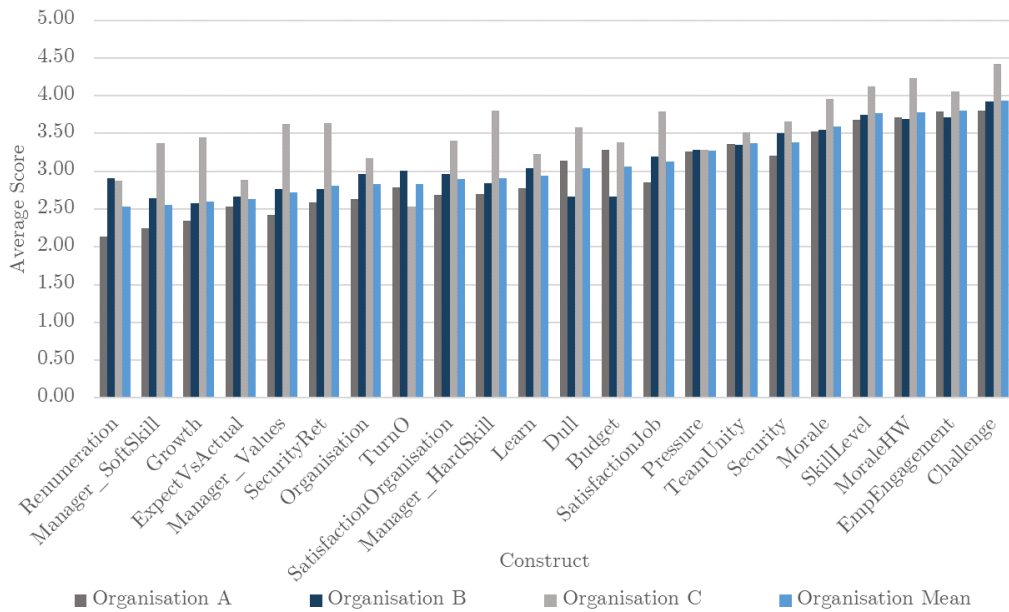


Figure 4-3: Median response per organisation

The mean of the responses received that measure whether employees feel they work harder when happy, is 4 out of 5. This clearly shows that the majority of the participants agree.

Descriptive Statistics Result Interpretation

As a starting point, it should be determined what results stand out to be strongly positive or strongly negative (Falissard, 2012). This is achieved by interpreting the descriptive statistics analysis done. Then an understanding of how different factors and results correlate to one another will assist in understanding what factors influence each other.

No benchmark for an acceptable morale score is available as this method of morale scoring has been developed for this study. That being said, an organisation should aim to achieve a score greater than 3.5. All three organisations have an acceptable morale score.

The following conclusions can be drawn from the descriptive analysis of the calculated median (M). Positive results indicate that the participants do agree that they are satisfied, or agree with a positively worded statement about each construct, for example, the participants agree the company operates efficiently. Negative results indicate the participants indicated they do not agree with the positively worded statement.

- Participants have a neutral response towards the following ($M = 3$):
 - Manager Hard Skill
 - Security Retrenchment
 - Learn
 - Dull
- Participants have a slightly positive response towards the following constructs ($3 > M < 4$):
 - Pressure
 - Team Unity
- Participants have a slightly negative response to the following constructs ($2 > M < 3$):
 - Remuneration
 - Manager Skill level
 - Growth
 - Expect vs. Actual
 - Manager Values
 - Organisation
- Participants have a strongly positive response towards the following constructs ($M \geq 4$):
 - Skill Level
 - Challenge
 - Security
 - Budget
- Participants have a strongly negative response towards the following constructs ($M \leq 1$):
 - None

Focus should be placed on areas of high or low results within a group or organisation. In the case of the descriptive statistics results, this is the constructs with a median greater than four, and between three and two, as no construct has a median less than two.

Similarly, the median for each construct per organisation was evaluated, Table 4-5. The results are highlighted, with a gradient theme showing the lower values in red and

the higher values in dark green. This visually illustrates that similar results were obtained from Organisation A and B. This shows that opinion of employees in Organisation A and B are similar. Thus, it can be deduced that these organisations experience similar challenges. While Organisation C experiences a different set of challenges. It should also be noted that Organisation A and B have similar morale scores, while Organisation C has a higher morale score. The table is sorted in a numeric order, based on the median of the total data set.

The main discrepancies between these organisations are:

- Salary: more participants from Organisation A than B stated that their remuneration is not sufficient.
- Job security with regards to retrenchment: more participants from organisation B than A stated that their job security is at risk due to retrenchments.
- Confidence in managers: more participants from organisation A than B stated that they do not have confidence in their line managers.
- Change in management: more participants from organisation B than A stated that their line managers are regularly changed.
- Budget: more participants from organisation A than B stated that budget availability is a constraint on their work.
- Duties changes: more participants from organisation B than A stated that their duties are regularly changed.
- Staff turnover: more participants from Organisation C indicated they are considering resigning than from Organisation A and especially Organisation B.
- Manager related factors: participants for Organisation C provided higher ratings for each of the management related factors compared to what was achieved by the other organisations.
- Satisfaction ratings: participants for Organisation C provided higher ratings for each of the satisfaction results compared to what was achieved by the other organisations.
- Staff turnover rating: more participants for organisation C indicated they are looking for other employment than A and B.

Since Organisation C has a higher staff turnover result than A and B in relation to the lower morale score of A and B, the assumption that staff turnover is an indication of low morale may be incorrect in this case, as there may be other factors that effect this. An example of one of the other factors that could affect this rating was identified by a person who was interviewed as part of the validation process, who mentioned that they were not looking for work, as they felt no private organisation would employ a person currently working for the SOEs in question.

As Organisation A and B have similar morale score, and score per construct in comparison to Organisation C, there is possible evidence that there is a correlation between morale and factors that affect morale. In other words, the morale affecting factors could possibly divided into level, similar to the Maslow hierarchy of needs. As each level of the pyramid is satisfied, the morale increases, but the next level of factors

become important. This may explain the discrepancies in the results observed of Organisation A and B versus Organisation C.

Table 4-6: Construct average per organisation

Construct	Organisation			Total
	A	B	C	
Remuneration	2.14	2.90	2.88	2.54
Manager_SoftSkill	2.25	2.64	3.37	2.56
Growth	2.35	2.58	3.45	2.60
ExpectVsActual	2.53	2.66	2.89	2.63
Manager_Values	2.42	2.76	3.63	2.72
SecurityRet	2.59	2.77	3.64	2.81
Organisation	2.63	2.96	3.17	2.83
TurnO	2.79	3.01	2.54	2.84
SatisfactionOrganisation	2.69	2.97	3.40	2.90
Manager_HardSkill	2.69	2.84	3.80	2.91
Learn	2.77	3.04	3.23	2.94
Dull	3.14	2.67	3.58	3.04
Budget	3.29	2.66	3.38	3.07
SatisfactionJob	2.86	3.20	3.79	3.12
Pressure	3.27	3.28	3.29	3.27
TeamUnity	3.36	3.35	3.51	3.38
Security	3.21	3.50	3.65	3.38
Morale	3.53	3.55	3.95	3.60
SkillLevel	3.68	3.75	4.13	3.77
MoraleHW	3.71	3.69	4.23	3.78
EmpEngagement	3.79	3.71	4.06	3.80
Challenge	3.80	3.93	4.42	3.94

4.4.3.2 Selection Results

For the selection of factors that would most improve participants feeling toward their work, there are differences between the results of the three organisations, with Organisation A and B in line. The total is not as significantly affected by the selection made by Organisation C, due to the smaller number of participants. Based on this selection, improved teamwork, as well as increased salary and receiving tools, ought to be addressed (Figure 4-4). If the results received from Organisation C are not considered the key items are increased salary; improved teamwork and receiving the required spares, tools and training.

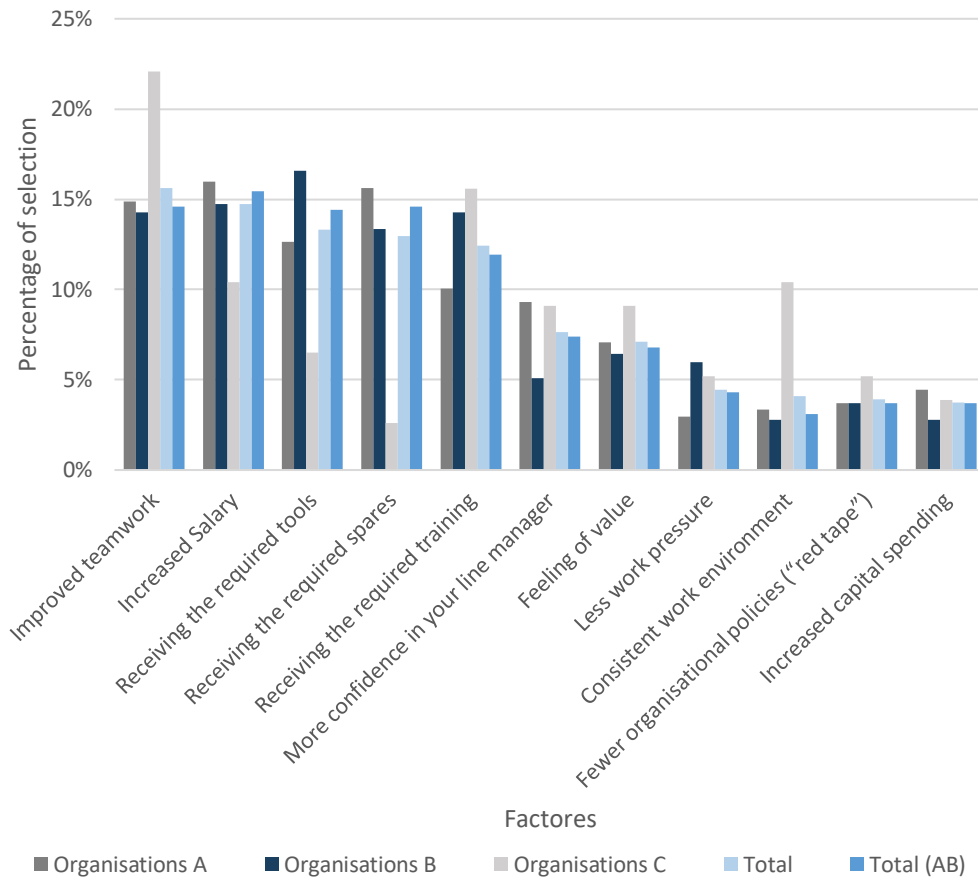


Figure 4-4: Factors to improve participants feeling towards work

For the selection of factors that would most encourage participants to work harder section of the questionnaire: increased salary, career development opportunities and training for skills development were found to be the most significant (Figure 4-5). If the results received from Organisation C are not considered the key items are increased salary, career development opportunities and bonus payments. Furthermore, as this study is focused on non-monetary methods of improving morale, the focus items should be career development opportunities, training and skills development, and receiving the required spares and tools.

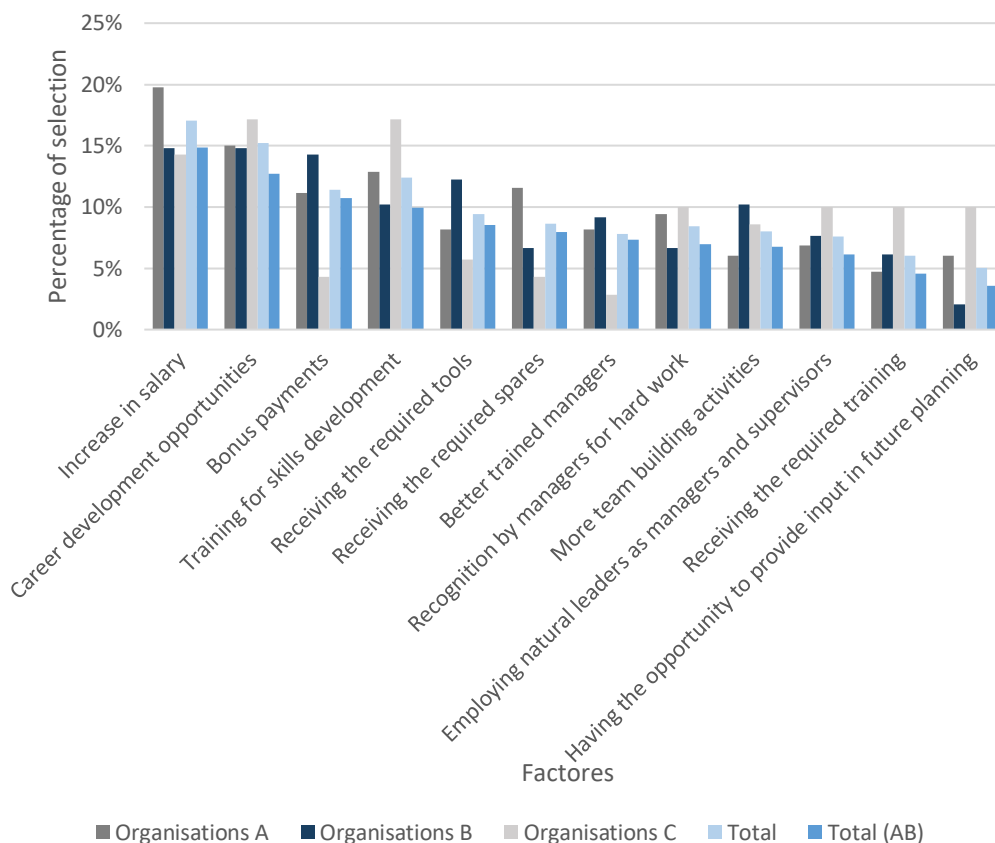


Figure 4-5: Factors to encourage participants to work harder

Selection Result Interpretation

Within the maintenance environment spares, tools and training are foundation or key requirements to be able to work. This could be compared to the bottom level of the Maslow's hierarchy of needs. This supports the suggestion that morale affecting factors may have a pyramid like structure as with the results in Section 4.4.3.2.

4.4.4 Correlation Analysis

Correlation is a statistical evaluation of the strength of the relationship between two quantitative variables (Lavrakas, 2008). The correlation coefficient is an indication of the monotonic, linear relationship between variables (Falissard, 2012). The correlation coefficient is between -1 and 1. If the correlation coefficient is equal to 1, there is a positive correlation, if the correlation coefficient is -1, there is a negative correlation. In other words, if one variable increases, the other will decrease at the same rate. If the correlation coefficient is equal to zero, changes in one variable does not affect the other variable (Lavrakas, 2008). The absolute value of a correlation greater than 0.5 can be viewed as a large or strong correlation. While the absolute value of a correlation between

0.3 and 0.5 is a medium correlation and below 0.3 can be viewed as a small correlation (Falissard, 2012).

A Spearman Correlation analysis is conducted, as not all of the data sets were normally distributed. The Spearman Correlation coefficient is a special case of the Pearson's correlation coefficient and is one of the most widely used correlation coefficients (Lewis-Beck et al., 2003). It is used to evaluate the relationship between variables that are not normally distributed.

The first limitation of using correlation analysis to describe quantitative relationships between variables is that it cannot be used to deduce the extent of the relationship between the variables. The second limitation is that it does not provide information about the magnitude of the relationship between variables (Lavrakas, 2008).

Strong correlations were found between 18 items, these are listed in Table 4-7 and a medium correlation was found between 36 items. The full list of correlation analysis results can be seen in Table D-6, Figure 4-6 summarises the correlation analysis results.

A cluster analysis was done to group the cause variables into subgroups (Figure 4-7). This allows for greater insight into the structure of the data and the nature of the units (Lewis-Beck et al., 2003). The measures of satisfaction are clustered along with policies, salary and how dull employees find their work. Employees' tendency to work hard and employee engagement are clustered with change, expectation if the employee works hard, job security, team unity, challenges encountered in their work. Employee turnover is clustered with the budget, the possibility of further learning, concern about retrenchment, regular structure changes and work pressure.

Table 4-7: Variables with strong correlations

Factors	Spearman Correlation Coefficient
Manager_HardSkill & Manager_Values	0.851
Morale & EmpEngagement	0.845
Manager_SoftSkill & Manager_Values	0.788
Manager_HardSkill & Manager_SoftSkill	0.775
Morale & SatisfactionJob	0.747
Growth & ExpectVsActual	0.636
Growth & Organisation	0.575
Growth & Manager_Values	0.557
EmpEngagement & SkillLevel	0.553
Manager_HardSkill & Organisation	0.526
Growth & Manager_SoftSkill	0.518
SatisfactionJob & Manager_Values	0.517
Manager_Values & Organisation	0.516
SatisfactionJob & SatisfactionOrganisation	0.510
Growth & Manager_HardSkill	0.509
Morale & SkillLevel	0.508
SatisfactionJob & Manager_HardSkill	0.506
Morale & SatisfactionOrganisation	0.504

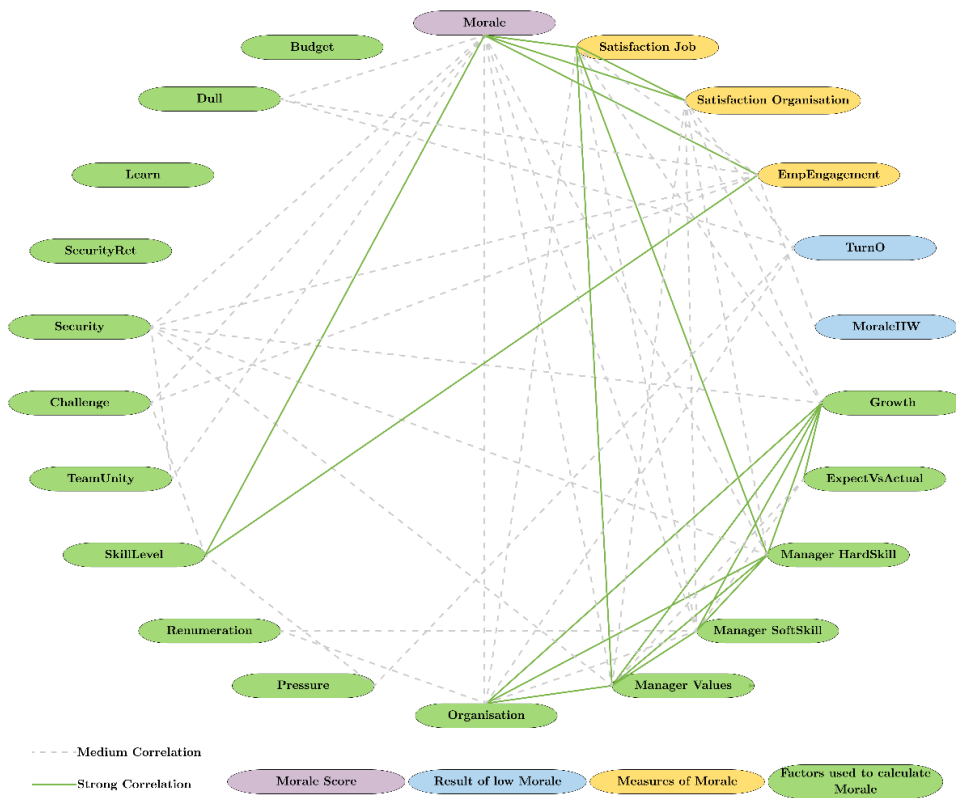


Figure 4-6: Construct correlation network diagram

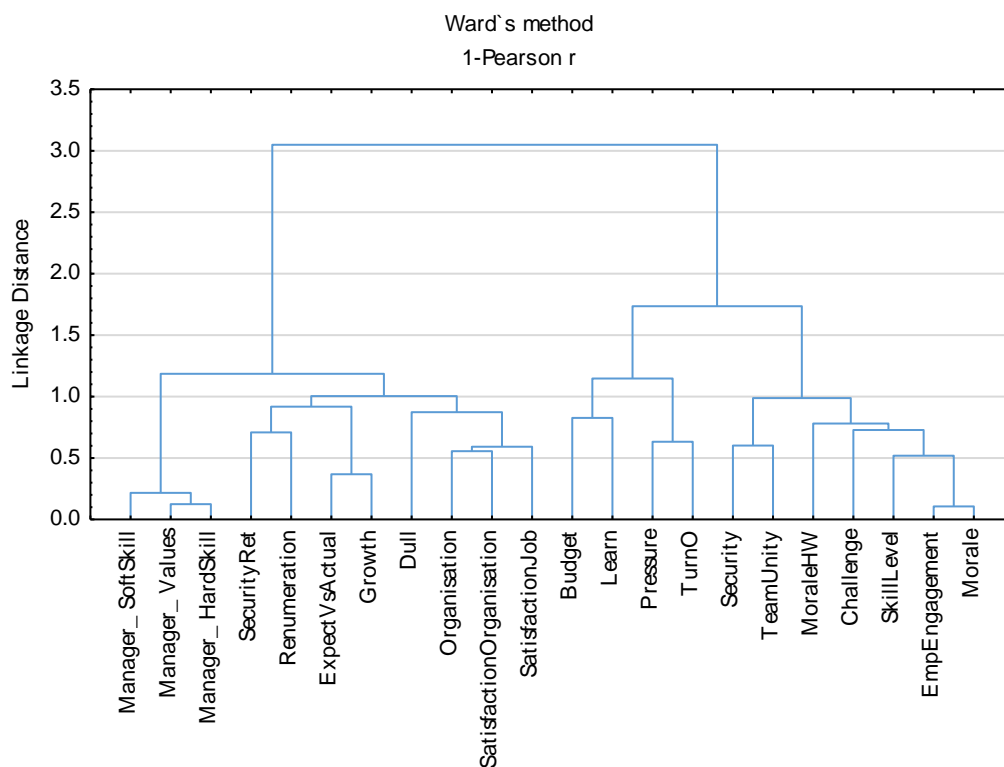


Figure 4-7: Tree diagram cluster analysis

The Spearman Correlation analysis was used again to evaluate the correlation between the morale score and the causes of low morale. The correlation of significance that was used in this analysis was 0.05. The full result can be seen in Table D-6.

The contributing factors that have the strongest correlation to the morale score are:

- participants' opinion of their own skill level;
- participants' opinion about their managers values;
- participants' opinion about the managers hard skills;
- how participants feel about challenges in their work; and
- participants' opinion about the organisation.

Correlation Analysis Result Interpretation

From this analysis, it is evident that Job Satisfaction is most affected by employees' opinion about their manager's hard skills and employees' opinion about their manager's values (see Figure 4-6).

The level of satisfaction in the organisation has a strong correlation to the opinion an employee has about their organisation. This is most affected by the following causes:

- employees' opinion about their manager's hard skills;
- employees' opinion about their manager's soft skills;
- employees' opinion about their manager's values; and
- employees' opinion about the organisations.

Factor correlation indicates the interdependence between variables. The morale score has the strongest correlation to the following contributing factors, with only a medium correlation with skill level and weak correlation with the remaining five factors. Each of these then also correlates with other factors as described in Figure 4-6. Figure 4-8 summarise the most significant correlations to the morale score. Each of these factors are also correlated to a second level of factors, referred to in this document as secondary correlation.

It is concluded that changing any of the primary or secondary factors will have an impact on the items to which they correlate. For example, by improving an employee's opportunities for growth, their opinion on their manager values, relationship between expectations and actual results, manager's hard skill, manager's soft skill, and the organisation will also be changed. The direction and magnitude of this change still needs to be evaluated. Thus, it is beneficial to quantify the impact a factor has on morale. This can be done using a regression analysis, as evident in Section 4.4.6.1.

The tree diagram (Figure 4-7) illustrates the items that are most closely correlated. Morale and employee engagement have the strongest correlation, where this is then grouped with skill level. This is in line with the result shown in the network diagrams (Figure 4-6 and Figure 4-8).

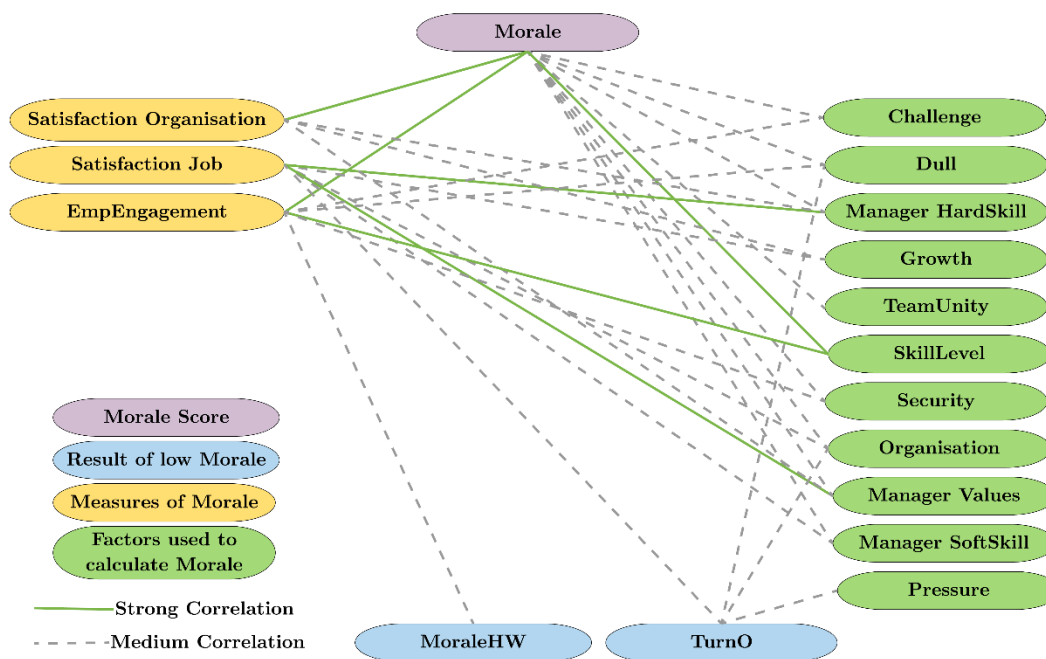


Figure 4-8: Morale score primary correlations

4.4.5 Statistical Test of Hypothesis

4.4.5.1 Analysis of Variance

Analysis of Variance (ANOVA) is used to test the equality of mean across all the groups (Falissard, 2012). The variables that divide respondents into different groups are called factors. ANOVA portions the total variations in the outcome variable into parts. These parts are related to the difference between the groups (Lavrakas, 2008).

The last section in the survey requests participants to select items from a list that would most “improve their feeling towards work” and “encourage them to work harder”. One-way ANOVA is used to evaluate the variance between the participants morale score and to the selection made in the question about items that would improve their feeling towards work. A strong correlation is found with “Less work pressure” (see Table D-13).

A second One-way ANOVA is used to evaluate the correlation between participants level of job satisfaction to the selection made in the question about items that would improve their feeling towards work. A strong correlation is found with “Less work pressure” (see Table D-14).

A third One-way ANOVA is used to evaluate the correlation between participants level of satisfaction in the organisation and items that would improve participants feeling towards work. A strong correlation is found with “Receiving the required tools” (see Table D-15).

A fourth One-way ANOVA is used to evaluate the correlation between participants level of employee engagement and items that would improve participants feeling towards work. No correlation is found (see Table D-16).

A fifth One-way ANOVA is used to evaluate the correlation between participants level of staff turnover and items that would improve participants feeling towards work. A strong correlation is found with “Consistent work environment” (see Table D-17).

A final One-way ANOVA is used to evaluate the correlation between participants opinion about whether high morale let people work harder and items that would improve participants feeling towards work. A strong correlation is found with “Feeling of value” (see Table D-18).

A similar set of One-way ANOVA is used to evaluate the variance between the same constructs used above to the selection of what would make participants work harder. The first analysis is done to measure the variance with relation to the Morale score. “Recognition by managers for hard work” is found to be the most significant factor (see Table D-19). For the evaluation of the variance with relation to Job Satisfaction, “Increase in salary” was found to be the most significant (see Table D-20). For the evaluation of the variance with relation to Organisation Satisfaction “Having the opportunity to provide input in future planning” was found to be the most significant (see Table D-21). Similar to the morale score, the most significant selection option for Employee Engagement was found to be “Recognition by managers for hard work” (see Table D-22). As with the first set of ANOVA results, no correlation was found to Staff Turn Over (see

Table D-23). Finally, for the analysis of the relationship between morale and employees willingness to work harder, and factors that would encourage employee to work harder, the “More team building activities” and “Having the opportunity to provide input in future” was found to be most significant (see Table D-24).

ANOVA Result Interpretation

From the items listed that would most improve an employee’s feeling towards work the following interpretation can be made:

- the morale score and job satisfaction would be improved the most by addressing work pressure;
- satisfaction in the organisation would be improved the most by improving the availability of tools;
- staff turnover would be improved the most by improving the work environment; and
- employees will work hard if they have the feeling of being valued.

From the items listed that would most encourage employee to work harder the following interpretation can be made:

- the morale score and employee engagement would improve the most by ensuring employees are recognised;
- job satisfaction would be most improved by increased salary;

- satisfaction in the organisation and employee willingness to work harder would be most improved by ensuring employee have input in future planning; and
- employee willingness to work harder would be most improved by increased team work.

4.4.6 Statistical Modelling

Falissard (2012) explains that statistical modelling is a compromise between a good fit, adequate hypotheses, relevance, and comprehensibility of results. Geladi & Kowalski (1986) explain a model to be the relationship between two groups of variables, dependant (Y) and independent (X). The notation of a model is $Y = f(X)$.

4.4.6.1 Regression Analysis

Ideally, a researcher would like to evaluate the effect that all the forces and constraints that can potentially interact on a system could have on the specific system. This is the objective of a regression model (Falissard, 2012). Falissard (2012) further states that it is impossible for a human being to list all the forces and constraints, but it is possible to integrate many of the known forces and constraints into a mathematical model. This model will never be true or exact, but could be useful if designed carefully and wisely (Falissard, 2012).

Lavrakas (2008) explains regression analysis as a blanket name given to a family of data analysis techniques that evaluate the relationship between variables. These techniques allow an analysis of the influence of several independent variables on a dependent variable. Regression analysis is also used to control plausible but false relationships through the control of other variables (Lavrakas, 2008).

Multiple Regression Analysis (MRA)

MRA quantifies the effect that several explanatory variables has on a single variable Chatterjee & Sorenesen (1998). Multiple regression analysis is a group of statistical models that relate a set of independent variables, called predictors, to a single dependent variable, referred to as the criterion (Lewis-Beck et al., 2003). The output of this analysis is an equation that quantified how each predictor relates to the criterion when all the predictors are simultaneously taken into account (Lewis-Beck et al., 2003). Lewis-Beck et al. (2003) further explain that this statistical analysis method can be used to generate predictions, build models, or test theory. For this study, the use is model building. The multiple regression analysis used is a linear multiple regression analysis.

A multiple regression analysis attempts to determine an equation where the \hat{Y} is the dependent variable, or the response, each of the X 's are the independent variables or predictors, the b values are partial regression coefficients, and b_0 is the regression constant or regression intercept. The regression coefficients are determined in the model by the identification of the regression lines that best minimise the squared errors of

prediction (Falissard, 2012; Lavrakas, 2008). Regression coefficients can be interpreted as partial slopes. For one unit increase in an independent variable while the other variables are controlled, the dependant variable will increase or decrease by the amount of the regression coefficient. The final equation takes the relationships of all the predictors the criterion and the relationships between the predictors into account (Lavrakas, 2008).

$$\hat{Y} = b_1X_1 + b_2X_2 + \dots + b_nX_n + b_0 \quad (1)$$

The squared multiple correlations (R^2) are a measure of how well the set of predictors can estimate the criterion (Lewis-Beck et al., 2003). The regression analysis is optimised to achieve the best possible result. The result of the analysis can be viewed in Table 4-8.

From the MRA model it is evident that the following factors have the largest impact on the morale score:

- participant's opinion of their own skill level;
- participant's opinion of the difference between results and expectations;
- participant's opinion about the organisation;
- participant's opinion about their manager's hard skills; and
- participant's opinion about the how dull their work is.

Table 4-8: Regression analysis

Factors	b*	Std. Err.	b	Std. Err.	t (153)	p-value	Importance
Intercept			1.446	0.394	3.667	0.000	
Growth	0.132	0.093	0.079	0.056	1.419	0.159	9
ExpectVsActual	-0.216	0.079	-0.293	0.106	-2.751	0.007	2
Manager_HardSkill	0.186	0.131	0.110	0.077	1.425	0.157	4
Manager_SoftSkill	-0.146	0.111	-0.092	0.070	-1.314	0.192	8
Manager_Values	0.094	0.139	0.048	0.072	0.672	0.503	12
Organisation	0.203	0.081	0.191	0.076	2.511	0.013	3
Pressure	-0.111	0.069	-0.089	0.055	-1.603	0.112	11
Renumeration	-0.049	0.073	-0.030	0.045	-0.670	0.504	15
SkillLevel	0.386	0.070	0.299	0.054	5.480	0.000	1
TeamUnity	0.124	0.067	0.071	0.038	1.846	0.068	10
Challenge	0.171	0.064	0.095	0.036	2.654	0.009	6
Security	0.154	0.069	0.076	0.034	2.222	0.028	7
SecurityRet	-0.087	0.063	-0.033	0.024	-1.378	0.171	14
Learn	0.016	0.061	0.007	0.026	0.265	0.792	16
Dull	0.183	0.062	0.083	0.028	2.961	0.004	5
Budget	0.092	0.061	0.038	0.025	1.514	0.133	13
Intercept			1.446	0.394	3.667	0.000	9
Growth	0.132	0.093	0.079	0.056	1.419	0.159	2
ExpectVsActual	-0.216	0.079	-0.293	0.106	-2.751	0.007	4
Manager_HardSkill	0.186	0.131	0.110	0.077	1.425	0.157	8
Manager_SoftSkill	-0.146	0.111	-0.092	0.070	-1.314	0.192	12
Manager_Values	0.094	0.139	0.048	0.072	0.672	0.503	3

Partial Least-Squares (PLS) Regression Analysis

The Partial Least Square (PLS) regression analysis is used as it is more robust than the classical regression methods, for example, multiple regression (Geladi & Kowalski, 1986). In other words, the model parameters do not change very much when using a new calibration sample from the total population. Lewis-Beck et al. (2003) explain that PLS is used when a partition needs to be made on a set of the dependent variables from a large set of independent variables. The goal of this analysis method is to predict Y from X and describe the common structure for cases where Y is a vector and X is a rank (Lewis-Beck et al., 2003).

The factors used to calculate the morale score are the Y vector, and the dependent variables. These factors are job satisfaction, organisational satisfaction and employee engagement. The results of this analysis are shown in Table 4-9 and Table 4-10.

Table 4-9: PLS regression analysis using morale measures

Component	R ² X	R ² X(Cumul.)	Eigenvalues	R ² Y	R ² Y(Cumul.)	Q ²	Limit	Q ² (Cumul.)	Significance	Iterations
1	0	0.281	4	0.233	0.233	0.190	0	0.190	S	6
2	0	0.417	2	0.118	0.351	0.124	0	0.291	S	5
3	0	0.482	1	0.064	0.414	0.030	0	0.312	S	4
4	0	0.539	1	0.015	0.430	-0.052	0	0.276	NS	35

From PLS regression analysis using the measure of morale, it can be concluded that the following are the most important factors that need to be addressed to improve employee morale:

- participant's opinion on their own skill level;
- participant's opinion about the organisation;
- participant's opinion on their line manager's hard skills;
- participant's opinion on their line manager's values; and
- participant's opinion on the work pressure they experience.

The PLS regression analysis is also done using the morale score as the dependent variable. The results of this analysis are shown in Table 4-11 and Table 4-12.

From PLS regression analysis using the morale score it can be concluded that the following are the most important factors that need to be addressed to improve employee morale:

- participant's opinion on their own skill level;
- participant's opinion on their line manager's values;
- participant's opinion on their line manager's hard skills;
- participant's opinion about the organisations; and
- participant's opinion about challenges in their work.

Table 4-10: PLS regression analysis variable importance using morale measures

Variable	Variable number	VIP	Importance
SkillLevel	26	1.378	1
Organisation	23	1.24	2
Manager_HardSkill	20	1.145	3
Manager_Values	22	1.133	4
Pressure	24	1.130	5
Manager_SoftSkill	21	1.102	6
Dull	32	1.076	7
ExpectVsActual	19	1.022	8
Security	29	0.975	9
Challenge	28	0.973	10
Growth	18	0.957	11
Remuneration	25	0.951	12
TeamUnity	27	0.831	13
SecurityRet	30	0.616	14
Learn	31	0.59	15
Budget	33	0.367	16

Table 4-11: PLS regression analysis using morale score

Component	R ² X	R ² X(Cumul.)	Eigenvalues	R ² Y	R ² Y(Cumul.)	Q ²	Limit	Q ² (Cumul.)	Significance	Iterations
1	0.259	0.259	3.706	0.528	0.528	0.349	0.000	0.349	S	1
2	0.143	0.402	2.004	0.109	0.638	0.113	0.000	0.423	S	1
3	0.066	0.468	0.916	0.034	0.672	-0.057	0.000	0.390	NS	1

Regression Analysis per Organisation

A PLS regression analysis is used to model the relationship between morale and the morale affecting factors for each organisation. The top five factors per organisation in order of significance are summarised in Table 4-13. The full results of the analysis for Organisation A, B and C are shown in Table D-7, Table D-8 and Table D-9, respectively. Table D-10 shows the full organisational result comparison. Figure 4-9 displays the variation in the power calculated per factor for each organisation.

Table 4-12: PLS regression analysis variable importance using morale score

Variable	Variable number	VIP	Importance
SkillLevel	26	1.676	1
Manager_Values	22	1.225	2
Manager_HardSkill	20	1.221	3
Organisation	23	1.162	4
Challenge	28	1.150	5
Security	29	1.147	6
TeamUnity	27	1.114	7
Manager_SoftSkill	21	1.073	8
Growth	18	0.901	9
Dull	32	0.901	10
ExpectVsActual	19	0.821	11
Pressure	24	0.745	12
Learn	31	0.676	13
Renumeration	25	0.491	14
Budget	33	0.409	15
SecurityRet	30	0.315	16

Table 4-13: Top factors from PLS regression analysis per organisation

Organisation A	Organisation B	Organisation C
SkillLevel	Organisation	Manager_HardSkill
TeamUnity	Challenge	SkillLevel
Security	SkillLevel	Manager_Values
Challenge	Security	Learn
Pressure	Manager_Values	TeamUnity

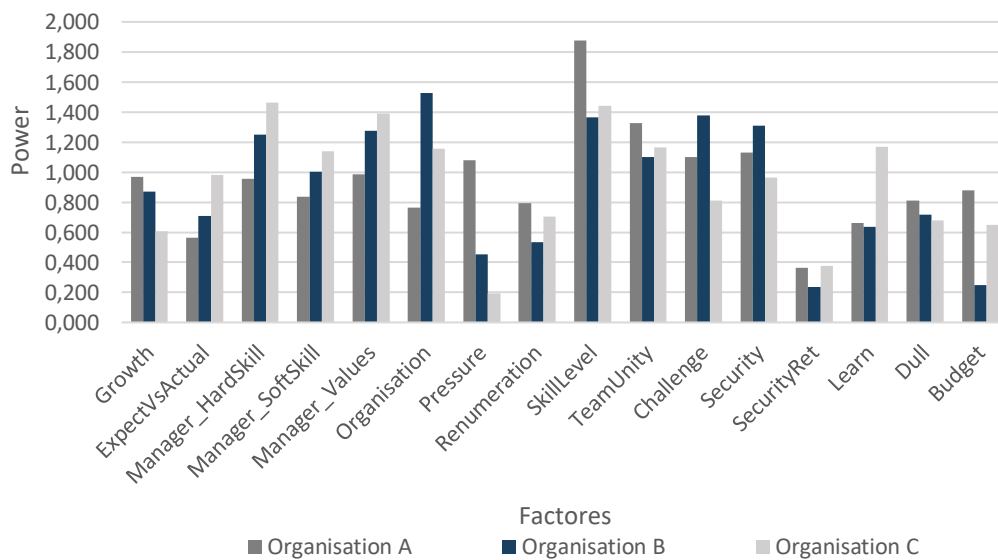


Figure 4-9: Absolute regression coefficient per organisation

Interpretation of Results

Four different methods are used to quantify the relationship between each of the factors and the morale scores, namely: correlation analysis; multi-regression analysis; PLS regression analysis using the morale score as dependant variable; and PLS regression analysis, using the measures of morale as the dependant variable. In each case, the analysis output (absolute regression coefficient and correlations coefficient) are used to sort the factors into a list showing the degree of importance. Importance is seen as the impact the factor has on the organisation's morale. Each analysis method provides a different importance rating per morale affecting factor, Table 4-14. This illustrates the impact the choice of statistical method used has on the results. There is no clear correct answer, but as PLS regression analysis is the most robust analysis method the results are viewed to be a better representation of reality.

Two forms of PLS regression are shown here. Not all analysis tools can use a vector as the dependant variable as required if the measures of morale are used as the dependant variable. Thus, the PLS regression analysis using the morale score as the dependant variable is the best fit to model the relationship between morale and the morale affecting factors, as this is repeatable using other analysis tools.

No one model can be develop to accordantly model the relationship between morale and the morale effecting factors for all three organisations, as shown in Table 4-13 and Figure 4-9. It is advisable to evaluate each organisation separately.

Table 4-14: Summary of factor importance per analysis method

Factor	Importance			
	Correlation	Multi-Regression	PLS Regression (Measures)	PLS Regression (Morale Score)
SkillLevel	1	1	1	1
ExpectVsActual	13	2	8	11
Organisation	5	3	2	4
Manager_HardSkill	3	4	3	3
Dull	7	5	7	10
Challenge	4	6	10	5
Security	6	7	9	6
Manager_SoftSkill	9	8	6	8
Growth	10	9	11	9
TeamUnity	8	10	13	7
Pressure	16	11	5	12
Manager_Values	2	12	4	2
Budget	12	13	16	15
SecurityRet	14	14	14	16
Remuneration	15	15	12	14
Learn	11	16	15	13

4.4.6.2 Factor Analysis

Similar to a regression analysis, factor analysis refers to similar but distinct multivariable statistical models. This method describes the variability between operations, using a lower number of unobserved or theoretical variables. These unobserved variables are referred to as factors that are used to model the observed variable as linear functions (Lewis-Beck et al., 2003). As with regression models, a factor analysis poses dependant variables as linear functions of independent variables. Lewis-Beck et al. (2003) explain that the main difference is that independent variables of a factor analysis are not observed independently of the observed dependent variables. This analysis model is useful in a data reduction function, as it entails identifying the smaller number of variables that capture most of the information of the variation of the variables. Lewis-Beck et al. (2003) further explain that the main disadvantage of this model is that the factors are statistical artefacts unique to the set of observed variables. A factor can be viewed as a hypothetical variable that is common to the variables with larger loadings, but absent to those loadings closer to zero (Lewis-Beck et al., 2003). For this study, the factor analysis is used to evaluate the differences between the organisations.

The first-factor analysis was conducted using the full data set. The Scree plot indicates that five factors are sufficient for the analysis, as the elbow of the plot occurs at the third factor Figure 4-10. Lewis-Beck et al. (2003) explain this to be at the point where the rapid decrease in the Eigenvalues change to a gradual decrease.

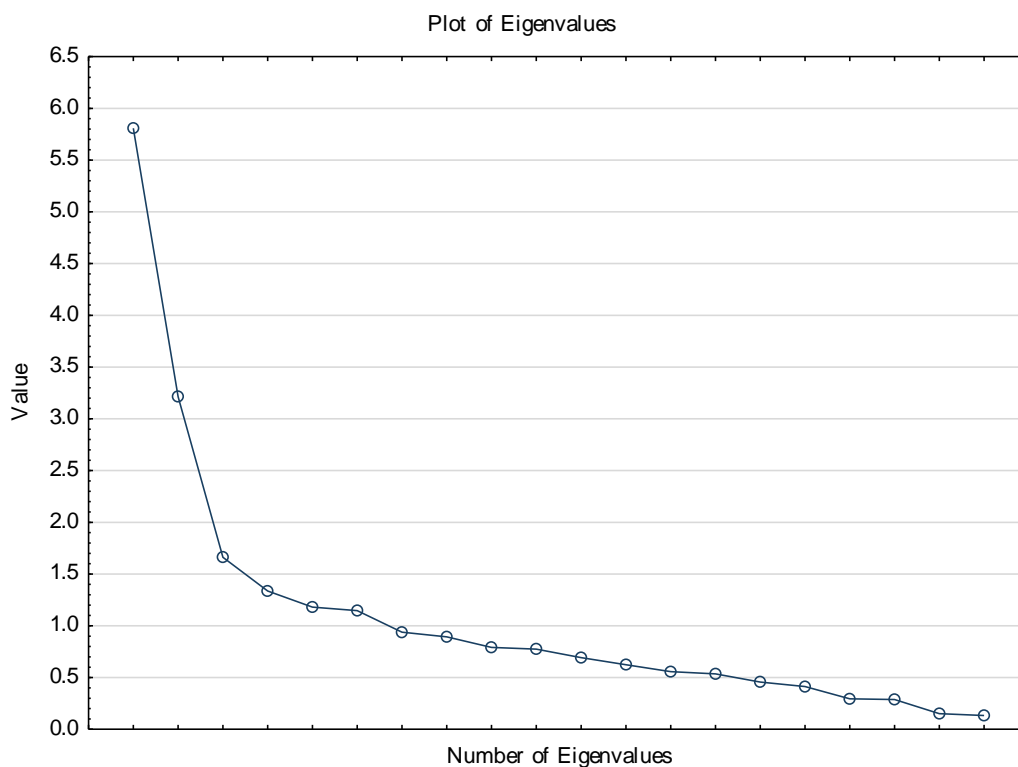


Figure 4-10: Morale score, morale measure, results and factors scree plot

The results are shown in Table D-11, where the constructs with large loading on each factor are indicated in red. The loading can be interpreted in a similar format as the

regression coefficient in a regression analysis (Lavrakas, 2008: 693; Lewis-Beck, Bryman & Futing Liao, 2004).

The relationship between the significant variables is illustrated using a Biplot (Figure 4-11). The distance between the arrow represents the degree of correlation between constructs.

The factor analysis is repeated by looking only at the morale score and morale affecting factors. In this case, the Scree plot indicated that four factors provides a sufficient representation (Figure 4-12). The result of the factor analysis is shown in Table D-12. The resulting biplot is shown in Figure 4-13.

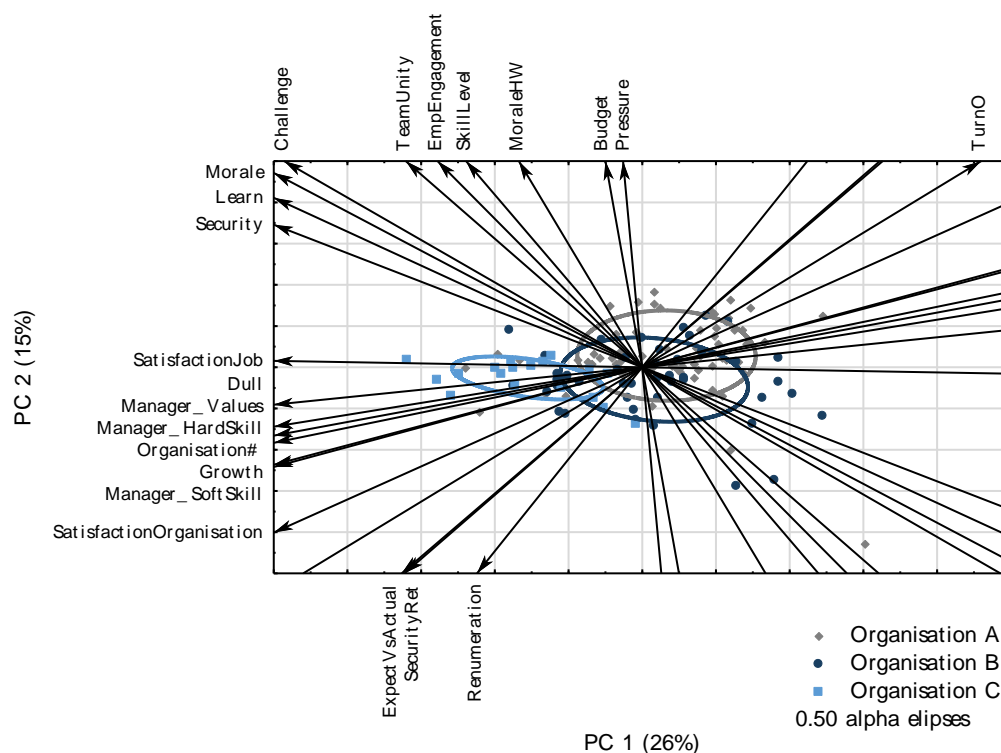


Figure 4-11: Morale score, morale measure, results and factors biplot

Interpretation of Results

The Biplots generated as part of the factor analysis clearly illustrates the differences between the organisations. In both cases, there is a slight overlap in the results of Organisation B and C, while the representation of Organisation A and B have a similar shape, orientation and size. There is no overlap between the results for Organisation A and C. This supports the finding discussed in Section 4.4.6.1, that no one model can be developed that represents the results obtained for all three organisations.

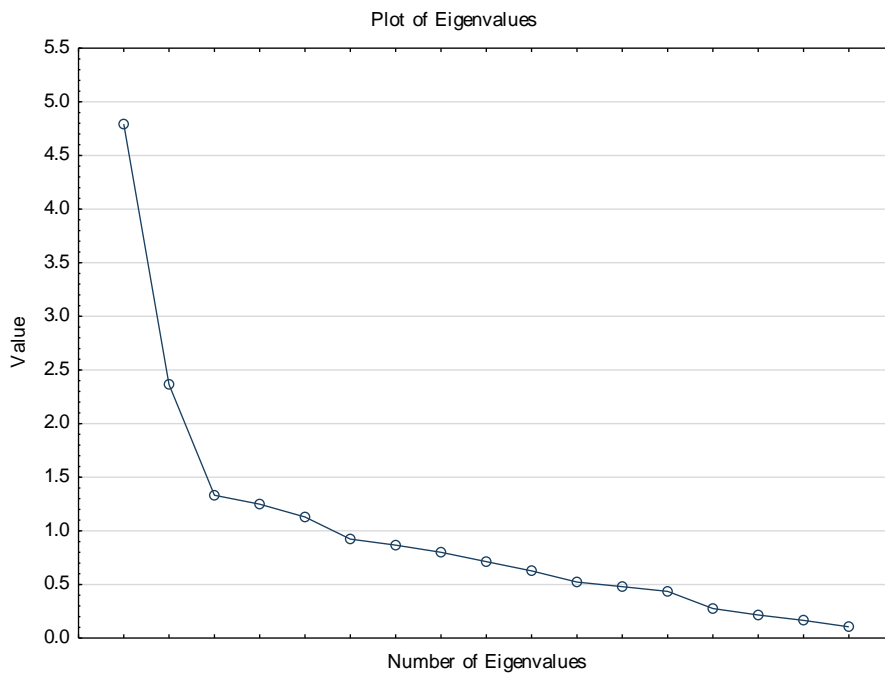


Figure 4-12: Morale score and factors scree plot

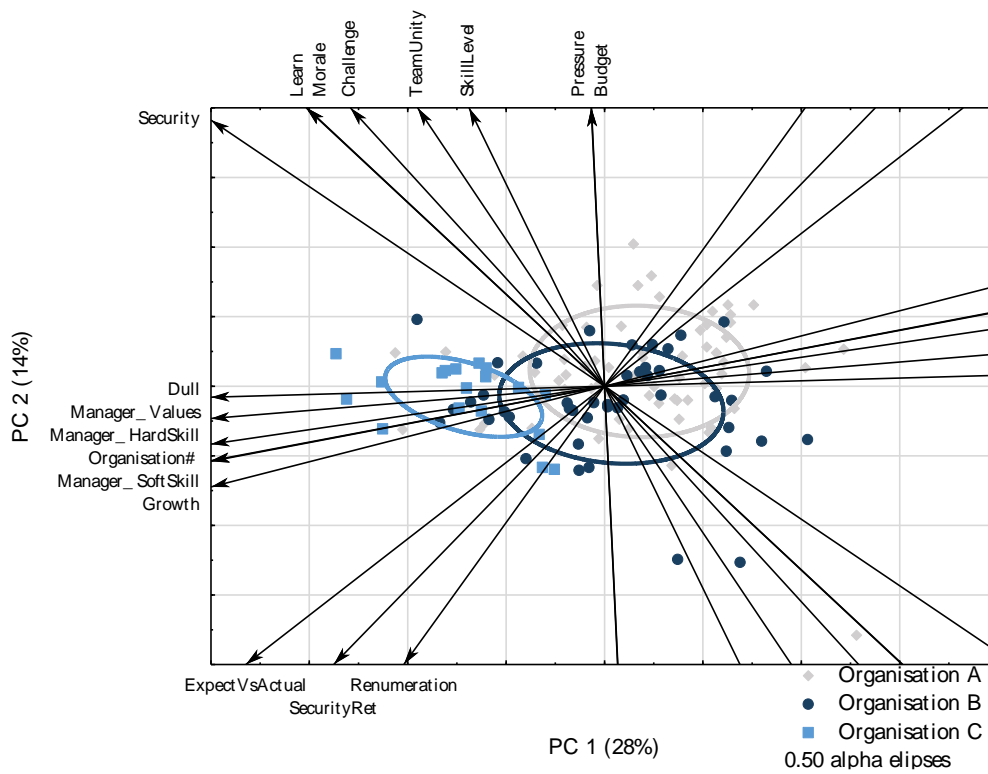


Figure 4-13: Morale measure and results biplot

4.4.6.3 Discriminant Analysis

Discriminant analysis is used to determine which variables are different between the organisations. The goal of discriminant analysis is to determine which variables if any can be used to distinguish between the groups being investigated (Lewis-Beck et al., 2004). Table 4-15 lists variables that constitute the largest discrepancies identified between organisations. Table 4-16 shows the Squared Mahalanobis distances; this shows that there are differences between organisation A and B, but there is a larger difference Organisation C compared to A and B.

Table 4-15: Discriminant function analysis

Variable	Wilks'	Partial	F-remove	p-value	Toler.	1-Toler.
Manager_SoftSkill	0.415	0.937	3.707	0.028	0.376	0.624
Remuneration	0.420	0.926	4.457	0.014	0.721	0.279
Dull	0.432	0.901	6.088	0.003	0.880	0.120
Manager_HardSkill	0.411	0.948	3.063	0.051	0.354	0.646
Growth	0.422	0.923	4.605	0.012	0.641	0.359
Organisation	0.426	0.915	5.183	0.007	0.523	0.477
MoraleHW	0.411	0.947	3.126	0.048	0.842	0.158
TurnO	0.411	0.948	3.055	0.051	0.756	0.244
SecurityRet	0.399	0.975	1.422	0.246	0.831	0.169
SkillLevel	0.401	0.972	1.620	0.203	0.814	0.186
TeamUnity	0.399	0.977	1.331	0.268	0.796	0.204
Budget	0.397	0.980	1.123	0.329	0.927	0.073

Table 4-16: Squared Mahalanobis distances per organisation

Organisation	Organisation A	Organisation B	Organisation C
Organisation A	0.00	2.44	6.04
Organisation B	2.44	0.00	6.11
Organisation C	6.04	6.11	0.00

Interpretation of Results

With 12 of the 16 factors affecting morale identified as discriminant, is it clear that the results of each organisation ought to be evaluated separately. This again supports the finding discussed in Section 4.4.6.1, that no single model can be developed that represents the results obtained for all three organisations.

4.5 Qualitative Data Analysis

Code and retrieve is a qualitative data analysis tool that entails coding segments of responses into categories. This allows the researcher to retrieve the relevant responses using a standard search (Gubrium & Holstein, 2001). Turner (2010) has also proposed coding as a method to analyse open-ended questions.

These results can be quantified by evaluating the number of events (Gubrium & Holstein, 2001), in other words, the amount of times code was found. Gubrium & Holstein (2001) refers to this as reasoning using numbers.

The questionnaire also covered seven open-ended questions. The responses received were evaluated through a method of coding. The open-ended questions were:

- Why are you satisfied or dissatisfied?
- What do you like most about your current work environment?
- What do you like the least about your current work environment?
- How does budget availability affect work?
- Why would you not recommend your organisation as a possible employer?
- What would make you work harder?
- What should change to improve your work environment?

4.5.1 Measure of Satisfaction

From the qualitative question that measures reasons for satisfaction or dissatisfaction, it is evident that Organisation A and B have low morale, while Organisation C has a higher level of morale with the majority of employees satisfied (Figure 4-14). The reasons each participant provided are used to identify factors that influence their morale. In Organisation A, the factors that have the largest influence include, participant's duties; doing the work they were trained to do; growth opportunities; and work conditions. For Organisation B these factors are: management performance; work duties; and growth opportunities. For Organisation C, the most significant factors were the participants' duties; doing what the participants were trained to do; and growth opportunities.

4.5.2 Evaluation of Work Environments

Participants are asked to identify what they like most and least about their work environments (Figure 4-15). Participants from all three organisations agreed that the factor that they most liked about their work environment was *their colleagues*, and *team work*. This is found to be 35%, 42%, and 40% of the respective factors for Organisations A, B and C. The second most significant factors identified for Organisations A and C are *challenges in the work* and *problem solving* 10% and 33%, respectively, while Organisation B identifies their *work environment* as the second most significant factor, 12%.

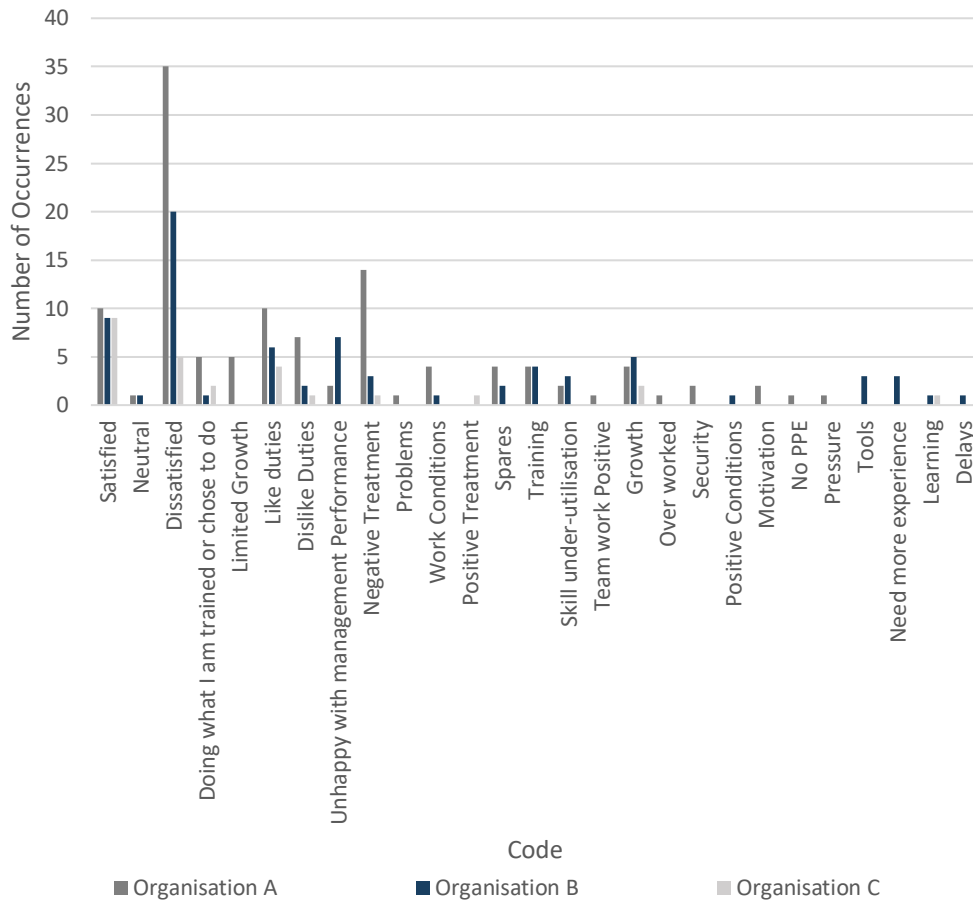


Figure 4-14: Measure of satisfaction

The participants were also asked what they like least about their work environments (Figure 4-16). For Organisation A, the factors identified by participants that they like the least about their work environment are the *treatment from managers and colleagues* for 26% for the responses; *spare shortages* for 15% of the responses; and *management ability* for 13% of the responses. For Organisation B, *management ability* constitutes 15% of responses; and then the *treatment from managers and colleagues*, with 5% of responses. For Organisation C, the results show the most significant factors to be *treatment from managers and colleagues* to constitute 17% of the responses, as well as a *lack of planning and direction*, also 17%. It should be noted that a stronger coherence of responses was observed in Organisation A, where 26% of the responses indicated that *treatment from managers and colleagues* is a significant factor.

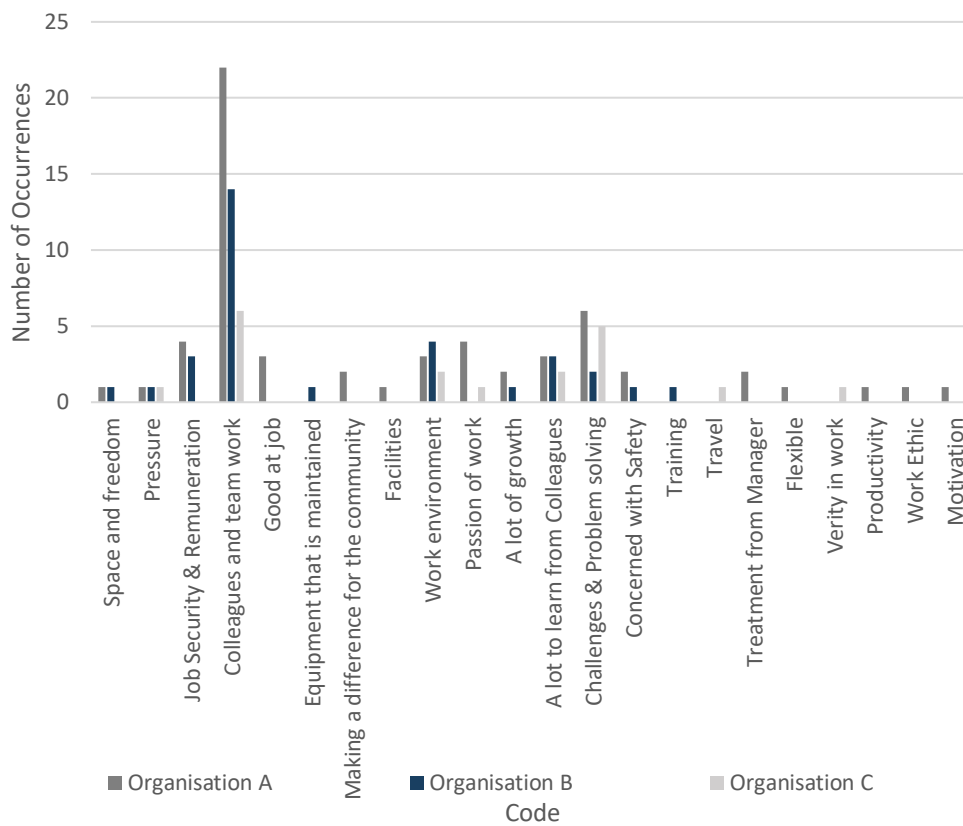


Figure 4-15: Positive aspect of work environment

4.5.3 Impact of Budget Availability

The majority of participants from each of the three organisations agreed that budget has an impact on their work (Figure 4-17). For Organisation A, 95%, Organisation B, 87%, and Organisation C, 85%, of responses agree that budget availability and utilisation has an impact on their work. The area where budget most impacts participants is *spares availability*, with 59%, 29% and 23%, respectively for Organisations A, B and C; followed by *production delays*, with 27% and 31% respectively for Organisations A and C and 0% for Organisation B. The third most significant factor is *tools availability*, 14%, 32% and 8%, respectively for Organisations A, B and C.

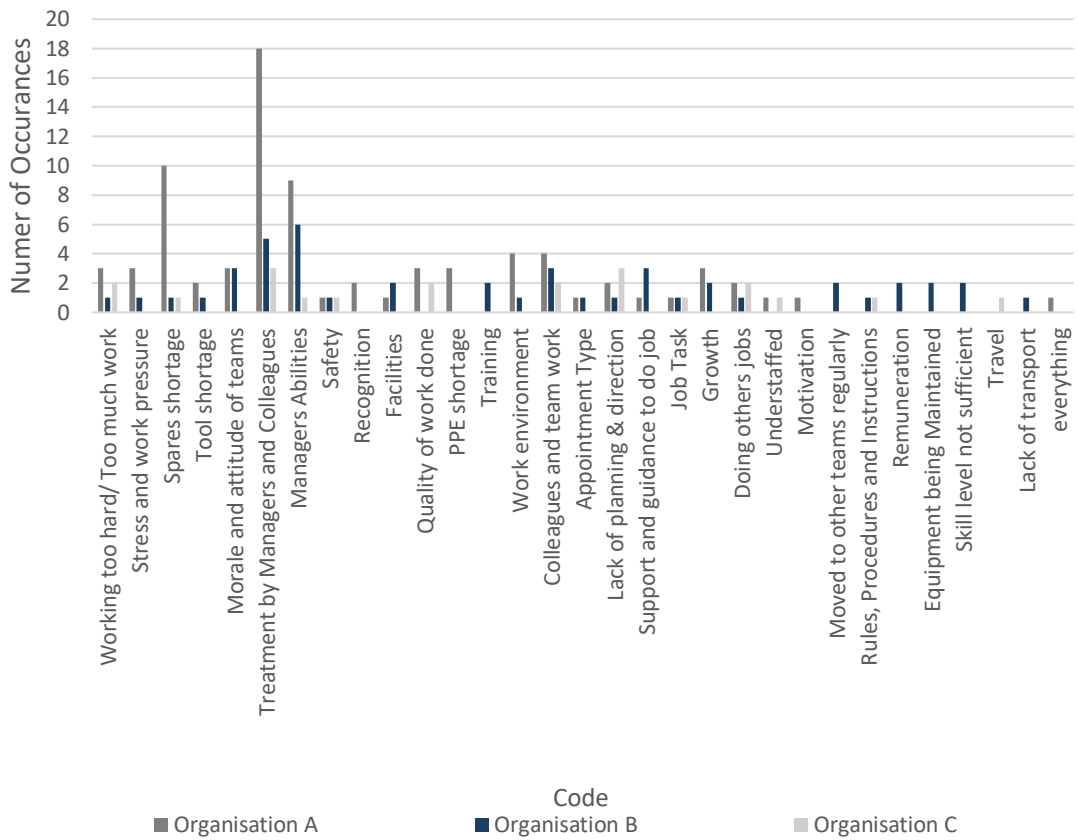


Figure 4-16: Negative aspect of work environment

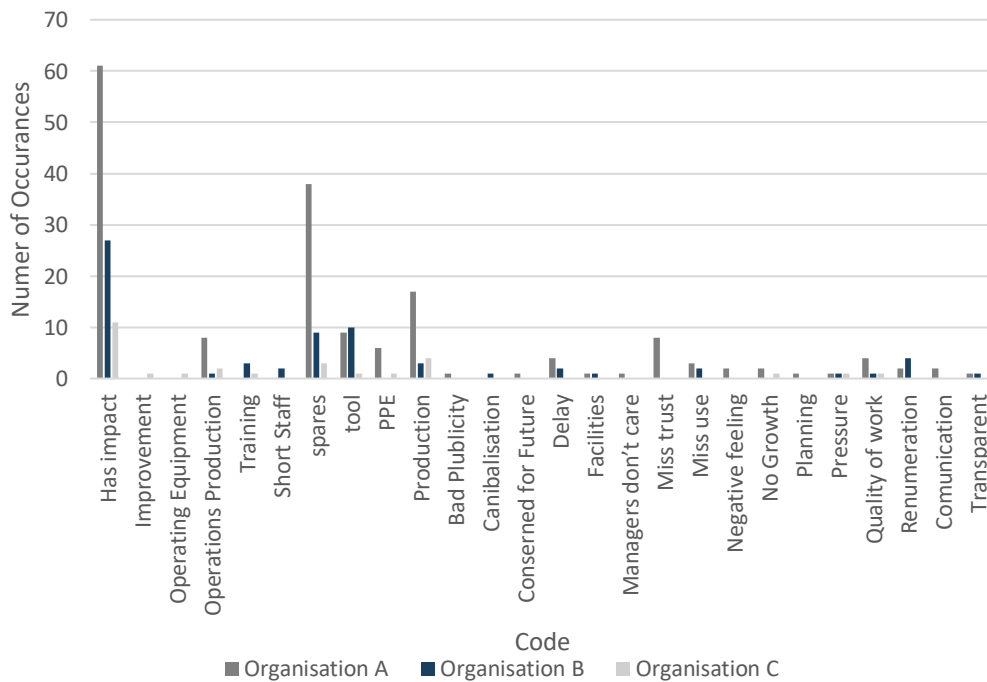


Figure 4-17: Impact of budget availability

4.5.4 Recommendation of Organisation

Whether employees feel they can recommend the organisation as a good place to work can be related to the organisation’s ability to source new employees. Employees from *Organisations A and B* are more likely not to recommend their organisations as employers, while *Organisation C* is very likely to recommend the organisation (Figure 4-18). The factors that most strongly influence this are unequal or unfair treatment, experienced by participants, 25%, 18% and 15%, respectively for *Organisations A, B, and C*. The second factor was management ability, with 17%, 19% and 0%, respectively for *Organisations A, B and C*. The third factor was opportunity for growth with, 10%, 14% and 31% respectively for *Organisations A, B and C*.

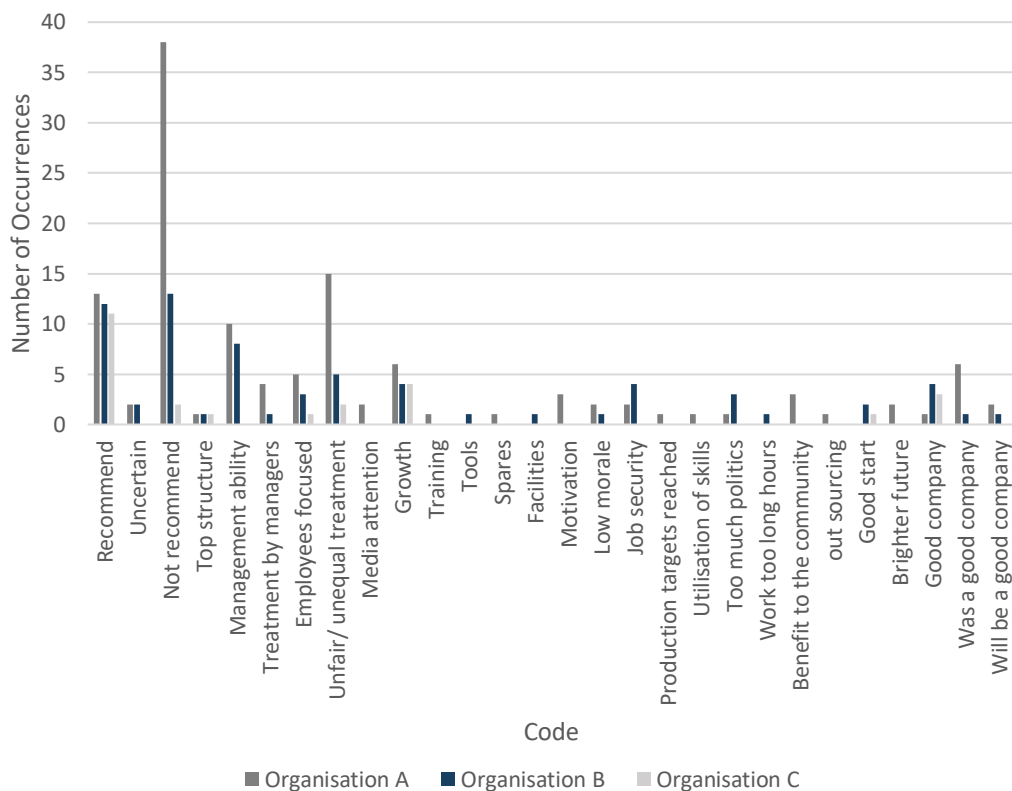


Figure 4-18: Recommendation of organisation as a good place to work

4.5.5 Motivation to Work Harder

For the question about what would make participants work harder, there are substantially different results for *Organisation A* compared to the other two organisations (Figure 4-19). The most significant factor for *A* was remuneration, with 35% of participants agreeing, with only 8% for *Organisations B and C*. During discussions with management of *Organisation A* before the first survey session, it was mentioned that a

large portion of the group of employees invited to participate experience problems with debt and loan sharks.

The second most significant factor is recognition, which has better correlation between the organisations with 18%, 25% and 25%, respectively for Organisations A, B and C. The third most significant factor is growth opportunities, with 17%, 14% and 0% respectively for Organisations A, B and C. It should further be noted that in both Organisations A and B, the availability of “basic” maintenance items for example tools, spares, PPE and training were identified to be significant. Although none of these items were listed for Organisation C, Organisation C did identify support from management, and worked with management to meet goals as significant factors, both of which had minimal to no occurrences for Organisations A and B.

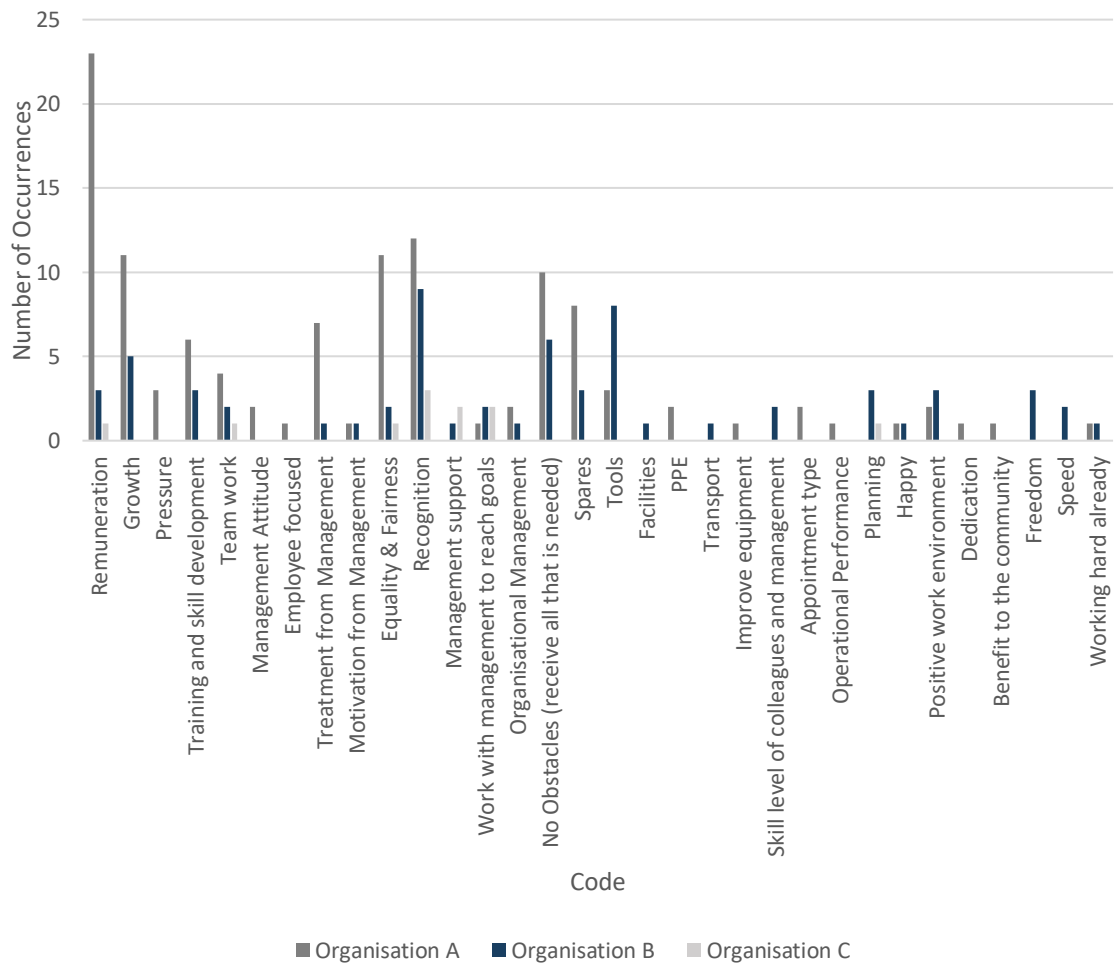


Figure 4-19: Motivation to work harder

4.5.6 Improvement to Work Environment

The final open-ended question aims to identify factors that need to be addressed to improve employees work environments (Figure 4-20). From the question discussed in Section 4.5.5, 3% of respondent in Organisation A and 8% of respondents in Organisation B indicate that a positive work environment would encourage them to work harder. This highlights the importance of improving the work environment.

The most significant factors affecting the work environment is manager skills, as identified by 11%, 33% and 27% of the responses received from Organisations A, B and C, respectively. The second most significant factor is found to be the appointment of correct people as managers with 20%, 11% and 9% of responses for organisation A, B and C, respectively. The third most significant item was, again, spares; with 14% and 15% of responses from Organisation A and B, respectively.

Other significant factors specifically for Organisation A were management attitude (14%) and equality and fairness (13%). For Organisation B, tools was identified as the most significant factor at 33%. For Organisation C the second most significant factor was facilities (18%).

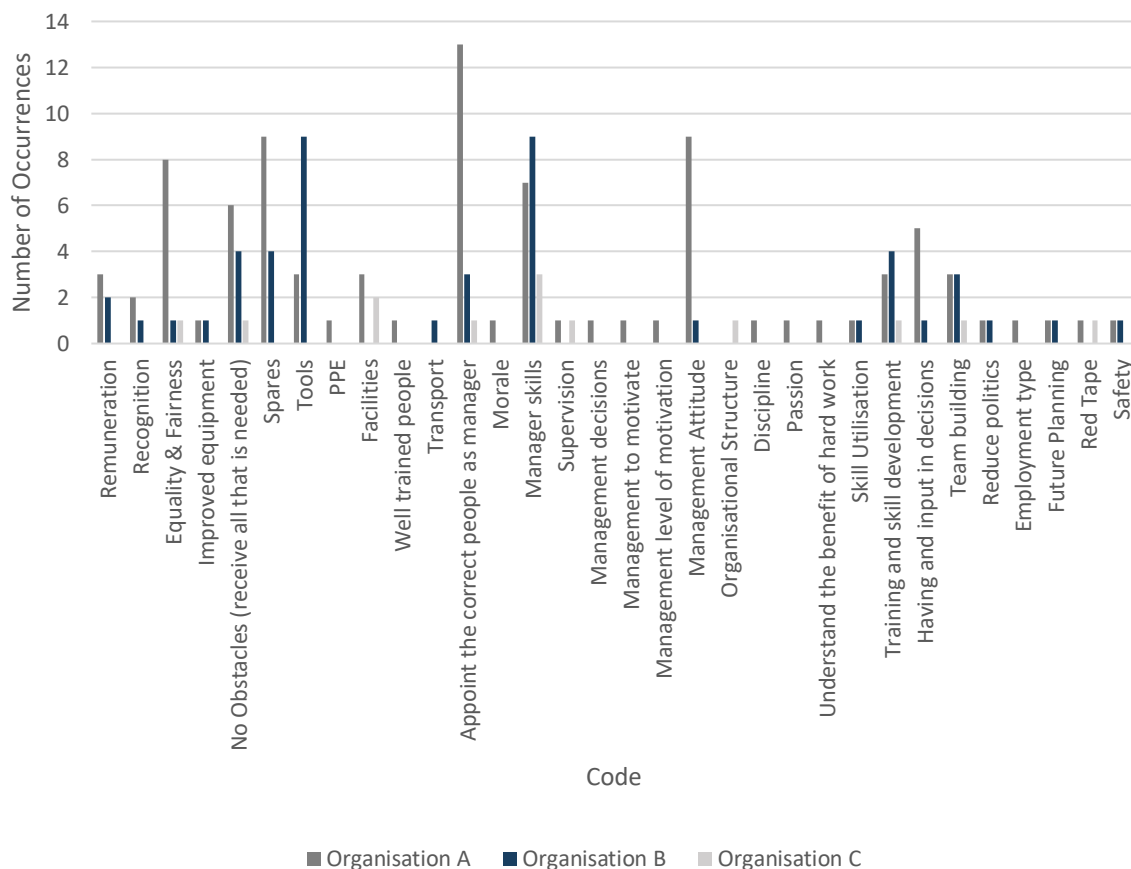


Figure 4-20: Factors affecting work environments

Qualitative Result Interpretation

Most of the participants feel that the budget constraints had an impact on their work, especially with regards to the availability of spares. The availability of spares, tools and training could be interpreted as the golden thread that runs through all the qualitative results.

The other factor identified in various of the responses is the negative treatment participants received from their managers and colleagues. This is found to be the most significant cause for being dissatisfied and the worst aspect of work of the participants work environment, while the best aspect of the work environment is team work and the relationship with colleagues.

Similarly, as the negative aspect of the work environment, it is found that the majority of the participants surveyed would not recommend their organisation due to unfair or unequal treatment from managers and supervisors.

Two items were identified to be most likely to encourage employees to work harder. The first being remuneration, which is only the case for Organisation A. The second is recognition. In line with this finding, the factor that is identified to most improve the work environment is managerial skills, where recognition of teams is in line with this finding. The term that is often mentioned when discussing managerial skills in the responses is communication.

The difference found between the results for each organisation supports the finding discussed in Sections 4.4.6.1, 4.4.6.2 and 4.4.6.3, that no one model can be developed that represents the results obtained for all three organisations. Similarly, the “basic” maintenance requirement of tools, spares, PPE and training as been identified. As with the discussion in Section 4.4.3.2, the need for these items is more relevant for Organisation A and B than C. The qualitative results support the findings of the quantitative analysis.

4.6 Chapter Summary

The research objectives that are intended to be covered in this chapter are to quantify the morale in technical departments of SOEs and to determine the main cause of morale problems within SOE’s maintenance departments. This is done by first designing a questionnaire that is aimed to address these objectives. The first portion of field work is then conducted that entailed conducting the surveys at three SOEs. This is followed by the quantitative analysis of the data.

The questionnaire is based on questions used in past studies from the literature review. The questionnaire design took the following into account: question length, question-wording, question type and question order. A combination of Likert scale, open and checklist questions are included.

The sampling method used to gain access to the different organisations is convenience sampling. As only organisations where the researcher knew management level employees or where the researcher received an introduction, were willing to participate. The organisations and departments that were contacted using a cold calling method did not respond.

For the field work, sixteen people were contacted for permission to conduct the study at their organisation; the response rate was 25%. Three of the responding organisations agreed to participate. The surveys were conducted at three different SOEs within the Cape Town area. The overall response rate of participants who attended the sessions was 89.6%.

The process used for the analysis was a combination of the processes presented by Falissard (2012) and Heeringa (2010). Seven statistical analysis methods are used, with the goal to identify a model that represents the data set obtained for the three SOEs. The first analysis performed is distribution statistics. The second analysis performed is a correlation analysis, where the strength of the relationships between each of the constructs are evaluated. Then the correlation between the morale score and each of the constructs are evaluated. The ANOVA is used to evaluate the variance between the following items:

- level of satisfaction in the organisation and items that would improve participants feeling towards work;
- pride in the organisation and items that would improve participants feeling towards work;
- employee engagement and items that would encourage employees to work harder; and
- the tendency to work hard when they are happy and employee engagement.

The fourth analysis method used is a multiple regression analysis. This analysis is used to determine what predictor (factors affecting morale) has the largest influence. Similarly, the fifth analysis method used is a PLS regression analysis. This analysis allows the calculation of predictors for more than one dependant variable. For this analysis, the dependant variables used are: satisfaction, job satisfaction and organisational satisfaction. This is repeated using the morale score as the dependant variable. A PLS regression analysis is also used to determine the predictors per organisation. The sixth analysis method that is used is factor analysis. This method is used to evaluate the different organisations. The final analysis method used is discriminant analysis, which is used to identifying the differences between the organisations.

The first objective addressed in this chapter is the quantification of morale in technical departments of SOEs. This is done using the descriptive statistics. The overall morale score is found to be 3.06, 3.26 and 3.75 out of 5 for Organisations A, B and C, respectively. This also addresses the first research question that is relevant to this chapter, viz. do maintenance employees in SOEs have low morale and what are the causes? The second section of the research question will be addressed by the second objective relevant to this Chapter.

The second research question addressed in this chapter is to confirm the literature review finding of whether employee morale affects performance. The mean of the responses received that measure whether employees feel they work harder when happy is 4 out of 5. This clearly shows that the majority of the participants agree.

The second objective is to determine the leading factors affecting employee morale within SOEs maintenance departments. This has been identified using multiple statistical methods, each of which provides a different result. The DSS developed in Chapter 5 provides a definitive list of factors that can be addressed, and addresses the final research

questions that are relevant to this chapter. This includes the identification of the causes of low employee morale and the identification of the methods of morale improvement methods that can be implemented in SOEs.

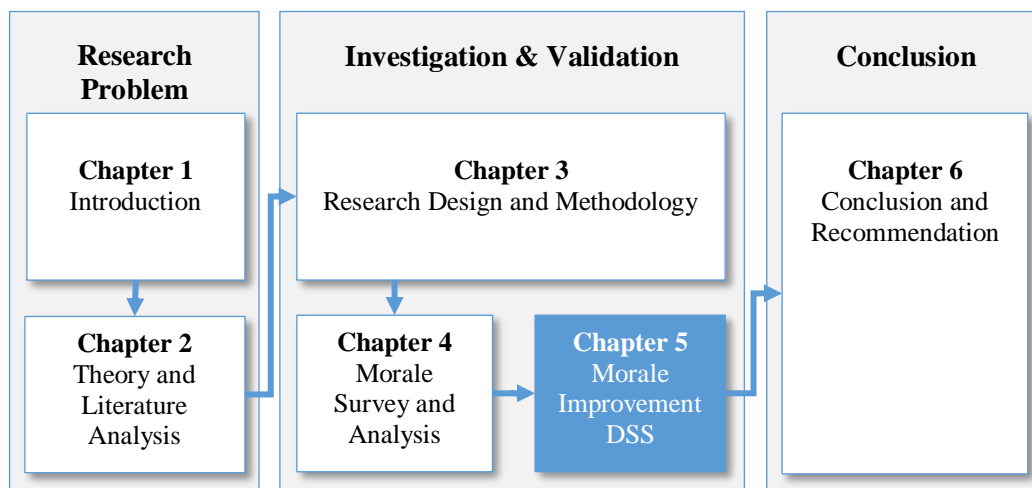
The analysis discussed in the chapter illustrates that there are differences between Organisations A and B, but there is a large difference in morale in Organisation C compared to A and B. As a result, no one model can be developed that represents the results obtained for all three organisations.

In closing, each of the seven analyses provides evidences of the collection results. A global picture is built as additional information is obtained from each analysis that is completed. The Chapter 5 aims to combine the findings from each analysis into one model.

Chapter 5. Morale Improvement Decision Support System

This chapter aims to explain the process that is followed to create and validate the decision support system (DSS). This is done by addressing the secondary research objectives. The first objective is to develop a morale improvement DSS. The second objective is the validation of the morale improvement DSS.

Based on the findings discussed in Chapter 4 and the literature review in Chapter 2, a morale improvement DSS is developed. Interviews are conducted at two of the three organisations where the surveys were conducted, so as to validate the survey findings and proposed DSS.



5.1 DSS Design

It is evident from Section 4.4 that there is no single model that fits the results of all three organisations, due to various factors. One possible factor is that an organisation's needs may differ at different levels of morale "maturity". This could be seen with the general difference between Organisation A & B versus Organisation C. External factors could also play a role. For example, a large percentage of participants from Organisation A struggle with debt, as identified during interviews with the managers. This may have led to the observed results showing an increased drive for more financial benefits.

Consequently, the results provide evidence that no single equation can represent the morale of employees in all the SOEs. It is therefore the better course of action to model the relationship between morale factors for each SOE. This would allow any organisation

to evaluate their morale and identify their specific resulting focus area. This model can then be used as a Decision Support System (DSS) to assist managers within the organisation to determine the area where they should pay attention to optimally improve morale of the teams. A DSS can be seen as tool that transforms an input into an output (Borenstein, 1998). Finlay (1986) defines a DSS as a computer application that helps a manager in decision making. Finlay & Forghani (1998) provides a more specific definition, by explaining it as “a computer information system (IS) that provides information in a given domain of application by means of analytical decision models and access to a database”. A DSS is not a computer simulation that provides the answer, but allows for wider thinking (Finlay & Wilson, 1997). An alternative explanation is that a DSS is an interactive process that assists users to utilise data and models to solve problems (Klein, Konsynski & Beck, 1985). A DSS can be utilised to address unstructured problems. Klein et al. (1985) describe a model as an “absorption of a reality applied to problem solving”. Models can be utilised in all levels of decision making. One of the benefits of using a computer-based model is it results in organised data that is in a shareable format. Klein et al. (1985) is an old reference, but was used to concisely explain and demonstrate the construction of a DSS. Finlay (1986) is a dated reference, but still relevant, as Finlay has continued to publish on this topic. The article referenced here covers the development and constructions to the required level of detail.

Kayaalp, Pedersen & Bruce (1997) explain there are two types of decision problems, the first with a yes/no answer. The second entails optimisation problems where a value needs to be minimised or maximised. In the case of this project, the second problem type is relevant, where the morale score needs to be maximised.

Webster (2013) is of the opinion that the business world has changed, and that so too should the process around decision-making change. In the past, decisions were made based on what was used in the past. However, this is no longer applicable. Today, decision makers need to evaluate all possible alternatives, and the consequences of each. The level of uncertainty experienced in the decision-making process can be addressed by using statistical analysis, where the statistical analysis process entails clearly defined steps. The first step is to collect the data, followed by data analysis, data interpretation, and then finally predictions and forecasting (Webster, 2013). For this project, this is addressed in Section 4.4.

A DSS has two main elements, viz. the database and the logic model or dialogue design (Finlay & Forghani, 1998; Klein et al., 1985). This is generated using three elements, viz.: data management, analysis, and presentation. Finlay (1986) presents a process that uses these tools to develop a DSS, with the first phase entailing electronic data processing (EDP). The second phase involves the use of the EDP systems, together with non-transaction tasks, and the final step is the design of the management information systems (MIS). This provides the organisation with the variables they need to control. The final phase entails providing a DSS that combines the information for the first three phases to assist managers to draw conclusions. A DSS allows the user to experience the benefits of sophisticated models, without having to understand the technical aspects behind it, or having to implement it (Klein et al., 1985).

5.1.1 Output of DSS

Providing users with a list of factors that should be addressed would not assist users in the decision-making process. The factors need to have some level of priority to guide departments on where to spend their energy. The result of the regression analysis (Section 4.4.6.1) is used to determine this priority. However, a prioritised list of 16 items shows managers where to focus first, but not how many of the factors ought to be addressed. Chatterjee & Sorenesen (1998) provides a possible solution to this problem. They suggest that regression analysis have a “Pareto-like effect”. Approximately 80% of the benefit can be achieved by addressing 20% of the causes. Assuming this holds true by addressing 20% for the 16 factors 80% of the benefit can be obtained. Thus, the top three factors can be addressed.

5.1.2 DSS Requirements

Finlay & Forghani (1998) raises the point that one of the principal actors who play a significant role in the life of a DSS is the end user. To ensure the success of the DSS, the user’s needs, computer literacy and other limitations ought to be taken to account. In the case of this project, these constraints have led to the following requirements:

- The DSS must be easy to use:
 - require minimal computer literacy (basic Microsoft Excel literacy at most);
 - be easy to interpret; and
 - generate a report that can be used to measure improvement from year to year.
- Should not require any additional software to be installed.
 - In many organisations, including some SOEs, the employees are not able to install software on their computers due to the IT policies. This will increase the risk of the DSS not being available for use.
- Should be able to handle missing data.
- The DSS should be able to work on an indeterminate number of surveys.

The goal of the DSS is to provide a list of the most significant contributing factors to the organisation’s morale. This would be utilised to guide the organisation towards a particular focus. In addition to this, the current satisfaction rating of each of these factors is provided to allow the organisation to measure progress.

5.1.3 Construction of the DSS

The DSS consists of various worksheets within a Macro-Enabled Microsoft Excel Workbook. This platform is chosen as there is a very strong likelihood that all possible users will have access to Microsoft Excel. Macros are used to allow for working with a data set that contains missing variables, and to build the DSS by not requiring a

predetermined number of entries. The logical design for the proposed DSS is shown in Figure 5-1. The DSS is used to convert several inputs into one concise report. The inputs are the survey, date, and team size. The report sections are selections results, demographic results, top factors, score per construct, and result overview.

5.1.3.1 DSS Inputs

Three areas require user input, viz.: survey results, team size, and date. All the input fields have guiding comments to provide the user, with guidance as to what is expected of them (Figure 5-2). In addition to this, there is validation on each of these fields to ensure only valid data is captured, and to notify the user if an error is made (Figure 5-3). In the case of the survey result input, there are three types of inputs. For the demographic information, each question has a list of possible options. This list is captured on the “Lists” worksheet; the validation entails a drop-down selection method based on these lists. The second type of input is a value between 1 and 5. The final input type only requires the user to enter a ‘1’ when an item is selected.

5.1.3.2 Calculations

Similar data preparation is done as part of the DSS as what was initially done for the statical analysis. The only difference in this case is that the calculations are done in such a way as to allow for n number of surveys to be captured, and all amendments made so as to address missing data made through the means of equations. This included the correction of negative questions (Figure 5-1, MIM C1); addressing missing values (Figure 5-1, MIM C3-C5); and calculation of constructs (Figure 5-1, MIM C2). Once the data is in the required format, the regression analysis is applied using the morale score as the dependent values, and the factor constructs as independent values (Figure 5-1, MIM C6 and C7).

The constructs are calculated in the same manner as used in the initial data analysis (Section 4.4.2.3). In summary, 16 morale affecting factors were measured. In each case, several questionnaire questions were used to evaluate each of these factors (Table D-5). A construct is calculated by using the mean of the responses for each of these questions, providing the score per morale affecting factor. The morale score is calculated using the same format; the questions are shown in Table D-3. The score is an indication of the participants feeling about the specific factor.

As mentioned in Section 4.4.2.2, missing data is one of the more significant challenges with conducting a survey analysis. This is even more so the case with the development of the DSS. As the Excel regression analysis function, unlike the functions used in Statistica, cannot be used in cases where there is missing data.

As discussed in section 4.4.2.2 conditional mean imputation allows for the replacement of missing data with approximately unbiased data. This method is select as it allows the missing data to addressed without affecting the sample size.

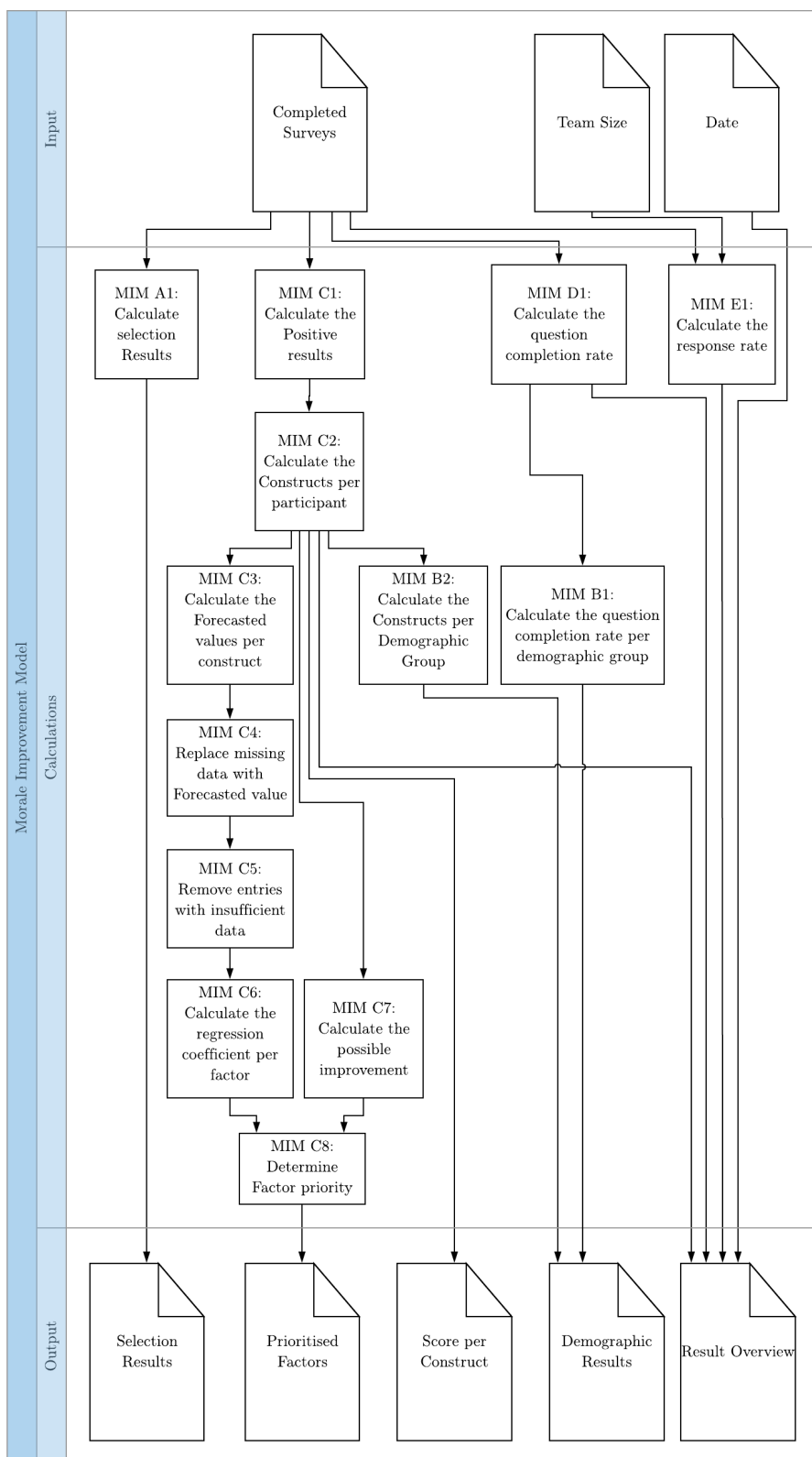


Figure 5-1: DSS logical design

Missing data is addressed by using forecasts to determine dependent values. The standard forecast Excel function could not be used, as this does not work for n number of data. To overcome this, a simple linear equation was used to determine the forecasted value. This is calculated for each of the factors using the morale score as an independent variable and the specific factor as the dependant variable. The slope for each factor is calculated using a least square estimate equation (Montgomery & Runger, 2010). This equation is utilised in a macro to calculate the slope of each factor (Appendix F.1). The intercept for each factor is then determined using the average morale scores as the independent variable and the average factor as the dependent variable. Using the calculated intercept, slope and morale score as the independent variable a forecasted factor is determined. The missing data points are replaced with the forecasted values.

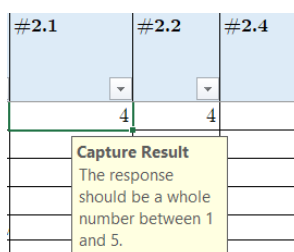


Figure 5-2: Survey capture tip

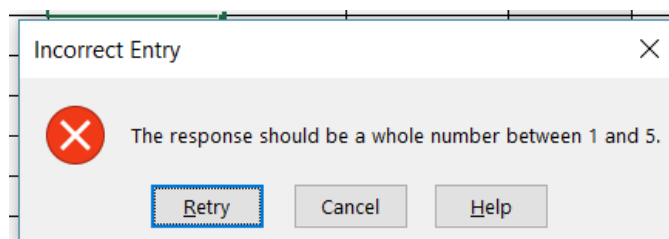


Figure 5-3: Invalid entry message

The same method could not be used in cases where there is no result for the morale score. This could occur if the questions used to calculate the morale score are not answered. For these cases, a macro was developed to assess if the morale score is a numeric number (Appendix F.1). If it is, the response given by the participant is included in the “sufficient results” worksheet. If not, the entry is omitted. Microsoft Excel uses the Least Square method to determine a linear equation that would the best fit for the data set (Figure 5-1, MIM C6). Even though this method is not the most robust method as discussed in section 4.4.6.1 it was selected as it could be implemented with the available tools. The regression function is termed ‘using the macro’, as the calculation is done on an n number of entries (Appendix F.1). The regression coefficient of each morale-affecting factor is used.

The factor priority rating is then calculated by multiplying the regression coefficient and possible improvement (Figure 5-1, MIM C8). The possible improvement is calculated by subtracting the factor score from 5 (Figure 5-1, MIM C7). This is done as the regression coefficient alone cannot be used to prioritise factors as it shows which factor has the largest impact on morale. However, if the organisation performs very well in the specific factor, there is very little scope for improvement.

The selection portion of the survey allows participants to select items from a list. These results are evaluated by using a count function to determine the number of the participants that selected each item (Figure 5-1, MIM A1).

Since the DSS uses forecasts to address missing data, an indication of accuracy is required. The percentage of questions completed is an indication of the number of questions each participant has completed. The mean of this measure for the whole data set was then determined as a result (Figure 5-1, MIM D1). This value is also an indication of employee engagement.

The morale affecting factor score as well as the percentage question complete was also calculated per demographic group (Figure 5-1, MIM B1 and B2). This is done using an if function that calculates the count or means if the participant is part of a demographic group. Finally, the response rate is calculated by dividing the number of captured questionnaires by the team size (Figure 5-1, MIM E1).

5.1.3.3 DSS Output

The output of the DSS is a five-page report that contains five sections: overview, priority factors, score per construct, overview per demographic group and a glossary. An example of the report is in Appendix F.2. Condition formatting is used throughout the report to evaluate the scores at a glance. A score less than and including 2.5 is shown in red, between 2.5 and 3.5 in yellow, and above and including 3.5 in green.

The report layout is done in a way to allow the first page to function as an executive summary. It shows the overview and the prioritised list of factors. The overview includes the number of participants, response rate, question completion rate and overall morale score. The prioritised list of factors is a bar chart of the focus rating, with the factors ranked showing the most significant on the left and least on the right.

The second page shows the achieved score per construct. This includes the score per morale measure, morale level results and score per factor. The percentage positive, neutral and negative responses are also summarised. The third page shows two bar graphs that represent the selection results. These results show the number of participants that selected each of the options that would improve their feeling towards their work and would encourage them to work harder. These graphs also rank to show the most significant items from left to right. The fourth page shows the population size, question completion rate, and morale score per demographic group. The final page contains a description of each measure of morale and affecting factor as well as the code used in the prioritised graph.

As this is a proof of concept, the code used in the Visual Basic macro, and calculations were not optimised. The initial focus was ease of use, to ensure ease of fault finding, as well as to ensure that a relevant report is generated. The DSS has not gone through rigorous testing to ensure it cannot be broken by incorrect use, but care is taken to minimise this risk. To ensure the reliability of the output, all fields, except fields requiring inputs are “protected”. This prevents unintended edits from occurring while in use.

5.1.4 DSS Structure

The DSS interface requires the user to interact with three worksheets, which are coloured blue. There are various worksheets that are used for calculations, which are coloured grey. The first is the “Step 1 Instruction” worksheet that provides an explanation of what ought to be done, and shortcut buttons to the other worksheets (Figure 5-4). This is followed by the “Step 2 Capture Survey” worksheet, as discussed in Section 5.1.3.1 (Figure 5-5). The macro can then be run by selecting the “Run Analysis” button on any of the worksheets.

The Morale Improvement DSS utilises Excel Add-Ins. The process used to activate the tools required for the DSS to function is explained in Appendix F.4.

Instructions

Employee Morale Evaluation

Capture Survey

This button will take you to a section that is used to manually capture the results of completed surveys.

Survey Capturing Instructions:

The results are coded as a value between 1 and 5 where 1 indicates the first option and 5 the option in the right.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.1 I am satisfied with my current job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 I am satisfied with the work I am required to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3 Why are you satisfied or dissatisfied?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5

Run Analysis

This button will run the calculation to determine the factors that most impact morale in your organisation. The result will be captured on a new sheet.

Please Note:

The analysis may take some time to run, please be patient.

The current analysis process stage can be viewed in the message box, bottom left corner of the screen.

▶ Step 1 Instructions
Step 2 Capture Survey
Step 3 Results
Lists
Regression
Feeling Selection Res

Figure 5-4: Instruction worksheet

The analysis stage will be shown in the Microsoft Excel message box at the bottom left corner of the screen, Figure 5-6. Once the analysis is complete, a message box is

opened that states the analysis is complete (Figure 5-7) and the user is navigated to the “Step 3 Results” worksheet (Figure 5-8).

The worksheets used as part of the DSS are listed in Table 5-1. The worksheets that are utilised for calculations are not visible to users. In addition to this, only areas that require user input is editable.

Survey - Employee Morale Evaluation							Date	2018/10/13		Team Size	100		Run Analysis	Menu			
Participant	#1.1 Employed	#1.2 Race	#1.3 Gender	#1.4 Age	#1.5 Qualification	#1.6 EmpType	#2.1 Satisfaction	#2.2 Satisfaction	#2.4 HardWork_Co	#2.5 TurnOver_Personal	#2.6 HardWork_Feeling	#2.7 Salary_Un	#2.8 Salary_Un	#2.9 Feeling_V	#2.10 Manager_Softskill	#2.11 Team_Co	#2.12 Sec
1	>20 years	White	Male	> 50 years	Trade Certificate	Permanent	4	4	3	4	4	4	4	4	4	5	3
2	> 50 years	Coloured	Male	> 50 years	Grade 12	Permanent	3	3	2	1	4	3	3	5	3	5	
3	1-2 years	African	Male	30-40 years	Trade Certificate	Permanent	1	1	1	3	3	1	1	3	1	5	
4	10-20 years	White	Male	30-40 years	Grade 12	Permanent	1	1	2	1	1	1	1	1	1	1	1
5	10-20 years	White	Male	30-40 years	Grade 10	Permanent	1	1	5	2	5		4	5	2	2	
6	>20 years	White	Male	40-50 years	National Diploma	Permanent	4	2	4	3	5	5	5	4	4	5	
7	10-20 years	African	Female	30-40 years	Trade Certificate	Permanent	3	4	5	2	5	5	5	5	5	2	
8	5-10 years	African	Female	30-40 years	Grade 12	Permanent	3	4	4	2	5	5	5	5	3	4	
9	>20 years	White	Male	> 50 years	Trade Certificate	Permanent	4	4	3	4	3	3	3	3	4	4	
10	>20 years	Coloured	Male	20-30 years	Trade Certificate	Permanent			3					3			
11	10-20 years	Coloured	Male	30-40 years	Trade Certificate	Permanent	3	4	5	1	3	5	5	4	5	4	
12	5-10 years	African	Male	30-40 years	Grade 12	Permanent	4	3	4	2	5	4	3	4	2	3	
13	5-10 years	African	Male	30-40 years	Trade Certificate	Permanent	2	2	4	5	4	5	4	4	5	5	
14	10-20 years	Coloured	Male	40-50 years	Trade Certificate	Permanent	4	1	2	4	5	5	5	1	5	5	
15	>20 years	Coloured	Male	> 50 years	Trade Certificate	Permanent	4	2	4	4	5	5	5	4	5	4	
16	>20 years	Coloured	Male	40-50 years	Trade Certificate	Permanent	4	4	2	4	4	4	4	2	4	3	
17	10-20 years	White	Male	> 50 years	Trade Certificate	Permanent	4	4	3	3	4	4	4	4	5	3	
18	2-5 years	Coloured	Male	30-40 years	Trade Certificate	Permanent	3	2	2	1	5	4	4	5	3	4	
19	5-10 years	African	Male	30-40 years	Grade 12	Permanent	3	2	3	1	5	4	2	5	3	4	
20	10-20 years	Coloured	Male	30-40 years	Grade 12	Permanent	3	3	3	3	3	4	4	5	3	3	
21	10-20 years	African	Female	40-50 years	Grade 12	Permanent	4	4	1	1	1	1	1	5	5	5	
22	5-10 years	African	Male	40-50 years	Grade 12	Permanent	4	4	4	2	1	5	5	5	3	4	
23	>20 years	White	Male	> 50 years	Trade Certificate	Permanent	4	4	4	4	4	4	4	4	4	4	

Figure 5-5: Extract of the Capture Survey worksheet

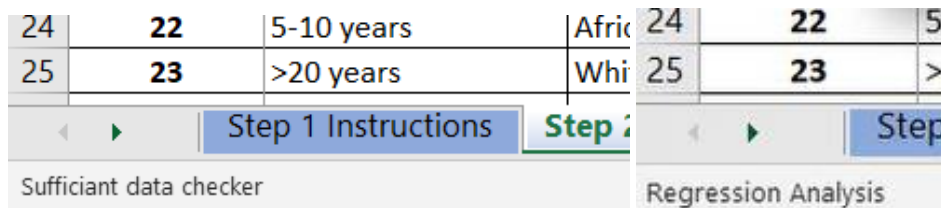


Figure 5-6: Analysis progress feedback

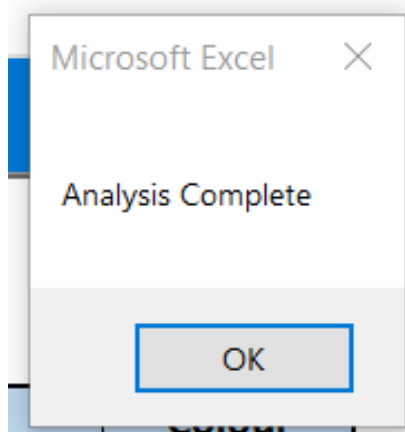


Figure 5-7: Analysis completion response

Results - Employee Morale Evaluation

Overview

Measure	Result
Date of study	2018/10/13
Number of participants	181
Number of sufficient entries	180
Team Size	100
Team response rate	181.00%
Question completion	89.55%
Morale Score	3.37

Menu

Legend

Rating	Colour
$1 \leq x \leq 2.5$	Red
$2.5 < x < 3.5$	Yellow
$3.5 \leq x \leq 5$	Green

Prioritised Factors to be Addressed

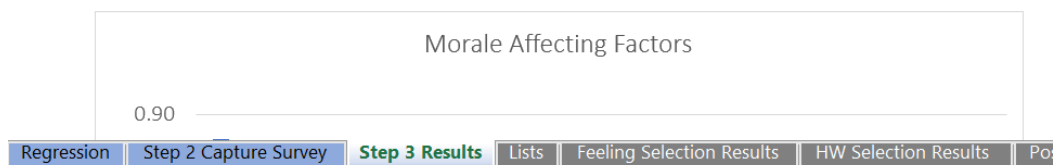


Figure 5-8: Extract of the Results worksheet

Table 5-1: DSS Worksheets

Sheet name	Description	Process Step (Figure 5-1)	Visibility
Step 1 Instructions	Provide the user with a short explanation of what they need to do. Buttons are also provided to navigate the user to the capture survey tab and to run the analysis.		Yes
Step 2 Capture Survey	Allows the user to capture the surveys. Buttons are provided to navigate the user back to the capture menu tab and to run the analysis.		Yes
Step 3 Results	This provides the results in a simple report format.	MIM E1	Yes
List	This provides the accepted inputs for each field in the capture survey worksheet.		
Demographic Results	This worksheet is used to calculate the morale score, percentage question completion and size for each demographic group.	MIM B1 MIM B2	
Positive Results	This worksheet is used to correct the negative questions.	MIM C1	No

Table 5-1: DSS Worksheets (Continued)

Sheet name	Description	Process Step (Figure 5-1)	Visibility
Contracts	This worksheet is used to calculate each of the constructs.	MIM C2	No
Forecasted Values	This worksheet is used to calculate the forecast that is used in the cases where there is missing data.	MIM C3	No
Clearblank	The missing fields are replaced for forecasted data points.	MIM C4	No
Sufficient results	This worksheet is used to remove all entries that do not have sufficient responses.	MIM C5	No
Regression	The results for the regression analysis are written to this tab when the Microsoft Excel macro is run.	MIM C6	No
Regression Graph	This worksheet is used to calculate the possible improvement and sort the results for the focus rating from large too small.	MIM C7 MIM C8	No
Feeling Selection Results	This worksheet is used to calculate the number of participants that selected each option for the feeling selection question and rank the results from large to small.	MIM A1	No
HW Selection Results	This worksheet is used to calculate the number of participants that select each option for the hard work section question and rank the results from large too small.	MIM A1	No

5.2 Validation Considerations

From the perspective of behavioural science, validity is achieved if the data used is unbiased and relevant to the characteristic and behaviour being measured (Finlay & Wilson, 1997). An alternative definition is how well an observation corresponds to the theoretical basis on which it is made (Finlay & Wilson, 1997).

5.2.1 Validation Process

Borenstein (1998) explains that the process of validation of a DSS does not entail attempting to prove that a DSS is a valid representation of the real world, but rather showing the underlying relationships to allow for an acceptable representation. A distinction needs to be made between validation and evaluation. Validation measures whether the DSS represents the real world, which is broken down into two dimensions, verification and substantiation. Verification evaluates whether the DSS design is valid, while substantiation proves that the DSS, when used in its intended application, provides

a satisfactorily accurate result (Borenstein, 1998). Evaluation tests the real-world use of the DSS, firstly through the assessment of the value of the system. This includes reviewing quality and usability. The second component of evaluation is a review of the assumption and limitation of the DSS, the correct use and reasons specific results are produced (Borenstein, 1998).

The validation process entails three main principles (Borenstein, 1998):

1. formal validation, which occurs within the DSS development life cycle;
2. prescriptive validation, this process is designed to be performed under defined research constraints; and
3. qualitative valuation, this uses qualitative methods of validation, through subjected comparisons of performance.

Borenstein (1998) proposes a two-stage evaluation process that attempts to “establish the level of credibility of the DSS evaluated in the light of its expected uses” (Borenstein, 1998). The proposed stages are as follows:

1. laboratory testing that entails face validity, subsystem verification and validation and predictive validation; and
2. field testing.

Borenstein (1998) warns that the validation process follows the strategy of prototype methodology development. The results of the validation and evaluation may require changes or refinements. Once the changes have been completed, the validation and evaluation ought to be started again.

Laboratory testing entails the laboratory experiments, with users who provide feedback through questionnaires or interviews (Borenstein, 1998). Borenstein (1998) suggest four tests that can be used at this stage of the development process, face validation, subsystem verification and validation (V&V), predictive validation, and user assessment. Face validation is aimed at ensuring the designer's view and the potential user's view of the problem are in line. This should be done in a timely and cost-effective manner. This will ensure that the formulated problem encompassed the entire problem experienced in the real world setting to allow the most suitable solution to be developed (Borenstein, 1998). The next step in the validation is more focused on the detail of the prototype design. Subsystem V&V entails testing, verifying and validating the DSS as it is developed (Borenstein, 1998). This is done to ensure the quality of the DSS. The DSS output ought to be compared to actual data. Once this V&V has been confirmed, predictive validation can be done. This entails the comparison between the results from a test run using data for the DSS of a known test case, and the result of that test case. The final assessment method is user assessment that entails evaluation done by the intended user to determine whether the DSS can be used in decision making (Borenstein, 1998). This assessment ought to measure how applicable the system for the intended users, and to evaluate the impact of the assumptions and simplifications made, the method used, and the generic structure. The participants in this stage of testing should not be involved in the development of the DSS.

Field testing entails placing the DSS in the field and identifying the performance errors. Field testing is the most effective method of testing, if it is possible. However, this method of testing is expensive in some cases (Borenstein, 1998).

Finlay & Wilson (1997) provide a similar DSS for validation, suggesting that the DSS alone ought not only be validated, but note how appropriate it is to address the real-world task should also be validated. Finlay & Wilson (1997) further state that the majority of the DSS validation literature is theoretical in nature, and does not consider the circumstances that the user and system builder need to work.

The implementation of the validation and evaluation processes presented by Borenstein (1998) is adapted to suit the requirements of this study. Figure 5-9 shows the DSS development life cycle, and indicate the validation steps in blue.

5.2.2 Interview Design

Maccoby & Maccoby (1954) provide the following definition: "...an interview will refer to a face to face verbal interchange, in which one person, the interviewer, attempts to elicit information or expressions of opinion of belief from another person or persons." Gubrium & Holstein (2001) describes an interview as a procedure for securing knowledge or gathering information. Turner (2010) explains an interview as used to obtain "in-depth information about the participant's experiences and viewpoint of a particular topic". Gubrium & Holstein (2001) note that historically, interviews are a relatively new research method, as individuals were previously not viewed as relevant sources of knowledge. The action of an individual explaining their thoughts and lives to a stranger only started to take place in academic literature after World War II. This subsequently became a method for everyone to have a voice. An interview aims to determine the participants' objective opinion of the subject matter. For this to be achieved, the correct methods ought to be used, and the environment ought to be conducive. Interviews provide a method for the research to obtain insight into the participants' observations and experiences, as well as what they have learnt from these experiences. Also, information can be gained from the participant interpretation and how they perceived events.

Gubrium & Holstein (2001) state that one of the leading interview models is face-to-face interviews that can be seen as a "conversation with a purpose" (Gubrium & Holstein, 2001). This takes place between the interviewee and interviewer, who are unacquainted. The interviewer is provided with a list of questions, and has the freedom to request additional details as needed. The interviewer should remain neutral and objective to ensuring standardisation between interviews. The interviewer should govern the participant so as to ensure their full attention is on the interview, and ought to respond honestly.

Gubrium & Holstein (2001) suggest the following steps for an interview design process:

1. determine the goals of the study;
2. develop the sampling plan;
3. develop appropriate questions; and
4. select the survey mode.

Gubrium & Holstein (2001) refers to this method of obtaining information as a survey conducted in multiple forms. One example is face-to-face interview surveys, to prevent

confusion with the survey questions covered in Chapter 4. The term face-to-face interview or interview is used going forward here.

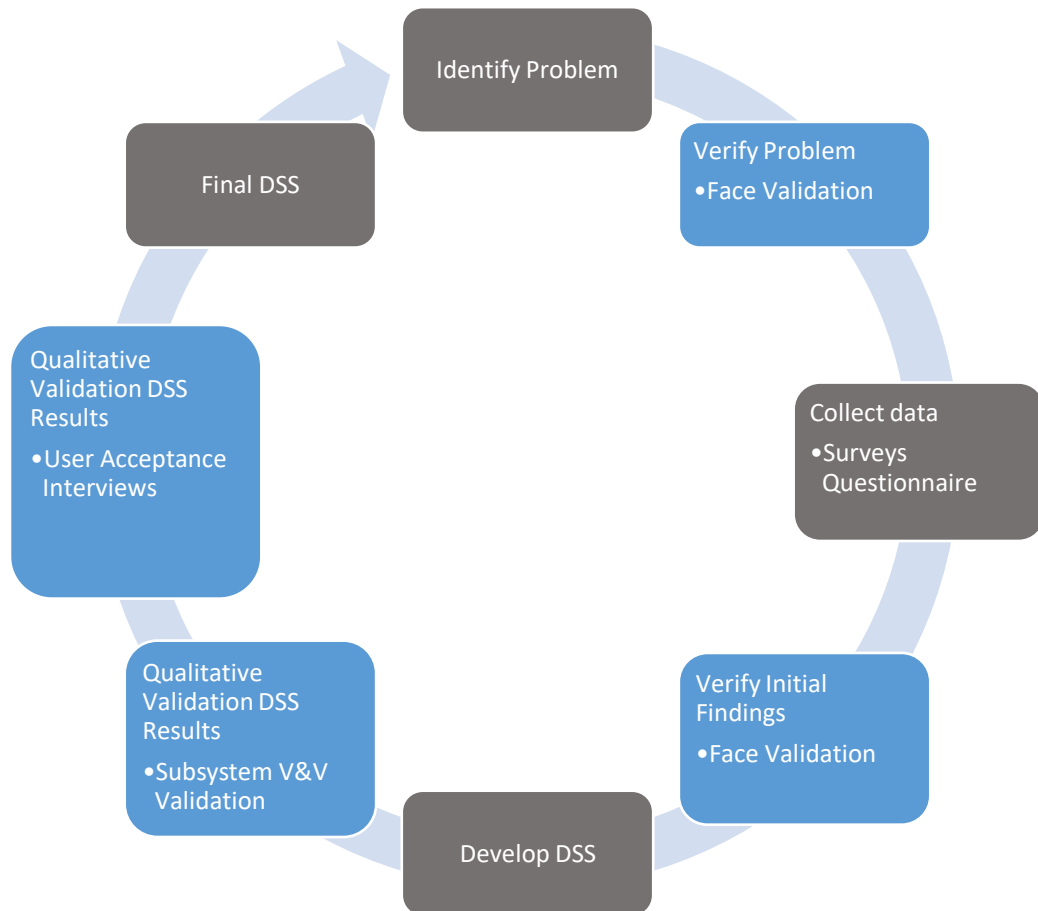


Figure 5-9: DSS Development Life Cycle

The survey data is used to identify whether the factors affecting morale are consistent in all organisations. Based on variation in the results obtained per organisation a morale improvement DSS is developed. The interview section of field work confirms the conclusions made and indicates whether the proposed DSS is workable.

The same three organisations who participated in the survey are invited to participate in the interview. Where possible, the following employment positions are targeted:

- technical manager;
- engineering manager;
- human resource manager

Turner (2010) explains that question design is one of the most important phases in the interview design. Questions should be worded in a way that the understanding is not dependant on the interviewer (Gubrium & Holstein, 2001). Structured interviews entail a list of pre-defined questions (Cohene & Easterbrook, 2005), while semi-structured interviews allow the interviewer to change the tactics and questions used (Cohene & Easterbrook, 2005). A semi-structured interview is used here. Semi-structured interviews

are used as the relevant questions could slightly differ between the organisations as different exceptions need to be evaluated in each organisation. Turner (2010) supports the use of semi-structured interview as they can allow for more in-depth information gathering through follow-up questions.

Using standardised measurements is crucial for survey research. Thus, the wording across respondents must as far as possible be kept constant (Converse & Presser, 1986). It should also be kept in mind that the same question may mean different things to different people. The more general a question, the greater variety of interpretations may exist. The wording of a question should be specific and concrete, so as to ensure uniform meaning (Converse & Presser, 1986).

The following recommendations should be considered in the design (Turner, 2010):

1. The wording of questions should be open-ended. This allows participants to choose when and how to answer the questions.
2. The questions should be as neutral as possible to avoid influencing the responses.
3. Ask one question at a time.
4. The wording used should be clear. Use terms particular to the participants if possible.
5. Avoid using the word “why”.

The questions used were derived from the question used in the case study conducted by (Borenstein, 1998).

Face-to-face interviews are used as this method has a higher response rate (Gubrium & Holstein, 2001). In addition to this, it allows for the review of visual aids. In the case of this study, participants are asked to review the usability of the morale improvement DSS, which is a Microsoft Excel document. Face-to-face interviews also allows for longer, more complex questions. Telephone interviews are a cheaper alternative that is easier to administer, but do not allow for the demonstration of the DSS. Focus group interviews were not selected, as the target group is from different employment levels, where there is a risk that participants will not feel comfortable in providing full honest information.

Mishler (1991) explains an interview to be a behavioural, rather than a linguistic event, where an interview is not just speech or communication by means of a verbal exchange between the interviewer and interviewee. This requires a shared language. As with a survey questioner's interviews, sampling errors may occur. The others errors that ought to be taken into account in the design are coverage error, non-response error, and measurement error (Gubrium & Holstein, 2001). Coverage errors occur when the researcher does not give members of the target population an opportunity to participate. Non-response errors occur when the researcher cannot obtain data from a member of the sample population. Measurement error entails the error or inaccuracies made provided by the respondents.

Gubrium & Holstein (2001) suggest several interview practices to ensure accuracy. The first practice that ought to be ensured in the interview process is the standardisation of the interview experience. This ensures that the differences in the recorded answers result from the differences between the participants, not the environment. The goal of this is to reduce measurement errors (Gubrium & Holstein, 2001).

Gubrium & Holstein (2001) provided the following universally used interview rules:

1. Read the questions as written.
2. Use non-direct follow-up probing question to obtain a fuller answer if a participant does not initially provide a full answer. Possible examples are:
 - Tell me more?
 - Anything else?
3. Record responses verbatim
4. Ensure the relationship with the participant remains professional and neutral.
5. Do not provide personal information or express opinions.

The interviewer, as explained by Cohene & Easterbrook (2005), ought to be open-minded and unbiased. Useful tools that can be used by the interviewer is the creation of a point of reference and definition shared meaning.

Gubrium & Holstein (2001) suggest that this could assist in ensuring the interviews remain effective, if a short statement explaining the process and the role of the interviewee and participant are explained at the start of the session. Cohene & Easterbrook (2005) support this by suggesting an interviewer can provide basic guidelines for the process.

Language and communication is a culprit of a large number of interview problems (Cohene & Easterbrook, 2005). To resolve this, the researcher ought not only focus on verbal responses, but also on physical actions.

Turner (2010) describes the steps that could be followed in preparation for an interview to optimise the results:

1. Identify the location for the interview. Ideally to have minimal distractions. In the case of this study, the participant will provide the location. The interviews will most likely take place in their offices.
2. Explain the purpose of the study and interview.
3. Discuss the terms of confidentiality. In the case of this study, the university Stellenbosch consent form is explained and participants are asked to sign the form.
4. Explain the format to be followed.
5. Indicate how long the interview will take.
6. Provide contact details.
7. Ask if the participant has any questions.
8. Ensure there is a method to record responses.

5.3 Validation Procedure

The validation of the DSS is done in the same organisations where the morale questionnaire is conducted.

5.3.1 Face Validation

As discussed in Section 5.2.1, the goal of the face validation stage in the DSS validation process is to confirm that the researcher and the intended user's view of the problem are aligned. This is done during the design phase of the study and occurred at two points. This first occurred during the planning stage. The researcher had numerous informal discussions with people who work in the field of maintenance at multiple levels, from artisan to engineering manager.

The second point where a more formal face validation occurred was following the initial data analysis. One of the participating organisations requested a presentation to be done on the study results. Questions were posed as part of the introduction to evaluate the attendee's expectation (Table G-25), and then again following the presentation of the results to assess the process (Table G-26). The results were presented in a table format showing the number of positive, neutral, and negative results received per question. In addition to the responses noted in Table G-25 and Table G-26, the following suggestions were made, which have been considered in the DSS design.

The attendees stated they expect there is a morale problem within the team who participated. This is evident for the expected morale scores provided (Table G-25):

- the attendees would like to view the results per employment level;
- the attendees would like to view the results per duration of employment;
- the attendees would like to view a comparison between managers; and
- the attendees would like to view the results about another organisation.

Result Interpretation and Lessons Learnt

The way the findings are presented is crucial for the acceptance of the DSS. As employee morale is a sensitive topic, carrying the risk that users may become defensive. In the case of this presentation, the information shown is too granular, as the results are given per question. Areas of success and improvement are shown at the end of the presentation, but this does not provide attendees a clear way forward.

5.3.2 Subsystem Verification and Validation

As discussed in Section 5.2.1, the intention of Subsystem V&V is to compare the DSS output to actual data. This ensures the quality of the output. Section 4.4.6.1 shows the regression analysis results obtained using Statistica. This is then compared to the output of the DSS. The importance rating of each of the morale affecting factors is the key variable obtained from the DSS. This is used to compare the result of the different analysis methods. Table 5-2 shows a summary of analyses, where the relationship between morale and factors is quantified. In each case, the relationship strength variable, for example regression coefficient, is sorted in descending order, so as to determine the importance rating. The problem encountered is that each analysis method provides

different results. The first four results shown in Table 5-2 are discussed in Section 4.4.6.1. The DSS provided a fourth set of results that do not match any of the existing results. The reason for this is that the DSS fills missing data points with forecasted data. A regression analysis done using the forecasted data set in Statistica matched the results obtained from the DSS, proving the validity of the regression calculations done in the DSS.

Result Interpretation and Lessons Learnt

The variance in the obtained results demonstrates the impact the selected regression method has on the final output. As well as the impact that forecasting of results has on the output. It is not clear how Statistica handles the missing data fields. The fact the forecasted values are used in the DSS could impact the accuracy. The question completion rate and a number of sufficient responses are shown in the DSS output in the Overview section of the report to indicate accuracy of the morale score, Appendix F.2. If more of the questions are complete, the results ought to converge.

Table 5-2: Summary of analysis results importance rating

Factor	Correlation	Multi-Regression	PLS Regression (Morale Score)	DSS	Multi-Regression with DSS data set
	Statistica	Statistica	Statistica	Excel	Statistica
SkillLevel	1	1	1	1	1
Manager_Values	2	12	2	9	9
Manager_HardSkill	3	4	3	5	5
Organisation	5	3	4	2	2
Challenge	4	6	5	10	10
Security	6	7	6	6	6
TeamUnity	8	10	7	13	13
Manager_SoftSkill	9	8	8	4	4
Growth	10	9	9	7	7
Dull	7	5	10	8	8
Expect Vs Actual	13	2	11	3	3
Pressure	16	11	12	12	12
Learn	11	16	13	14	14
Remuneration	15	15	14	16	16
Budget	12	13	15	11	11
SecurityRet	14	14	16	15	15

5.3.3 User Assessment

As discussed in Section 5.2.1, the purpose of user assessment testing is to determine how applicable the DSS is for the intended users, as well as to review the impact of the assumption and simplifications. This validation step was done using interviews. The interview process provided by Turner (2010) (Section 5.2.2) is adapted to form the interview guide for this project, Appendix H.1.

5.3.3.1 Data Collection Procedure

Following the interview guide design, an amendment to the existing application to the Research Ethics Committee (REC): Human Research (Humanities) was submitted to apply for ethical clearance. The obtained approval is available in Appendix B.2. The same participant consent form used for the survey questionnaires is used for the interviews. An example of the consent form is available in Appendix B.3. The organisational approval obtained at the start of the project include the survey questionnaire and the interviews.

The contact person at each organisation who assisted in arranging the survey questionnaire sessions was again contacted to request assistance with the interviews. Two of the three organisations participated in the interview process. The interview participants are summarised in Table 5-3. The interviews are conducted as on-on-one interviews in the participant's offices.

Table 5-3: Interview participants per organisation

Organisation	Number of Participants		
	Technical Manager	Engineering Manager	HR Department Representatives
Organisation A	1	1	1
Organisation B	1	1	2
Organisation C	0	0	0

Due to time constraints experienced the organisation specific questions were not covered. In some cases, a few questions were not asked, as the participant had to attend to organisational responsibilities. This transcribes responses obtained from the interviews can be viewed in Appendix H.2. All but one of the interviews were conducted with only one participant at a time. In the case of Organisation B's HR representative. They requested to do the interview together, the response given was captured as one response, as they agreed.

5.3.3.2 Result Discussion

The goal of the interview is to evaluate whether the DSS could be used in SOEs technical departments to evaluate morale, and if the results could support technical management in decision-making.

From the interviews, it is found that if a morale or employee opinion study is done, it is driven from the head office, or from another department. In such case where the results are shared, the technical department receives results that show the average of the number of participants that responded a certain way. No correlation or regression analysis is

conducted. As one participant stated (Table H-30): “the studies that have been done do not identify areas where he should focus first.”

The feedback received for the evaluation of the *morale score* is mixed. The majority of the participants find it relevant and beneficial. While two participants raised concerns, the first issue raised was that the participants do not fully trust the results, because the results are not aligned with her experience of the situation. In this case, she mentioned the morale score for females to be higher than it is for male employees. Following a discussion about the sample group and the fact that if the DSS is used the whole department will be invited and encouraged to participate, the interviewee was more confident in the DSS’s ability to measure the morale score. The other participants described this as a “good tool” – in one case the “best tool” they have seen – but noted that the tool needs to be implemented to confirm that it works.

The participants also point out the concern that the quality of the result is dependent on the survey questionnaires being completed, where the input is honest. This is, unfortunately, a problem intrinsic to survey questionnaires, but from the research (Section 2.9), no better tool could be identified. The fact that survey questionnaires are anonymous should encourage the participants to be more honest. A second related concern raised is the negative employees will skew the ratings. This ought not to be the case, as the negative responses are also valid, and if enough employees participate, the final result will be a reflection of the group’s response.

The second topic evaluated was the *significant morale affecting factors*. The majority of the participants felt this section to be very beneficial and can easily be used. One engineering manager’s notes, “This is useful. Once the factors are prioritised. You can address the negative or positive items. I love this.” In contrast, and similar to the results in the first question, some of the results are not completely aligned with what the interviewee expected to see. The example given here is that growth prospects are rated lower on the scale of morale affecting factors to be addressed.

Two of the participants raised the concern that budget availability and utilisation are covered in the quantitative analysis. They feel that this does not affect the targeted employment band. However, the result from the qualitative analysis shows that tools, PPE, along with spare availability and facilities to a lesser extent, are of great concern to the employees. In the qualitative questionnaire, these items were linked to budget availability and utilisation. The possible cause of the concern raised by the interview participants may be a misinterpretation of the key used. To address this, the description in the glossary of the result report will be expanded to include budget planning and utilisation. The one suggestion received is rather to refer to spare or tools. This will not be implemented, as it applies to only the one organisation in question. In other organisations, the problems could be seen in the equipment replacement or facility upgrades.

The next interview topic addressed is the *strengths* of the DSS. The following strengths are identified:

- the 80/20 principle can be applied to the significant morale affecting factor result;
- the DSS identified issues and provided as recommendations on what should be addressed;
- clear feedback on what should be addressed first. Past studies showed results, but no suggestions or guidance;

- the question structure focuses on the problem areas and provides a usable output; and
- provides a snapshot that shows which items can be leveraged.

The following *weaknesses* are identified:

- participants may not answer truthfully;
- the results are subjective and are not based on “tangible measures” results for example production measures and absenteeism;
- the use of paper, rather than a computer-based survey;
- the results only cover one employment band; and
- employees personal problems may affect the results.

All interviewees agree that *benefits* could be obtained through the use of the tool. The following benefits were identified that could be obtained for the use of the DSS:

- reduction in absenteeism;
- reduction in idle time;
- reduction in fighting;
- increased productivity;
- improved employee health;
- allow the user to understand the high and low productivity ratings;
- allows the user to focus on the people not only production;
- shows misalignment;
- improvement in employees’ personal life;
- improved image of the company;
- improved relationships;
- improved maintenance quality; and
- the DSS provides employees with a method to communicate that which is bothering them.

The participants indicate the *advantages* from using the tool would be experienced not only by a specific department, but organisation wide. Some of the past initiatives have failed as the implementation team did not have sufficient information. This DSS could provide the required information.

The main potential *disadvantage* identified during the interviews may occur if there is no follow through after the implementation of the DSS. This could happen if the surveys are completed, but employees do not then receive feedback, or experience any change thereafter. They could feel that it is only a theoretical exercise, and their concerns are not intended to be addressed. This has the potential to reduce their morale, and could impact their willingness to participate freely in futures implementations, in a way similar to the current survey being done in the organisation. The second disadvantage identified is that there is a potential a risk that a manager concentrates too much on morale and does not focus on their core duties.

As for *implementation* the participant’s suggest the DSS usage interval should be used every quarter, or annually. The benefit of quarterly is that it is in line with the employee’s performance evaluation period. This allows employees to “evaluate the organisation” at the same time that they are evaluated. The disadvantage of this interval is that there may

not be sufficient time to implement and measure change. Alternatively, one year may be too long to view results. It is also suggested that the tool should be used within each separate team and department to obtain more granular results. One of the participants points out that employees cannot be expected to perform if the organisation had not put the required items in place and ensured the environment allows for performance.

The interviewees further state that this should be incorporated into the company's policies and procedures, which will allow it to be instilled in the core values. One participant suggested that this should not only be used as a management tool, but also for supervisors. The risk is that certain management-type training may be needed for a user to interpret the results.

For the implementation, one interviewee suggested that once the DSS identifies the significant morale affecting factors engagements can be held with the teams to pinpoint exactly what should be done to address the identified area. By way of contrast, another interviewee explains that the area of focus covered in the DSS output report is too vague. The participant asserted that they would find more benefit in a more detailed guide on how to address this. This is possible for further study. There is a risk that, as with the DSS, that the guide to address each morale affecting factor cannot be generalised, and will need to be determined per organisation.

The majority of the participants expect to experience change management *implementation challenges*. In addition to that the following implementation challenges are identified as follows:

- reluctance to participate voiced by the unions;
- the decision whether to use a paper-based or computer survey. In some cases, a computer survey may deter a participant;
- the different shifts will make it difficult to speak to all the employees before they hear about the initiative from others; and
- interpretation of results.

In contrast, certain participants do not foresee any challenges, as they feel the employees will be eager to give feedback.

Most participants indicated that the tool is *relevant to the whole organisation*, and not only the technical departments for which it was designed. One participant anticipate that the other department experiences similar trends. All participants indicated they would be able to utilise the tool in their departments.

The *process followed* was supported by the participants. The analysis done was found to be thorough, especially the use of a regression coefficient that provided a better view of the relationships. The only concern that was raised is the question completion rate, which is unfortunately a standard problem with survey questionnaires.

The participants all strongly agree that the *DSS supports the decision-making process*. The DSS assists in achieving the following "create a quality job for a quality person to get a quality output". This allows the manager to obtain a better understanding of their teams by evaluating what they like, what they don't like, and what they want and need in order to do their work. An organisation cannot address everything at once. The DSS assists in the identification of what needs to be addressed. A practical explanation of the utilisation provided by one of the interviewees is the prioritisation need if limited funds are available, where for example, if R100 000 is made available, the organisation needs

to decide where to spend the money. The DSS will assist to identify where to spend the funds.

As part of the *overall evaluation* of the DSS, the interview participants are asked to provide a score out of five for the different aspects of the DDS and the process follows to develop it, Table 5-4. The following closing remarks were made by participants:

- the quantification of items is found to be beneficial, as the participant stated, “numbers don’t lie”;
- even though the results are subjective the fact that the survey covers multiple angles, the results provide a good picture;
- the results are an “eye opener” for managers that show what is done right along with areas requiring improvement.

Table 5-4: Interview results

Question	Organisation A			Organisation B			Average
	Engineering Manager	Technical Manager	HR	Engineering Manager	Technical Manager	HR	
The ease of use of the morale evaluation DSS (instructions, capturing, getting the results)	5.0	4.0	3.0	4.0	5.0	5.0	4.33
User interface	4.0	4.5	5.0	*	5.0	5.0	4.70
Graph format of the results	5.0	**3.5	5.0	5.0	***3.0	5.0	4.42
Presentation of results	5.0	4.0	5.0	5.0	4.0	5.0	4.67
Result overview	5.0	4.4	5.0	5.0	5.0	5.0	4.90
Quality of the morale score obtained from the DSS.	5.0	4.0	5.0	5.0	4.0	4.0	4.50
Quality of the significant morale affecting factors obtained from the DSS.	****4.0	3.5	4.0	5.0	5.0	5.0	4.42
Factor level results	5.0	4.0	5.0	5.0	5.0	5.0	4.83
Descriptions of the factors evaluated	4.0	3.0	5.0	5.0	5.0	5.0	4.50
Total	93%	78%	93%	87%	91%	98%	
Total (removing abstained question)	93%	78%	93%	98%	91%	98%	92%

Result Interpretation and Lessons Learnt

During the interviews, each of the engineering managers and HR representatives referred to management training they have attended. In each of these cases, they found it

- * The participant stated that this could not be rated as the participant has not implemented the model.
- ** The participant noted that the graph is difficult to interpret because there is no reference for the results.
- *** The participant noted that a target of baseline would assist with the graph interpretation.
- **** The participant noted that the results are subjective.

easy to interpret the result and envision the implementation. In the case of the two technical managers, both noted that they had trouble interpreting some aspects of the DSS output report. This was particularly true in one case, where the participant found the prioritised morale affecting factors to be too vague, where the feedback from other participants contradicted this. This may indicate a need that the DSS ought to be expanded or that management training may be a requirement for the intended users.

While discussing the decision as to whether to use a computer or paper-based survey, one participant notes that “it’s not one size fits all”. This might hold true for all aspects relating the implementation of the DSS, including the process followed to address each of the morale affecting factors.

There is the risk that some of the interview participants do not fully understand the process followed to develop the DSS, as the interviewer was not able to explain regression analysis and forecasting in a way that would be understandable to a person who has no statistics background. This proves to have been an oversight in the survey preparation, as the interviewee’s knowledge level in this field was not considered.

The majority of the participants indicates that the DSS is relevant for their departments and organisation as a whole. The relevant feedback received is implemented in the final DSS discussed in the following section. The DSS is found to be easy to use and the output is relevant. The main benefit of this is that it allows a department to focus on key areas and provides an employee with the opportunity to evaluate the organisation. The second benefit was not considered during the design of the DSS.

5.4 Final DSS

Following the user assessment, some possible enhancements to the DSS are identified, the majority of which cannot practically be included in this study. The only amendment made to the DSS is to expand the description of budget provided in the glossary. The original description states, “whether participants are affected by budget changes.” this was expanded to include “this includes budget availability and utilisation.”

The following suggestion should be considered if the DSS is implemented at an organisation. The first item is to do the survey on a computer. As discussed in Section 5.3.3.2, numerous factors ought to be considered before this change is made. However, if the targeted team has sufficient computer literacy and the computers are available, there are multiple benefits to using computer-based surveys, the most significant of which is that a participant would be obliged to complete all the questions, and missing data would not be a constraint. In addition to this, there will be no risk of capturing errors. Alternatively, using cellphones as a medium could also be investigated.

The second suggestion is that the education demographic options ought to be expanded. This could be done by making the list configurable. In other words, the person administrating the process might determine what the different categories are. The same could be done to add a department and team name. This will allow the result to be shown per department and team. The inclusion of this type of configuration will only be practical if the survey is computer-based.

The third suggestion that ought to be incorporated in future is to include a target or baseline in the morale affecting factor graph. As one of the components for this graph is the regression analysis, the use of a baseline would not be practical. However, the reason

for the request is to be able to provide the department with a target to work towards. This could be addressed by adding a section to the output report that provides the history showing the improvement per factor form year-to-year. A target determined by the department could also be included here. Currently, no baseline exists for what the morale score should be.

The last suggestion is to incorporate operational and absenteeism measures in the results. This will allow the department to evaluate the effect that morale has on operational challenges.

Two suggestions were made that are outside the scope of the current project, but could be considered in future. The first is to increase the employee band included in the study. This is relevant if the DSS is implemented at the organisation. A demographic selection for employment level ought to be added to allow an analysis to be done per level, while the second is to add a residential area to the demographic information. The reason this was requested was that the interviewee felt that safety at home affects morale. External factors were not included in this study, but do remain relevant. Further investigation ought to be done so as to determine how these factors can be measured, and what factors ought to be measured.

One of the participants indicated that they had trouble interpreting the graphs, as there is no indication of what the results ought to be, or what the results count out of. As discussed in Section 5.1.3.2, this graph displays the product of the regression coefficient and the possible improvement. The initial consideration was to show a percentage instead of the product using five as the upper limit as the maximum possible rating for morale is five. However, a regression coefficient greater than one is possible. There is a risk that showing a percentage higher than 100 could create more confusion.

5.5 DSS Implementation Considerations

Finlay & Forghani (1998) suggest that a successfully implemented DSS has gone through two stages, where these stages are similar to the three-stage change process model. The stages in the change process model entail unfreezing, moving, and refreezing. When implemented for a DSS unfreezing entails ensuring the environment is appropriate for the implementation, for example, obtain top management support. During this first phase, the DSS is introduced to the organisation. The value it provides the organisation ought to be addressed, and should be aligned with the business goals and needs. For the environment to be conducive, the proposed change should be acceptable, feasible and suitable. A change is acceptable if the key actors in the organisation are in favour of the proposed improvement. Feasibility is a measure of whether the organisation has the required capability to implement the DSS. One of the aspects of sustainability is as to whether the perceived benefits outweigh the disadvantages. The second and third stage is combined with the goal to maintain a commitment to ensure repeated use.

From what is found in the initial analysis of the survey results (Section 4.4.5), no single solution could be applied across all organisations. This finding was also echoed in the responses received during the interviews (Section 5.3.3.2). The following is a guideline that an organisation could use during the first implementation, following which it ought to be adjusted, based on the lessons learnt from the implementation. The first step is to identify the factors affecting morale in the organisation using the survey and

DSS. Once that has been determined, the organisation should set up a team to address the problems identified using the DSS. The team ought to include representatives of employees from all levels. This team will be responsible for monitoring the progress and identify new solutions. This will allow employees to feel part of the solution and the way forward doing so will build trust. The organisation and team should set small achievable goals, building up to larger goals as the momentum builds (Baehr & Renck, 1958). The implementation is a process, and should as stated by one of the interviewees “be viewed as a journey”.

Further to this, the organisations ought to consider driving this change from a region or depot level and not through the head offices. From the interviews it can be seen that depots do not take as much ownership of initiatives driven from head office, whereas they do for depot or regional-level programmes.

Each organisation could identify the Key Performance Indicators (KPI) that are affected by employee morale and monitor these items from year to year. This would demonstrate the impact of the morale improvement measures. Examples of these KPI are absenteeism, number of grievances, number of disciplinary actions required and rework.

5.6 Chapter Summary

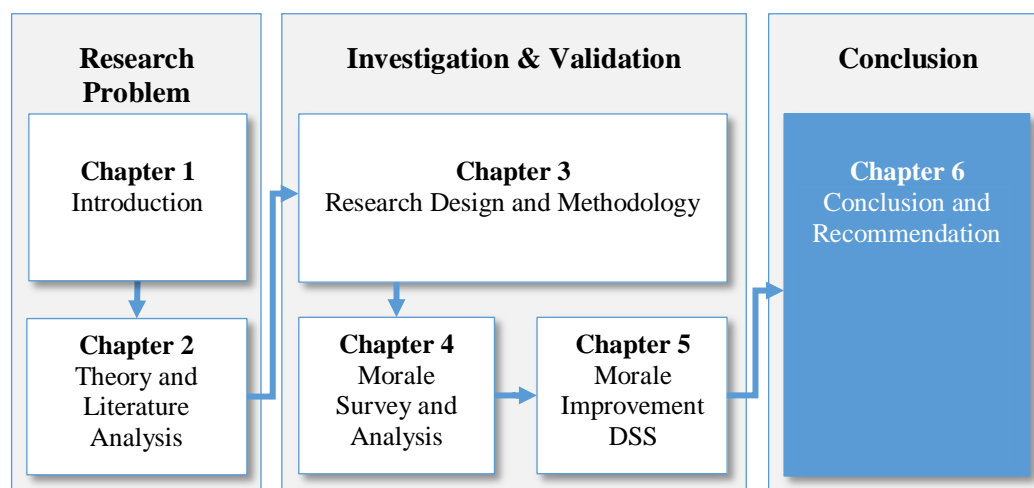
The research objectives covered in this chapter are to develop a morale improvement DSS, and validate the developed morale improvement DSS.

Based on the result obtained from the statistical analysis it is found that no single model would fit all the organisations. As a result, a DSS is developed that can be used at each organisation to identify and prioritise the significant morale affecting factors. The output of the DSS provides a report that shows the morale affecting factors in order of significance and score per factor. The layout of the report allows for the results to be compared to when the analysis was last done. Allowing for a year on year or quarter on quarter comparison.

The DSS is validated by first comparing the result to the results obtained from the statistical analysis, then by user assessment. The user assessment is done using interviews that are held at two of the organisations, where the questionnaire survey study is conducted. From the interviews, it is found that the problems addressed by the DSS and the output of the system is relevant. All the interviewees indicated that the DSS is something that they would like to use within their organisation.

Chapter 6. Conclusions and Recommendations

The understanding of asset management as a discipline has matured. It is no longer just the utilisation of assets but how to utilise an asset to reach the organisation goals. The employees who ensure the assets remain functional are crucial to achieving this. In addition to this, the technical trades remain a scarce skill within South Africa. The primary objective of this research is to develop a DSS that can be implemented in SOEs to improve employee morale. The objective of this chapter is to provide a summary of the process that was followed and results obtained for the development of the DSS, namely: to discuss the contribution made to practice and theory; to discuss the research limitations; and to identify possible future research and recommendations. This is followed by closing remarks.



6.1 Research Overview

The primary objective of this research is to develop a DSS that can be implemented in SOEs to improve employee morale. The process followed to achieve this objective entailed the following. A literature review was utilised to identify factors that influence employee morale. This was evaluated by looking at studies done on causes of low employee morale and case studies that evaluated the effectiveness of morale improvement measures. A survey questionnaire was developed to test if each of the morale affecting factors is present in the target organisation. Three organisations

participated in this portion of the study. A statistical analysis of the results was conducted, followed by the development of a DSS that can be utilised within an SOE to determine the morale affecting factors that ought to be addressed to achieve the largest improvement in employee morale. The validity of the DSS was confirmed through the use of interviews. This process was guided by addressing the seven secondary research objectives.

1. Determine how employee morale is measured.

From the literature review, it was found that there are two methods to evaluate employee morale. The first entails measuring the consequences of employee morale while the second is done through engagement with employees. The *measurement of the consequences of morale* entails the analysis of absenteeism, staff turnover, number of grievances, and complaints lodged and strikes. These measures were not used in this study, as the availability of the information at multiple organisations could not be confirmed. In addition to this, these measures could strongly be affected by external factors. For example, absenteeism could be affected by transport and community safety and strikes is often a result of national level protest, and is not a problem at the specific place of work. Measuring employee morale through engagement with employees entails the use of *surveys and interviews* to evaluate employee morale. This is the method that was utilised in this study.

2. Determine the theoretical factors affecting employee morale.

From the literature review, it was found that there are three types of factors that affect employee morale, namely external factors, organisational factors, and management factors. *External factors* are those items that are not in the control of the organisation's management. These include sports results, the country's economic and political condition, and safety. *Organisational factors* are those items that are in the control of the organisation's top management. These items are a result of the organisation's structure, performance, and operating policies. These include job security, salaries, work pressure, skill mix, budget cuts, regular changes, and policies. *Management factors* refer to the employee's direct line managers, with whom they engage on a daily basis. Examples of these factors are the quality of leadership, people management skills of line managers, communication, and the employees feeling of value.

3. Determine what methods of employee morale improvement have been successful in other industries.

The literature review identified two types of morale improvement methods, monetary and non-monetary. *Monetary* morale improvement methods are implemented by providing employees with financial rewards for performance. This method has been proven only to provide short term improvement to morale. From the literature review, it was found that various *non-monetary* morale improvement methods have been proven to be successful; for example, training programmes, leadership training, career growth, empowerment, and team building.

4. Quantify the morale in technical departments of SOEs.

The morale level of employees in technical departments of SOEs were quantified using the results of a survey questionnaire. Based on the result of the literature review conducted to evaluate the second and third research objective, a survey questionnaire was developed that measure each of the morale affecting factors that were identified in the literature. This survey was conducted at three different SOEs in the Cape Town area, 181 maintenance employees participated in the study. The targeted participation group was artisans, trade hands, and process workers. Questions were asked to evaluate the participant's job satisfaction, satisfaction in the organisation, and employee engagement. The results of these measures were combined to provide the morale score per organisation. Organisation A achieved a score of 3.53, while Organisation B achieved a score of 3.55, and Organisation C achieved a score of 3.95 out of five.

5. Determine the leading factors affecting employee morale within SOEs maintenance departments.

Similar to the process used to measure employee morale, a score was calculated for each of the morale affecting factors. The relationship between the morale score and these factors were evaluated using regression analysis methods. It was found that the most significant factors differ for each organisation. The results also different depending on the regression analysis method used. The most considerable morale affecting factors determined using PLS regression analysis in Statistica for Organisation A were found to be job security, managers, hard skills, and managers values. For Organisation B, the top three items were found to be participants' opinion about and pride in the organisation, the participants enjoying challenges in their work, and the match/mismatch between participant's skill level and required skills. Finally, for Organisation C, the top three factors are found to be match/mismatch between participant's skill level and required skills, the participant's confidence in their line manager, and participant opinion about and pride in the organisation.

6. Develop a morale improvement DSS.

Multiple different methods of statistical analysis were used in an attempt to identify one model that represents the result of all three organisations. However, it was found that this is not possible, as the results of the organisations differed significantly. To overcome this, a DSS was developed that can be used by each organisation to evaluate the morale and morale affecting factors within the organisation. This then also allows the organisation to repeat the evaluation periodically, and measure and track improvement. The DSS entails a survey questionnaire, similar to the one used in this study. A paper-based questionnaire was provided, as not all employees in the target group are computer literate. The results can be captured in an Excel worksheet provided as part of the DSS. The worksheet included data validation to minimise capturing risks. Once the results have been captured the analysis can be run. As part of the analysis, missing data needed to be addressed as Excel regression analysis, unlike Statistica, which cannot work with missing data entries. Where the dependent variable, i.e. the morale score, could not be calculated, the entry was removed. In the cases, where the independent variables, i.e. factors affecting morale, could not be calculated, a forecasted valued was used. The analysis results are presented in the output report. The report shows the morale score, morale

affecting factors in order of significance, score achieved per morale affecting factor, the items employees selected and morale score per demographic group.

7. Validate the developed morale improvement DSS.

The final research objective was achieved through a DSS validation process. The first portion of which entailed face validation. This was done by confirming that the problems address by the DSS is relevant to the intended users. The initial analysis results were presented to one of the organisations. Questions were posed as part of the introduction to evaluate the attendee's expectation, and then again following the presentation of the results to assess the process followed. This confirmed the need to the study and provided some guidance regarding what a useful output would entail. The second validation involved *Subsystem Verification and Validation*. This was done by comparing the DSS results to the results from the statistical analysis. The result did not correspond, because the data set used for the statistical analysis contained missing values, while that which was used in the DSS substituted the missing values with forecasted values. The data containing the forecast values was used regression analysis in Stata. The result matched the output of the DSS validating the DSS. The final aspect of validation is the *User Assessment*. This was conducted using one-on-one interviews with engineering managers, technical managers, and HR representatives from two of the three organisations. A total of seven people were interviewed. The result of the interviews found the DSS to be relevant and suitable for use within the technical department and organisations as a whole. The suggestions made could be incorporated into future research.

6.2 Contributions to Practice and Theory

The study adds value to literature by addressing seldom covered topics and practised by providing a tool that can be implemented within technical departments to assist in improving employee morale.

It addresses topics seldom covered in existing literature. The first is employee morale in technical departments, the second employee morale within SOEs, and the third, employee morale within South Africa.

As part of the survey questionnaires, there were some qualitative questions. The following quotation justified the reason for the importance of employee morale for an organisation:

- “A happy worker perform[s] much better work because he wants to. Unhappy workers [perform] because he/she has to and not because he/she wants to.”
- “Quality of workmanship is suffering due to the lack of motivation in the workplace.”
- “A happy worker is a healthy worker; there is no happiness here.”

From the interviews, it was found that the employee evaluation currently conducted within the organisations does not assist in determining what should be addressed to

improve employee morale. The DSS develop in this study identified the areas of improvement in priority order. This is supported by the following quotation for the interview session:

- “You can look at a snapshot to see which items you can leverage. It gives a helicopter view. You can make use of it. It is value adding.”
- “It is very thorough, very good and true. Especially the use to the regression coefficient. It gives a better view.”
- “These are actually good figures. It is subjective, but you took it from different angles, so it gives you a good picture. It is value adding and comprehensive. One can make user of it. It’s not just an academic study for the sake of getting a qualification.”
- “I think it a very good tool to use when you evaluate a person let them also evaluate you.”
- “This model helps you determine what people want. Determine the right and wrong things you are doing. Keep the right and work on the wrong. You won’t be able to win with everyone.”
- “It’s a good tool. Best tool, straight forward and shows where you should attend to. For six months focus on the top two or four items. Each department can work on their own items. Keep using the DSS and allow the strategy to evolve as items are addressed.”
- “The questions zoom into the problem areas. The way the questions are structured give you the results as to what you want to measure, the output you want.”
- “Huge benefits, we tend as an organisation to forget the employee side. We just look at productivity. We don’t look at the cause [of] why the peak of productivity is high, or why it has dropped.”
- “You allow employees to give you information in terms of what is bothering them.”

6.3 Research Limitations

The nature of the investigation resulted in various limitations, this is mainly based on the fact people and their opinions were evaluated. Due to the complex nature, not all factors affecting employee morale could be assessed. The study did not take into account the impact of external factors on employee morale. An example of this is the possible negative impact of media attention. All three SOEs who participated received negative media attention during the survey and interview portion of the study that could have affected the employee morale at the time.

The second limitation is that the DSS does not provide a procedure that can be utilised to address each of the morale affecting factors. This could not be done, as the DSS ought to remain universal so as to ensure its benefit to other SOEs. The process to be followed to address each factor may differ for each organisation.

The DSS utilises forecasts to address the missing data problem, even though the use of forecasting is an acceptable solution regularly used in the literature to solve the missing

data problem that intrinsic to survey questionnaires. This may affect the accuracy of the results. The impact of this could not be determined.

The effectiveness of the implementation of the DSS will be determined by the level of understanding of the department's management team. A large number of the people who were interviewed mentioned that the DSS results support items they learnt while on management training. In each case, the interviewee stated that the DSS would guide them to implement what they learnt. In one instance, where the interviewee had trouble understanding the DSS result, the interviewee did not mention attending management development training. It can be assumed that the interview participants who have attended management training and who took the practices to heart were more willing and enthusiastic to implement the DSS and had a better understanding of the findings.

The final limitation of the research is that the DSS could not be validated using field validation. This is the ultimate test of the value and usability of the DSS to confirm the use and value that might be achieved.

6.4 Recommendations and Future Research

The objectives of this study are fully reached, and from the interviews, it has been found that the use of the developed DSS will be beneficial to the organisation. However, the DSS could be further enhanced by addressing the following recommendations.

Future research could be done to evaluate the link between *media attention or public opinion of the SOE and employee morale* within the SOE. This was identified while having an informal discussion at one of the SOEs with a higher-level employee. During the discussion, the employee raised numerous occasions of corruption that occur in the organisation. All references were made not to personal experience, but to instances covered in the media. Similarly, there are other external factors, for example, safety of the employee's residential area, that could affect employee morale, which could be measured. A further study needs to be conducted in order to determine all the relevant external factors.

Further research could be done to determine the best method to allow employees with limited to no computer literacy to complete the *questionnaire in an electronic* format. This will ensure that all questions are completed resolving the problems encountered with missing data, and eliminating the data capturing error risk. This will also reduce the time needed to conduct the periodic analysis.

The DSS only evaluates the factors that affect employee morale and resulting measures. It does not assess the *consequences of employee morale*, for example, performance and absenteeism statistics. The DSS could be enhanced by including these consequences and providing a comparison between the morale score and the measured consequences.

The current DSS does not allow a more *granular view* of the results, or allow the results to be evaluated per team, if the whole department's results are captured. This should be enhanced to enable the teams to be captured and the report to be generated per department and per team. For this enhancement to be practical, the options should be configurable by the user, and the questionnaire should be electronic.

The DSS could be expanded to provide a *guideline to show how to address each morale affecting factor*. The risk of this guideline is that the process required may be unique to each organisation. Further research ought to be done to determine if it is unique, and then how it can be addressed.

For the departments to measure their success, a *morale score baseline* is required. Finally, a case study could be conducted of the implementation of the DSS at an organisation.

Improvement made to the performance of the decision support system. The DSS currently uses Least Square regression where more accurate and robust methods could be utilised.

6.5 Concluding Remarks

It was originally assumed that similar morale ratings are experienced across the different SOEs. Secondly, it was expected that all the technical departments within the organisations used in the study are experiencing similar problems with employee morale. The first assumption is found to be partially correct, with the organisations achieving a morale score between three and four. However, the factors affecting morale have been found to be significantly different between the organisations.

There may be a hierarchical relationship between the morale score and the factors similar to the Maslow Needs Hierarchy, as the two organisations with the lower morale scores indicated a requirement for the basic needs, in the case of maintenance teams, this is tools, spares and PPE. In the case of organisation C, these basic needs were not mentioned by the participants but “providing input to future planning” was more important for participants from Organisation C than the other organisations.

Similarly, at the organisations where a lower morale score was measured, the survey questionnaires were harder to facilitate, as the participants were less inclined to trust that they would not be victimised were they to participate. They also indicated that there would be no benefit, as their managers do not care.

The possible impact of the morale level could be viewed in the number of pens that were returned and the way in which the questionnaires were submitted. For the organisation with the lowest employee morale, the majority of the pens provided to complete the questionnaire were not returned. In contrast, for the organisation with the highest morale score, each pen that was used was returned without the need to prompt participants. Participants were asked to submit the consent form in a separate box from the questionnaire. Also, each team had a different box to submit the completed questionnaire. For the organisation with the lowest morale ratings, the completed questionnaire and consent form was often just thrown on the table where the submission boxes stood or was left where the participant sat while completing the questionnaire. In many cases, the two forms were placed in the same box. By way of contrast, for the organisation with the highest morale, each form was placed in the correct box, and in the same orientation as the form below it. For the organisation with the lowest morale, blank consent forms and questionnaires were picked up from the ground following the sessions. The same pattern was evident in the participation rate, with employees leaving without completing the survey in the organisation with the lowest morale, rather than in the organisation with the highest morale.

A surprising number of people were willing to sign, and wanted to write their names on the survey. A large number of participants signed their surveys when an error was corrected. The completed surveys are secured to ensure their anonymity. By way of contrast, in many cases, the consent form was a challenge to the study, as it requires participants to provide their details, which they felt affects their anonymity even when it is submitted separate from the questionnaire.

Unfortunately, some of the interview participants were expecting a ‘silver bullet’. By way of contrast, some of the other interviewees expressed the process of morale improvement a journey that is a two-way process. There is no quick solution to improve employee morale the process will take time and will evolve. The goal of the Morale Improvement DSS is to guide departments as to where they should focus first to obtain maximum benefit.

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Appendices

Appendix A Morale Survey

Appendix A.1. Morale Questionnaire



UNIVERSITEIT-STELLENBOSCH-UNIVERSITY
Jou kennisvenoot • your knowledge partner
STELLENBOSCH UNIVERSITY

I request your assistance by completing the following Employee Morale Survey. The results of the survey will be used to develop a framework to improve employee morale in Technical Departments of State Owned Entities. The goal of this survey is to determine the level of your department's morale and the contributing factors, to this level of morale.

By completing the survey, it is assumed that you have completed the consent form and you declare that:

- You have read the consent information leaflet, and it is written in a language with which you are fluent and comfortable.
- You have had a chance to ask questions, and all your questions have been adequately answered.
- You understand that taking part in this study is voluntary and that you have not been pressurised to take part.
- You may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- You may be asked to leave the study before it has finished if the researcher feels it is in your best interests, or if you do not follow the study plan, as agreed to.
- All issues related to privacy and the confidentiality and use of the information you provide have been explained to your satisfaction.

Thank you for your time.

1 General

1.1. How long have you been working for your current employer (company)?

- 1-2 years 3 - 5 years 5 - 10 years 10 - 20 years >20 years

1.2. What is your race?

- African Coloured White Asian Other

1.3. What is your Gender?

- Male Female

1.4. What is your age?

- <20 years 20 - 30 years 30 - 40 years 40 - 50 years >50 years

1.5. What is your highest qualification?

- Grade 10 Grade 12 Trade certificate National Diploma Bachelor Technologist
- Other: _____

1.6. What is your employment type?

- Permanent Fixed term contract Temporary Casual Other

8 Current work environment

This section of the survey evaluates your current work environment. This is focused on your immediate and current colleagues, managers and supervisors.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.1 I am satisfied with my current job.					
2.2 I am satisfied with the work I am required to do.					
2.3 Why are you satisfied or dissatisfied?					
<hr/>					
<hr/>					
<hr/>					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.4 Working harder leads to doing your job well.					
2.5 I often consider resigning.					
2.6 I work harder when I am happy at work.					
2.7 I am underpaid for the work I am doing.					
2.8 I am underpaid for my skill level.					
2.9 I enjoy the challenge of new tasks.					
2.10 I feel I am kept in the dark by management.					
2.11 Compared to other employees doing similar work, I am more productive.					
2.12 I am regularly asked to perform new duties.					
2.13 The people I work with get along well with each other.					
2.14 I feel I am under too much work pressure.					
2.15 The people I work with are friendly!					
2.16 I have the required skills to do my current job.					
2.17 I strive to perform work more efficiently (doing things right).					
2.18 I work harder when I am committed.					
2.19 The people working around you help others when work falls behind.					
2.20 My manager knows his duties.					
2.21 My job is secure as long as I perform sufficiently.					
2.22 My current manager is concerned about the welfare of employees.					
2.23 I have confidence and trust in my line manager.					
2.24 I find my job satisfying.					
2.25 I am satisfied with the employee benefits offered.					
2.26 I am currently looking for other employment.					
2.27 My line manager often asks for my input and ideas.					
2.28 My line manager remains faithful to his/her promises.					
2.29 My line manager is well organised.					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.30 My line manager keeps postponing tasks.					
2.31 My line manager is well qualified for his/her role.					
2.32 My line manager treats the employees fairly.					
2.33 I am making a positive difference in my workplace.					
2.34 I feel I am expected to do too much.					
2.35 I am doing more work than my colleagues.					
2.36 I have a lot to learn in my current job.					
2.37 I am using my full abilities in my current role.					
2.38 I feel pressure to work harder.					
2.39 I have sufficient knowledge for understanding the tasks I am required to perform.					
2.40 I find my job dull and repetitive.					
2.41 My income is sufficient to live comfortably.					
2.42 My line manager credits me for a job well done.					
2.43 Compared to other employees doing similar work, I am competent at identifying problems that may arise and try to prevent them or minimize their effects.					

4 Current employer

This portion of the survey evaluates you perception toward the organisation as a whole.

For each of the following questions, please tick the appropriate block were applicable.

3.1 In general, how satisfied are you in your current workplace?
 Very Unsatisfied Unsatisfied Neutral Satisfied Very Satisfied

3.2 What do you like most about your current work environment?

3.3 What do you like the least about your current work environment?

3.4 Are you concerned about job security or possible retrenchments?
 No, not at all Uncertain Neutral Yes, slightly Yes, very Much

3.5 Is budget availability a constraint for improvements in your company?
 Strongly Disagree Disagree Neutral Agree Strongly agree

3.6 How does the budget availability affect your work?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3.7 I am committed to the organisation.					
3.8 The organisational structure is often changed and often results in my manager being changed.					
3.9 I feel a part of the organisation.					
3.10 A small increase in my salary will make me consider moving to another company.					
3.11 The company operates efficiently.					
3.12 I am proud to work for the company.					
3.13 The people receiving promotions deserves the promotion.					
3.14 I would consider moving to a new organisation even if the offered salary is less than my current salary.					
3.15 Negative media attention has changed my opinion of my employer.					
3.16 I am inspired to go the extra mile to help the organisation improve.					
3.17 Employee relations have improved over the past three years.					
3.18 I consider my role to add value to the organisation.					
3.19 It is important to me to know my work is making a contribution.					
3.20 I am contributing to the organisation through my work.					
3.21 The policies of the organisation are limiting my work.					
3.22 I am frustrated by the company policies.					
3.23 I feel the company policies add value.					
3.24 My organisation is focussed on its people.					
3.25 My organisation offers equal opportunities to all.					
3.26 My manager's values are the same as my values.					
3.27 Other people, I work with often consider resigning.					
3.28 There are plenty of career opportunities in my organisation for those who want to advance.					
3.29 I would recommend this organisation as a good place to work.					
3.30 Why would you or would you not recommend your employer.					

4 *Expected results for hard work*

This portion of the survey evaluates your expectations. Please note this is not what actually occurs at this point in time but what you would expect should occur.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4.1 Working hard leads to you doing your job well.					
4.2 Hard work improves organisational performance.					
4.3 I expect a bonus or increase if I do my work well.					
4.4 I expect my colleagues to be friendly if I do my work well.					
4.5 I expect to be respected if I work hard.					
4.6 I expect praise from my line manager if I work hard.					
4.7 I expect to have opportunities to learn if I work hard.					
4.8 I expect a promotion if I work hard.					
4.9 I expect more freedom for taking the initiative if I work hard.					

5 *Actual results of hard work*

This portion of the survey evaluates the actual result of hard work that you have experienced in your current job.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5.1 Working hard leads to you doing our job well.					
5.2 Hard work improves organisational performance.					
5.3 I receive a bonus or increase if I do my work well.					
5.4 My colleagues are friendly if I do my work well.					
5.5 I gain respect for my hard work.					
5.6 I receive praise from my line manager for my work hard.					
5.7 I have opportunities to learn if I work hard.					
5.8 I receive a promotion if I work hard.					
5.9 I receive more freedom if I work hard.					
5.10 I receive credit for work well done.					
5.11 I receive recognition for work well done.					

6 *Ideal work environment*

This portion of the survey evaluates what you would expect and require from your ideal work environment.

6.1 What will make you work harder?

6.2 What will most improve your feeling towards work! Please select 3 items.

Improved teamwork	<input type="checkbox"/>	Increased Salary	<input type="checkbox"/>	Less work pressure	<input type="checkbox"/>
Increased capital spending	<input type="checkbox"/>	Consistent work environment	<input type="checkbox"/>	Fewer organisational policies ("red tape")	<input type="checkbox"/>
More confidence in your line manager	<input type="checkbox"/>	Feeling of value	<input type="checkbox"/>	Receiving the required tools.	<input type="checkbox"/>
Receiving the required training.	<input type="checkbox"/>	Receiving the required spares.	<input type="checkbox"/>		

6.3 What will encourage you to work harder! Please select 4 items.

Increase in salary	<input type="checkbox"/>	Bonus payments	<input type="checkbox"/>	Training for skills development	<input type="checkbox"/>
Career development opportunities	<input type="checkbox"/>	Better trained managers	<input type="checkbox"/>	Recognition by managers for hard work	<input type="checkbox"/>
More team building activities	<input type="checkbox"/>	Having the opportunity to provide input in future planning	<input type="checkbox"/>	Employing natural leaders as managers and supervisors	<input type="checkbox"/>
Receiving the required tools.	<input type="checkbox"/>	Receiving the required training.	<input type="checkbox"/>	Receiving the required spares.	<input type="checkbox"/>

6.4 What should change to improve your work environment!

End of survey

Thank you for your time.

Appendix B Ethical Approval

Appendix B.1. Initial REC Approval



APPROVED WITH STIPULATIONS
REC Humanities New Application Form

25 October 2017

Project number: ING-2017-1569

Project title: Methods to Improve Morale in State Owned Entities' Technical Departments

Dear Mrs Caroline Van Heerden

Your REC Humanities New Application Form submitted on **19 October 2017** was reviewed by the REC: Humanities and approved with stipulations.

Ethics approval period: 25 October 2017 - 24 October 2020

REC STIPULATIONS:

The researcher may proceed with the envisaged research provided that the following stipulations, relevant to the approval of the project are adhered to or addressed:

- 1) The researcher is reminded to upload the various permission letters once she has received them. **[Response Required]**
- 2) The REC acknowledges that the researcher will upload the interview schedule once she has drawn it up based on the survey. **[Response Required]**

HOW TO RESPOND:

Some of these stipulations may require your response. Where a response is required, you must respond to the REC within **six (6) months** of the date of this letter. Your approval would expire automatically should your response not be received by the REC within 6 months of the date of this letter.

Your response (and all changes requested) must be done directly on the electronic application form on the Infonetica system: <https://applyethics.sun.ac.za/Project/Index/1724>

Where revision to supporting documents is required, please ensure that you replace all outdated documents on your application form with the revised versions. Please respond to the stipulations in a separate cover letter titled **"Response to REC stipulations"** and attach the cover letter in the section **Additional Information and Documents**.

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (ING-2017-1569) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Research	Research proposal - 17_10_17	17/10/2017	Ver 13

Protocol/Proposal		
Informed Consent Form	Morale Survey_ Consent form ver1.3	17/10/2017 Ver 1.3
Data collection tool	Survey_17_10_17	17/10/2017 Ver 1.4
Default	Morale Study_Permission email_ver3	17/10/2017 Ver 3
Request for permission	Caroline Van Heerden - Application Letter for Institutional Permission - [REDACTED]	18/10/2017 Ver 3
Request for permission	Caroline Van Heerden - Application Letter for Institutional Permission - [REDACTED]	18/10/2017 Ver 3
Request for permission	Caroline Van Heerden - Application Letter for Institutional Permission - [REDACTED]	18/10/2017 Ver 3
Data collection tool	Interviev Guide_Ver1	19/10/2017 Ver 1

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.
The Research Ethics Committee: Humanities complies with the SA National Health Act No.61 2003 as it pertains to health research. In addition, this committee abides by the ethical norms and principles for research established by the Declaration of Helsinki (2013) and the Department of Health Guidelines for Ethical Research: Principles Structures and Processes (2nd Ed.) 2015. Annually a number of projects may be selected randomly for an external audit.

* Sections have been obstructed to ensure the identity of the organisations are not divulged.

Investigator Responsibilities

Protection of Human Research Participants

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. Conducting the Research. You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.

2. Participant Enrollment. You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use.

3. Informed Consent. You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents/process, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.

4. Continuing Review. The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, it is **your responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur**. If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.

5. Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You **may not initiate** any amendments or changes to your research without first obtaining written REC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

6. Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouche within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the REC's requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.

7. Research Record Keeping. You must keep the following research related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC

8. Provision of Counselling or emergency support. When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

9. Final reports. When you have completed (no further participant enrollment, interactions or interventions) or stopped work on your research, you must submit a Final Report to the REC.

10. On-Site Evaluations, Inspections, or Audits. If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

Appendix B.2. Amended REC Approval



NOTICE OF APPROVAL

REC Humanities New Application Form

12 October 2018

Project number: 1569

Project Title: *Methods to Improve Morale in State Owned Entities' Technical Departments*

Dear Mrs Caroline Van Heerden

Your REC Humanities New Application Form submitted on **12 October 2018** was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
25 October 2017	24 October 2020

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (**1569**) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Data collection tool	SOE Employee Morale Survey	12/10/2017	Ver 1
Research Protocol/Proposal		17/10/2017	Ver 1
Informed Consent Form		17/10/2017	Ver1.3
Proof of permission		06/12/2017	
Proof of permission	Permission Letter_TPT_signed	31/01/2018	
Proof of permission	Permission letter_Eskom_signed	01/02/2018	
Data collection tool	Intervew Guide_Ver4	12/10/2018	Ver 4

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.
The Research Ethics Committee: Humanities complies with the SA National Health Act No. 61 2003 as it pertains to health research. In addition, this committee abides by the ethical norms and principles for research established by the Declaration of Helsinki (2013) and the Department of Health Guidelines for Ethical Research: Principles Structures and Processes (2nd Ed.) 2015. Annually a number of projects may be selected randomly for an external audit.

** Sections have been obstructed to ensure the identity of the organisations are not divulged.*

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Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. **Conducting the Research.** You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.
2. **Participant Enrollment.** You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use.
3. **Informed Consent.** You are responsible for obtaining and documenting effective informed consent using **only** the REC-approved consent documents/process, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.
4. **Continuing Review.** The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is **no grace period**. Prior to the date on which the REC approval of the research expires, it is **your responsibility to submit the progress report in a timely fashion to ensure a lapse in REC approval does not occur**. If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.
5. **Amendments and Changes.** If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You **may not initiate** any amendments or changes to your research without first obtaining written REC review and approval. The **only exception** is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.
6. **Adverse or Unanticipated Events.** Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouche within **five (5) days** of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the REC's requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch University Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.
7. **Research Record Keeping.** You must keep the following research related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC.
8. **Provision of Counselling or emergency support.** When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.
9. **Final reports.** When you have completed (no further participant enrollment, interactions or interventions) or stopped work on your research, you must submit a Final Report to the REC.
10. **On-Site Evaluations, Inspections, or Audits.** If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

** Sections have been obstructed to ensure the identity of the organisations are not divulged.*

Appendix B.3. Participant Consent Form



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STELLENBOSCH UNIVERSITY WRITTEN CONSENT TO PARTICIPATE IN RESEARCH

TITLE OF RESEARCH PROJECT:	Methods to Improve Morale in State Owned Entities' Technical Departments
REFERENCE NUMBER:	SU-HSD-1569
PRINCIPAL INVESTIGATOR:	Caroline van Heerden
ADDRESS:	Industrial Engineering Mechanical & Industrial Eng Building Banhoek Road Stellenbosch
CONTACT NUMBER:	072 430 3924
E-MAIL:	caroline.v.heerden@gmail.com

Dear Prospective participant,

Kindly note that I am Caroline van Heerden an MEng student at the Department of Industrial Engineering at Stellenbosch University. I would like to invite you to participate in a research project entitled Methods to Improve Morale in State Owned Entities' Technical Departments.

Please take some time to read the information presented here, which will explain the details of this project. Contact me if you require further explanations or clarifications on any aspect of the study. This study has been approved by the Research Ethics Committee (REC) at Stellenbosch University and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

1. INTRODUCTION:

The understanding of asset management has changed as the discipline matured. Asset management is less to do with "doing things with assets" than using the assets to achieve goals, this also includes employees. One of the challenges that South Africa is currently facing is a shortage of skills in critical professions. This is especially the case in all engineering professions and in artisan trades.

From my research, I have found that the morale of a team has an impact on their work. It goes without saying that it is beneficial to an organisation to ensure that technical teams are happy, resulting in well-maintained equipment.

2. PURPOSE:

The aim of the research project is to determine the morale of employees currently working in South African State Owned Entities. If their morale is high, the study will attempt to identify the contributing factors to this high morale. If morale is found to be low, the causes of low morale will be identified. The final goal of this project is to develop a morale improvement model that can be implemented in South African State Owned Entities.

3. PROCEDURES:

You will be asked to complete and sign this consent form. Once this is done, you will be asked to complete the survey.

If you would like to withdraw from the study, you are welcome to do so at any point. If you are willing to allow the partially completed survey to be used, you can submit it as is. Alternatively, if you are not willing to allow the survey to be used, you may keep the survey.

4. TIME: This survey will take approximately 25 minutes to complete

5. RISKS: Participating in the study will not entail any risk to participants.

6. BENEFITS: The result of this study could be used to improve the work environments in State Owned Entities.

7. PARTICIPATION & WITHDRAWAL:

You will have the option whether to submit the survey up to the point where it has been completed. The data will be used if many participants do not finish the survey. The point at which you stop completing the survey and the answers given up to that point will be evaluated to determine a trend.

If you would prefer to withdraw the survey will be destroyed, or you will have the option to keep the completed survey.

8. CONFIDENTIALITY:

The survey will be done anonymously and will be kept separately from this consent form. There will be no way to link answers to you personally.

9. RECORDINGS: No recording will be made.

10. DATA STORAGE:

The surveys and concept forms will be stored by the researcher for five years, after which, it will be destroyed. An electronic copy will also be stored for the same period. No one other than the researcher will have access to these documents.

The results of each department will be used in the study but will be referred to as Organisation A, Department 1 for example.

If you have any questions or concerns about this research project, please feel free to contact Caroline van Heerden.

Caroline.v.heerden@gmail.com
072 430 3924

Or, Dr JL Jooste
wyhan@sun.ac.za

RIGHTS OF RESEARCH PARTICIPANTS: You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché (mfouche@sun.ac.za / 021 808 4622) at the Division for Research Development. You have the right to receive a copy of this Consent form.

If you are willing to participate in this research project, please sign the Declaration of Consent below and place it in the box.

DECLARATION BY THE PARTICIPANT

As the participant I hereby declare that:

- I have read the above information, and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions, and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- If the principal investigator feels that it is in my best interest, or if I do not follow the study plan as agreed to, then I may be asked to leave the study before it has finished.
- All issues related to privacy, and the confidentiality and use of the information I provide, have been explained to my satisfaction.

By signing below, I _____ (*name of participant*) agree to take part in this research study, as conducted by Caroline van Heerden.

Signed at (*place*)

Date

Signature of Participant

DECLARATION BY THE PRINCIPAL INVESTIGATOR

As the **principal investigator**, I hereby declare that the information contained in this document has been thoroughly explained to the participant. I also declare that the participant has been encouraged (and has been given ample time) to ask any questions. In addition, I would like to select the following option:

	The conversation with the participant was conducted in a language in which the participant is fluent.
	The conversation with the participant was conducted with the assistance of a translator, and this "Consent Form" is available to the participant in a language in which the participant is fluent.

Signed at (*place*)

Date

Signature of Principal Investigator

Appendix C SOE Correspondence

Appendix C.1. Initial Email Template Used

Note: The content of this document was pasted in an email to each organisation.

Subject line: Research study in Asset Management for SOE

Dear _____

My name is Caroline van Heerden; I am an M.Eng student at the University of Stellenbosch. I would like to request your assistance with my research project entitled Methods to Improve Morale in State Owned Entities' Technical Departments.

From my research, I have found that the morale of a team has an impact on the quality of their work. It goes without saying that it is beneficial to an organisation to ensure that its' technical teams have high morale to ensure that the assets reach the required useful life.

My research consists of three stages:

1. Literature review
2. Morale Survey
3. Interviews

The stages where I require your assistance with is the survey and the interviews. For the survey, I would like to request an opportunity to present the survey to the maintenance teams in your organisation. I will do so personally and only need an opportunity to do so, this can be done during a green area meeting, safety symposium, shift indaba or another similar gathering. The target group for these surveys are artisans, trade hands and process workers working in maintenance departments or workshops. The survey will be completely anonymous. The goal of this survey is to determine whether each department has high or low morale, the contributing factors and what is most important to each employee. All references to the organisation will be obscured in my study, for example, I will refer to Organisation A, Department 1, Depo i.

I would like to conduct the surveys from mid-November to mid-January. The result of the survey will be used to develop a framework that can be used improve employee morale in Technical Departments of State-Owned Entities.

The final stage of my study will be an interview. I would like to conduct interviews with groups to gauge their opinion on the framework presented. Their interviews will take place from February 2017, once all the survey have been completed. The target group of these interviews will be a combination of the following individuals:

- Engineering manager
- Technical manager
- Human resource employees
- Artisans
- Shop stewards

Will you or your department be willing and able to participate in this study?

I will unfortunately not be able to share the results of the survey done in your organisation directly but will be able to share the results of my study as a whole, which could give you an insight of where there are strengths and weakness in these similar organisations.

If you have any questions or concerns about the research, please feel free to contact me:

Caroline van Heerden
Caroline.v.heerden@gmail.com / 15112632@sun.ac.za
072 430 3924

Or my supervisor:
Dr JL Jooste
wyhan@sun.ac.za

Attached are the following documents:

- Example of the survey that will be used
- Example of the consent form that will be used, this will be completed by each participant
- Copy of my ethical clearance certificate
- Application Letter for Institutional Permission
- Permission letter

If you are willing and able to assist, please complete the permission letter, the relevant section is highlighted in green. Please print the document on your organisation's letterhead.

Thank you for your time

Kind Regards,

Caroline

Appendix C.2. Application Letter



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APPLICATION LETTER FOR INSTITUTIONAL PERMISSION

INSTITUTION NAME & ADDRESS:

INSTITUTION CONTACT PERSON:

INSTITUTION CONTACT NUMBER:

INSTITUTION EMAIL ADDRESS:

TITLE OF RESEARCH PROJECT: Methods to Improve Morale in State Owned Entities' Technical Departments

ETHICS APPLICATION REFERENCE NUMBER: SU-HSD-1569

RESEARCHER: Caroline van Heerden

DEPT NAME & ADDRESS: Industrial Engineering
Mechanical & Industrial Eng Building
Banhoek Road
Stellenbosch

CONTACT NUMBER: 072 430 3924

EMAIL ADDRESS: Caroline.v.heerden@gmail.com

Dear

Kindly note that I am a MEng student at the Department of Engineering at Stellenbosch University, and I would appreciate your assistance with one facet of my research project.

Please take some time to read the information presented in the following four points, which will explain the purpose of this letter as well as the purpose of my research project, and then feel free to contact me if you require any additional information. This research study has been approved by the Research Ethics Committee (REC) at Stellenbosch University and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

1. A short introduction to the project:

The understanding of asset management has changed as the discipline matured. Asset management is less to do with "doing things with assets" than using the assets to achieve a company's goals, this also includes

From my research, I have found that the morale of a team has an impact on the quality of their work. It goes without saying that it is beneficial to an organisation to ensure that its' technical teams have high morale to ensure that the assets reach the required useful life.

2. The purpose of the project:

The research project aims to determine the morale of employees currently working in South African State Owned Entities. If their morale is high, the study will attempt to identify the contributing factors to this high morale. In the case where morale is found to be low the causes of the low morale will be identified. The final goal of this project is to develop a morale improvement model that can be implemented in South African State Owned Entities.

3. Your assistance would be appreciated in the following regard:

Providing me permission to conduct surveys in the technical department of the Cape Town and Saldanha terminals. The survey will entail a hard copy questionnaire that each willing employee will be asked to complete. I will facilitate the survey myself. I will need assistance with arranging a time slot in a shift indaba or similar meeting held with the maintenance team.

4. Confidentiality:

The questionnaire completed by each individual will be anonymous and will not require information to be entered which will allow me or any other person to identify the individual. In addition to this, the company's identity will not be referenced in the research. Each company will be referred to as: Company A or B.

If you have any further questions or concerns about the research, please feel free to contact me via email caroline.v.heerden@gmail.com or telephonically 072 430 3924. Alternatively, feel free to contact my supervisor, Dr Wyhan Jooste, via email wyhan@sun.ac.za or telephonically 021 808 4234.

Thank you in advance for your assistance in this regard.

Kind regards,
Caroline van Heerden
Principal Investigator

**Sections have been obscured to ensure the identity of the organisations are not divulged.*

Appendix C.3. Permission Letter



INSTITUTIONAL PERMISSION LETTER

INSTITUTION NAME & ADDRESS: ESKO
60 Vo
Cape

INSTITUTION CONTACT PERSON: Rustu

INSTITUTION CONTACT NUMBER: 021 9

INSTITUTION EMAIL ADDRESS: Emjex

TITLE OF RESEARCH PROJECT: Methods to Improve Morale in State Owned Entities' Technical Departments

ETHICS APPLICATION REFERENCE NUMBER: SU-HSD-1569

RESEARCHER: Caroline van Heerden

DEPT NAME & ADDRESS: Industrial Engineering
Mechanical & Industrial Eng Building
Banhoek Road
Stellenbosch

CONTACT NUMBER: 072 430 3924

EMAIL ADDRESS: caroline.v.heerden@gmail.com

Dear Caroline van Heerden,

We have reviewed your request to conduct a research project involving survey conducted in our Technical Department. You have permission to commence with the requested survey for this project as define in your "Project Proposal".

The following stipulations should be observed:

- You will need to adhere to the safety rules and regulations when on site.

Sincerely,

Name: |

Who warrants that he/she is duly authorised to sign on behalf of ESKO

Position: Est

Date:

Signature:

**Sections have been obscured to ensure the identity of the organisations are not divulged.*

Appendix D Analysis Results

Appendix D.1. Data Capturing Format

Table D-1: Data capturing format

Organisation	Department	Team	Participant number	Count	1.1	1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.4	2.5	2.6	2.7	2.8	2.9
Org A	Depot 1	Temp i	1	96	5	3	1	5	3	1	4	4	3	4	4	4	4	4
Org A	Depot 1	Temp i	2	96	3	2	1	5	2	1	3	3	2	1	4	3	3	5
Org A	Depot 1	Temp i	3	76	1	1	1	3	3	1	1	1	1	3	3	1	1	3
Org A	Depot 1	Temp i	4	96	4	3	1	3	2	1	1	1	2	1	1	1	1	1
Org A	Depot 1	Temp i	5	71	4	3		3	1	1	1	1	5	2	5		4	5
Org A	Depot 1	Temp i	6	96	5	3	1	4	4	1	4	2	4	3	5	5	5	4
Org A	Depot 1	Temp i	7	96	4	1	2	3	3	1	3	4	5	2	5	5	5	5
Org A	Depot 1	Temp i	8	96	3	1	2	3	2	1	3	4	4	2	5	5	5	5
Org A	Depot 1	Temp i	9	91	5	3		5		1	4		4	3	4	3	3	3
Org A	Depot 1	Temp i	10	29	5	2	1	2		1			3				3	
Org A	Depot 1	Temp i	11	96	4	2	1	3	3	1	3	4	5	1	3	5	5	4
Org A	Depot 1	Temp i	12	96	3	1	1	3	2	1	4	3	4	2	5	4	3	4
Org A	Depot 1	Temp i	13	96	3	1	1	3	3	1	2	2	4	5	4	5	4	4
Org A	Depot 1	Temp i	14	96	4	2	1	4	3	1	4	1	2	4	5	5	5	1
Org A	Depot 1	Temp i	15	56	5	2	1	5	3	1	4	2	4	4	5	5	5	4
Org A	Depot 1	Temp i	16	5	2	1	4	3	1	4	4	5	2	4	4	4	4	2
Org A	Depot 1	Temp ii	1	4	3		5	3	1	4	4	4	3	3	4	4	4	4
Org A	Depot 1	Temp ii	2	2	2	1	3	3	1	3	2	2	2	1	5	4	4	5
Org A	Depot 1	Temp ii	3	3	1	1	3	2	1	3	2	3	3	1	5	4	2	5
Org A	Depot 1	Temp ii	4	4	2	1	3	2	1	3	3	4	3	3	3	4	4	5

Appendix D.2. Data Processing Format

Table D-2: Data processing format

Participant ID	Organisation	Department	Team	Participant number	Question number	Question Type	Answer	Open Answer
1	Org A	Depot 1	Temp i	1	1	Employed	5	
1	Org A	Depot 1	Temp i	1	2	Race	3	
1	Org A	Depot 1	Temp i	1	3	Gender	1	
1	Org A	Depot 1	Temp i	1	4	Age	5	
1	Org A	Depot 1	Temp i	1	5	Qualification	3	
1	Org A	Depot 1	Temp i	1	6	EmpType	1	
1	Org A	Depot 1	Temp i	1	7	Satifiaction	4	
1	Org A	Depot 1	Temp i	1	8	Satifiaction	4	
1	Org A	Depot 1	Temp i	1	9	Satifiaction		Because I am here and to do my daily job
1	Org A	Depot 1	Temp i	1	10	HardWork_Cons	3	
1	Org A	Depot 1	Temp i	1	11	TurnOver_Personal	4	
1	Org A	Depot 1	Temp i	1	12	HardWork_Feelings	4	
1	Org A	Depot 1	Temp i	1	13	Salary_Under	4	
1	Org A	Depot 1	Temp i	1	14	Salary_Under	4	
1	Org A	Depot 1	Temp i	1	15	Veriation	4	
1	Org A	Depot 1	Temp i	1	16	Manager_SoftSkills	5	
1	Org A	Depot 1	Temp i	1	17	Team_Comp	3	
1	Org A	Depot 1	Temp i	1	18	Security_Change	3	
1	Org A	Depot 1	Temp i	1	19	Team_Unity	3	
1	Org A	Depot 1	Temp i	1	20	Pressure_Level	5	
1	Org A	Depot 1	Temp i	1	21	Team_Unity	3	
1	Org A	Depot 1	Temp i	1	22	Skills_sufficiant	4	
1	Org A	Depot 1	Temp i	1	23	PersGoal	4	
1	Org A	Depot 1	Temp i	1	24	HardWork_Feelings	4	
1	Org A	Depot 1	Temp i	1	25	Team_Unity	3	
1	Org A	Depot 1	Temp i	1	26	Manager_HardSkills	3	

Appendix D.3. Question Constructs and Dimensions

Satisfaction

Table D-3: Contracts of factors to measure of employee morale

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
SatisfactionJob	Job Satisfaction Rating	2.1	I am satisfied with my current job.	0.747	0.745
		2.2	I am satisfied with the work I am required to do.		
		2.24	I find my job satisfying.		
SatisfactionOrganisation	Organisation Satisfaction Rating	3.1	In general, how satisfied are you in your current workplace?		
EmpEngagement	Employee Engagement Rating	2.4	Working harder leads to doing your job well.	0.814	0.825
		2.17	I strive to perform work more efficiently (doing things right).		
		2.18	I work harder when I am committed.		
		2.33	I am making a positive difference in my workplace.		
		3.7	I am committed to the organisation.		
		3.9	I feel a part of the organisation.		
		3.16	I am inspired to go the extra mile to help the organisation improve.		
		3.18	I consider my role to add value to the organisation.		
		3.19	It is important to me to know my work is making a contribution.		
		3.2	I am contributing to the organisation through my work.		

Result of Morale

Table D-4: Contracts of factors to measure results of low morale

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
TurnO	Staff Turn Over/ Quit Factor Rating	2.5	I often consider resigning.	0.613	0.613
		2.26	I am currently looking for other employment.		
		3.1	A small increase in my salary will make me consider moving to another company.		
		3.14	I would consider moving to a new organisation even if the offered salary is less than my current salary.		
		3.27	Other people, I work with often consider resigning.		
MoraleHW	Relation between work hard and morale Rating	2.6	I work harder when I am happy at work.		

Factors Affecting Morale

Table D-5: Contracts of factors to measure the factors affecting morale

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
Growth	Growth Prospects Rating	3.13	The people receiving promotions deserves the promotion.	0.775	0.778
		3.28	There are plenty of career opportunities in my organisation for those who want to advance.		
		5.7	I have opportunities to learn if I work hard.		
		5.8	I receive a promotion if I work hard.		
		5.9	I receive more freedom if I work hard.		
ExpectVsActual	Expectations verse Reality Rating	4.1	Working hard leads to you doing your job well.	0.906	0.907
		4.2	Hard work improves organisational performance.		
		4.3	I expect a bonus or increase if I do my work well.		
		4.4	I expect my colleagues to be friendly if I do my work well.		
		4.5	I expect to be respected if I work hard.		
		4.6	I expect praise from my line Manager if I work hard.		
		4.7	I expect to have opportunities to learn if I work hard.		
		4.8	I expect a promotion if I work hard.		
		4.9	I expect more freedom for taking the initiative if I work hard.		
		5.1	Working hard leads to you doing our job well.	0.898	0.896

Table D-5: Contracts of factors to measure the factors affecting morale (continued)

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
		5.2	Hard work improves organisational performance.		
		5.3	I receive a bonus or increase if I do my work well.		
		5.4	My colleagues are friendly if I do my work well.		
		5.5	I gain respect for my hard work.		
		5.6	I receive praise from my line Manager for my work hard.		
		5.7	I have opportunities to learn if I work hard.		
		5.8	I receive a promotion if I work hard.		
		5.9	I receive more freedom if I work hard.		
Manager_HardSkill	Manager Hardskill Rating	2.2	My Manager knows his duties.	0.816	0.809
		2.29	My line Manager is well organised.		
		2.3	My line Manager keeps postponing tasks.		
		2.31	My line Manager is well qualified for his/her role.		
		2.23	I have confidence and trust in my line Manager.		
Manager_SoftSkill	Manager Softskill Rating	2.1	I feel I am kept in the dark by management.	0.817	0.815
		2.22	My current Manager is concerned about the welfare of employees.		
		2.27	My line Manager often asks for my input and ideas.		
		2.42	My line Manager credits me for a job well done.		
		5.1	I receive credit for work well done.		
		5.11	I receive recognition for work well done.		
		2.23	I have confidence and trust in my line Manager.		

Table D-5: Contracts of factors to measure the factors affecting morale (continued)

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
Manager_Values	Manager Value Alignment Rating	2.28	My line Manager remains faithful to his/her promises.	0.832	0.831
		2.32	My line Manager treats the employees fairly.		
		3.26	My Manager's values are the same as my values.		
		2.23	I have confidence and trust in my line Manager.		
Organisation	Organisational Performance Rating	3.11	The company operates efficiency.	0.773	0.772
		3.12	I am proud to work for the company.		
		3.15	Negative media attention has changed my opinion of my employer.		
		3.17	Employee relations have improved over the past three years.		
		3.24	My organisation is focussed on its people.		
		3.25	My organisation offers equal opportunities to all.		
		3.29	I would recommend this organisation as a good place to work.		
		3.21	The policies of the organisation are limiting my work.		
		3.22	I am frustrated by the company policies.		
		3.23	I feel the company policies add value.		
Pressure	Employee Pressure Rating	2.11	Compared to other employees doing similar work, I am more productive.	0.707	0.707
		2.14	I feel I am under too much work pressure.		
		2.34	I feel I am expected to do too much.		

Table D-5: Contracts of factors to measure the factors affecting morale (continued)

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
		2.35	I am doing more work than my colleagues.		
		2.38	I feel pressure to work harder.		
Remuneration	Remuneration Rating	2.7	I am underpaid for the work I am doing.	0.721	0.722
		2.8	I am underpaid for my skill level.		
		2.25	I am satisfied with the employee benefits offered.		
		2.41	My income is sufficient to live comfortably.		
SkillLevel	Personal Skill Level Rating	2.16	I have the required skills to do my current job.	0.709	0.715
		2.37	I am using my full abilities in my current role.		
		2.39	I have sufficient knowledge for understanding the tasks I am required to perform.		
		2.43	Compared to other employees doing similar work, I am competent at identifying problems that may arise and try to prevent them or minimize their effects.		
		2.12	I am regularly asked to perform new duties.		
TeamUnity	Team Unity Rating	2.13	The people I work with get along well with each other.	0.716	0.718
		2.15	The people I work with are friendly?		
		2.19	The people working around you help others when work falls behind.		
Challenge	Drive for Challenges Rating	2.9	I enjoy the challenge of new tasks.		
Security	Job Security Rating	2.21	My job is secure as long as I perform sufficiently.		

Table D-5: Contracts of factors to measure the factors affecting morale (continued)

Construct Code	Description	#	Questions	Cronbach Alpha	Standards Alpha
SecurityRet	Risk of Retrenchment	3.4	Are you concerned about job security or possible retrenchments?		
Learn	Change Experience Rating	2.36	I have a lot to learn in my current job.		
Dull	Further Learning Rating	2.4	I find my job dull and repetitive.		
Budget	Impact of Budget Rating	3.5	Is budget availability a constraint for improvements in your company?		

Appendix D.4. Histogram per category

Morale and Satisfaction

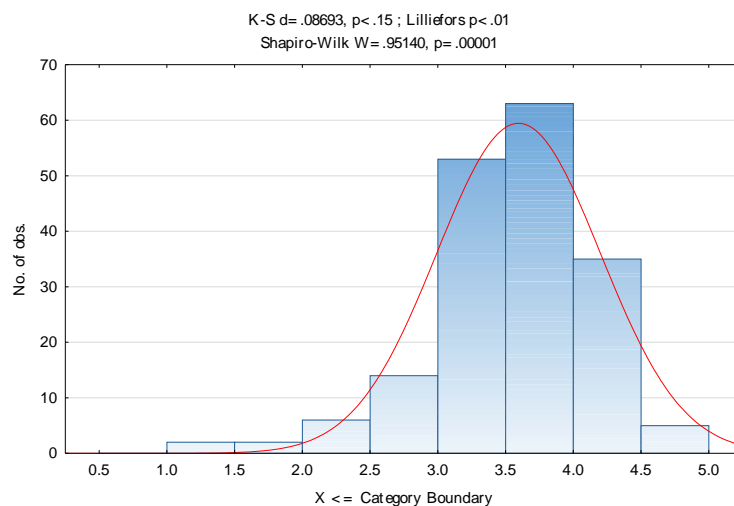


Figure D-1: Histogram for morale score

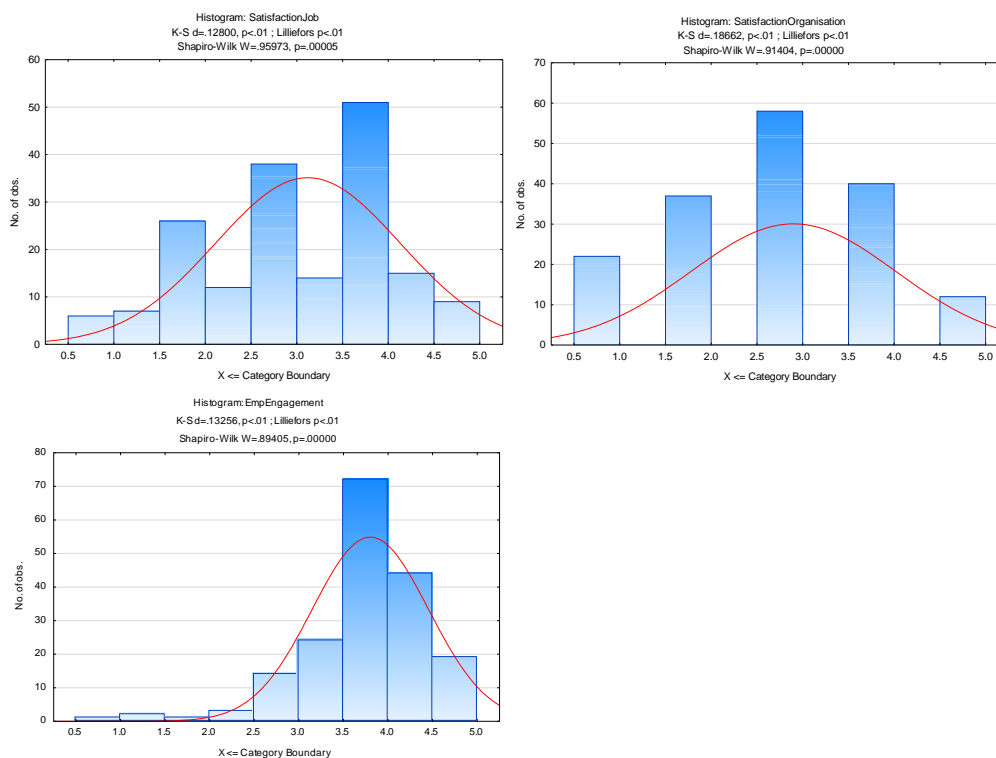


Figure D-2: Histogram per satisfaction measure

Factors Affecting Morale

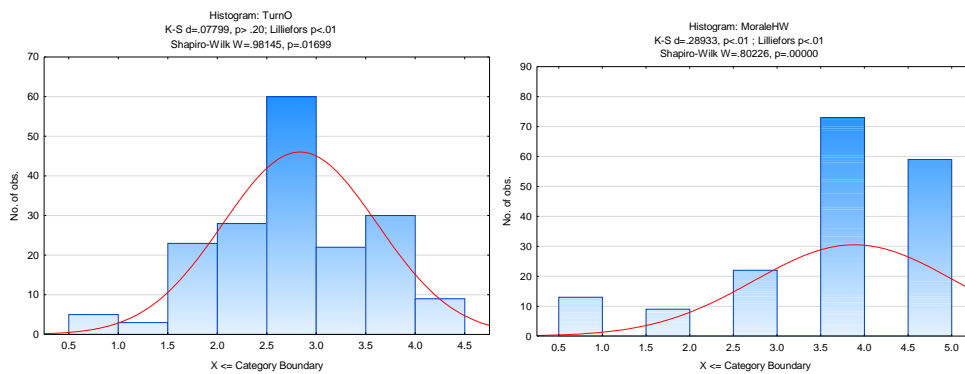


Figure D-3: Histogram per results of morale

Factors Affecting Morale

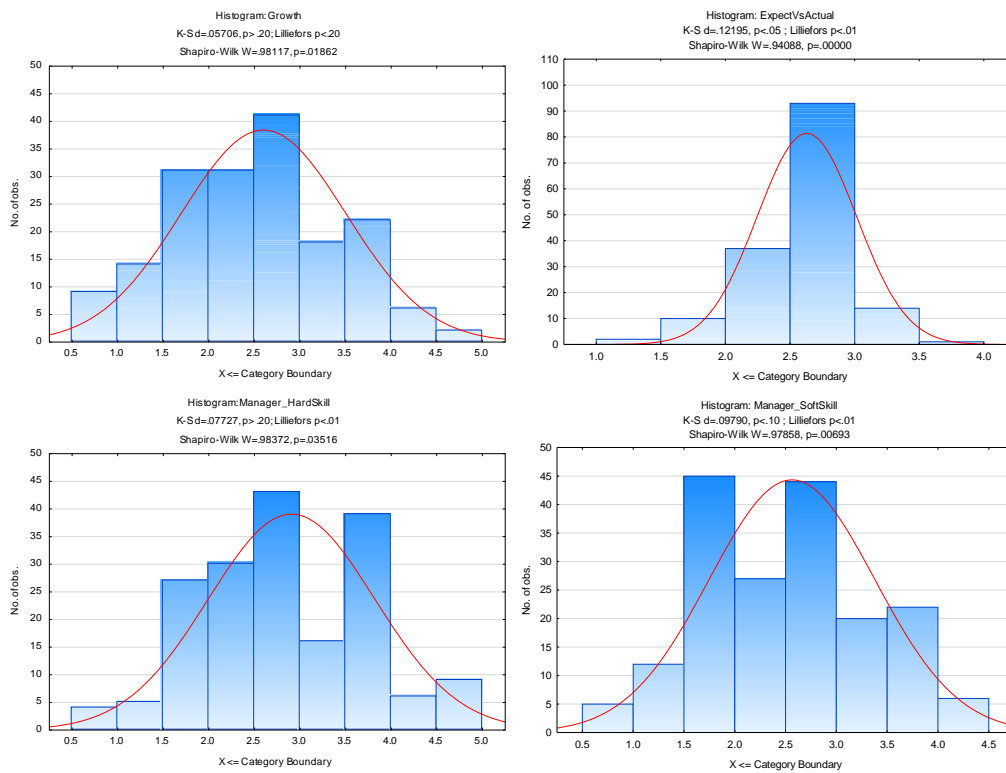


Figure D-4: Histogram per morale factor

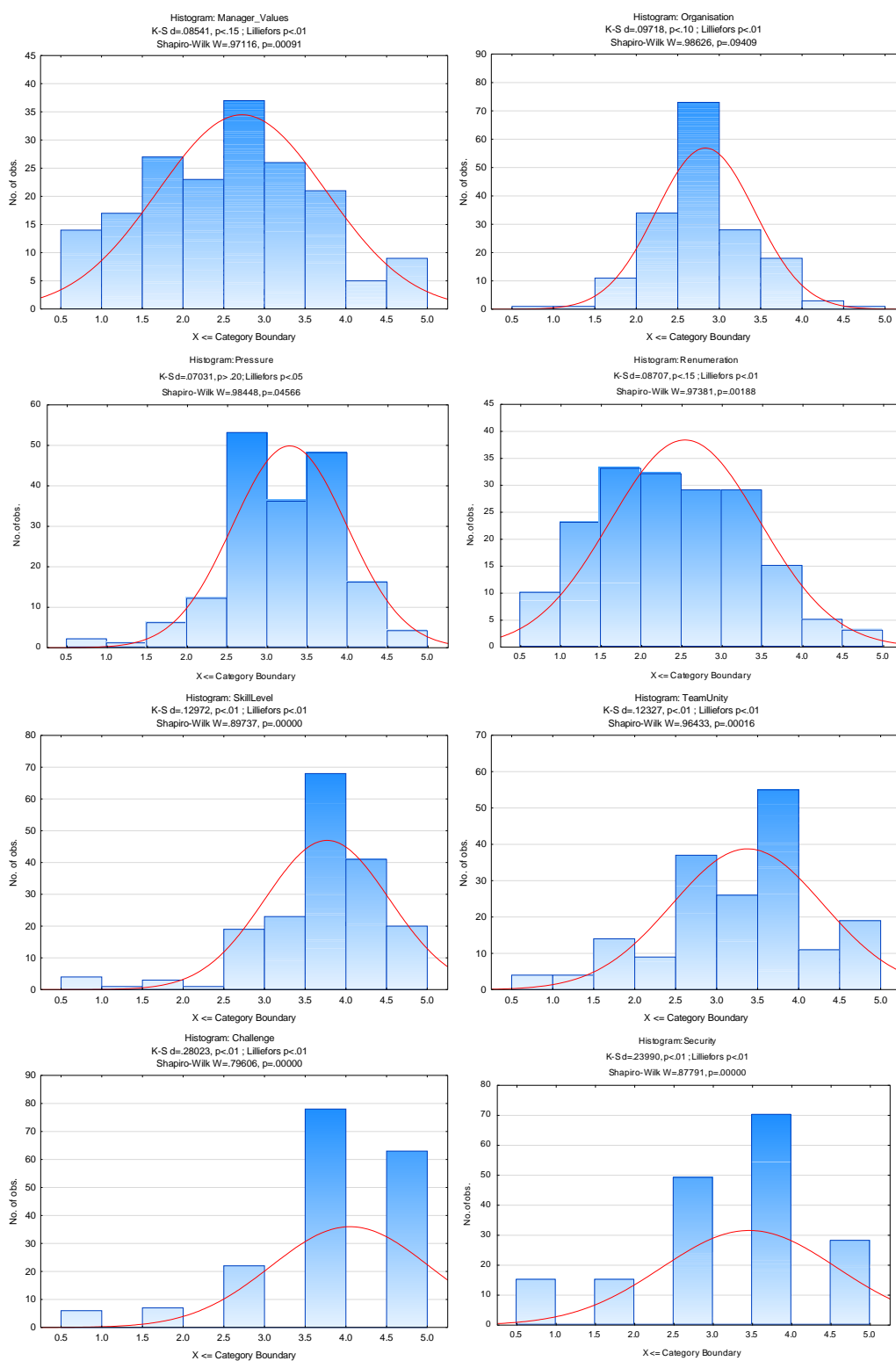


Figure D-4: Histogram per morale factor (continued)

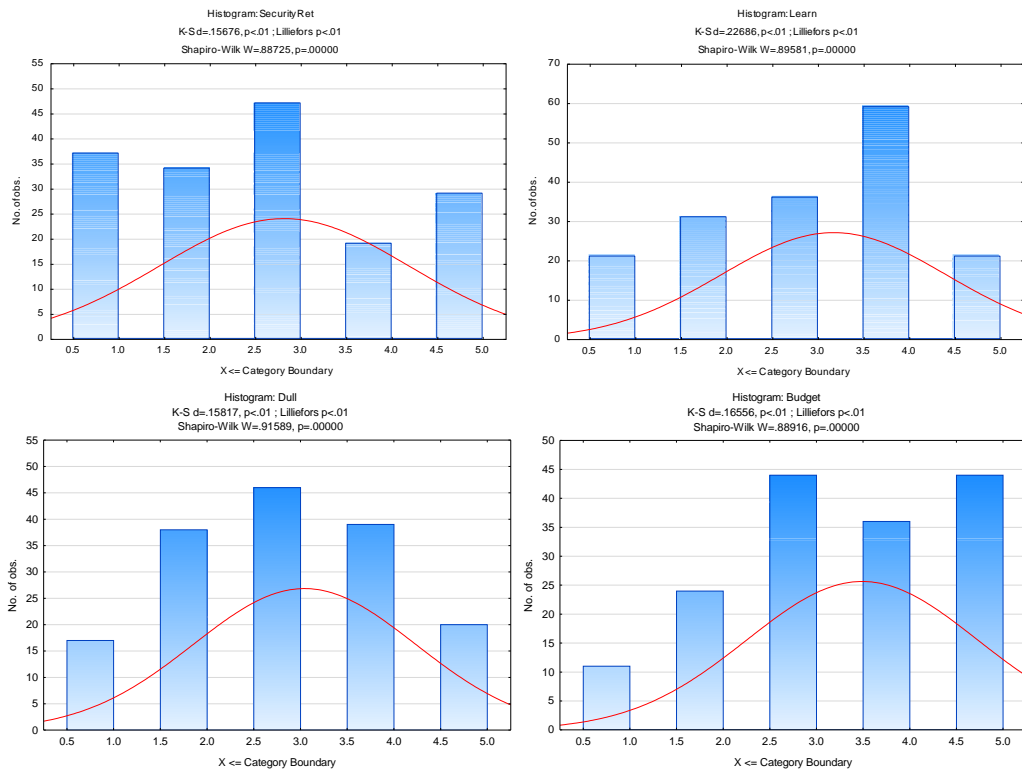


Figure D-4: Histogram per morale factor (continued)

Appendix D.5. Spearman Correlation Coefficient

Table D-6: Spearman correlation coefficient

	Morale	SatisfactionJob	Satisfaction Organisation	Emp Engagement	TurnO	MoraleHW	Growth	Expect VsActual	Manager HardSkill	Manager SoftSkill	Manager Values	Organisation	Pressure	Remuneration	SkillLevel	TeamUnity	Challenge	Security	SecurityRet	Learn	Dull	Budget
Morale	1.0	0.7	0.5	0.8	-0.3	0.3	0.3	0.1	0.5	0.3	0.5	0.4	0.0	0.0	0.5	0.4	0.4	0.4	0.0	0.2	0.4	0.1
SatisfactionJob	0.7	1.0	0.5	0.3	-0.3	0.1	0.4	0.3	0.5	0.4	0.5	0.5	-0.1	0.3	0.3	0.3	0.2	0.3	0.1	0.2	0.3	0.0
SatisfactionOrganisation	0.5	0.5	1.0	0.2	-0.3	0.0	0.3	0.3	0.4	0.4	0.4	0.4	-0.2	0.3	0.0	0.2	0.2	0.2	0.1	0.2	0.2	-0.1
EmpEngagement	0.8	0.3	0.2	1.0	-0.2	0.4	0.1	-0.2	0.2	0.1	0.2	0.2	0.1	-0.2	0.6	0.3	0.4	0.4	0.0	0.1	0.3	0.1
TurnO	-0.3	-0.3	-0.3	-0.2	1.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.2	-0.3	0.3	-0.2	0.1	-0.1	-0.2	-0.1	-0.3	0.0	-0.3	0.0
MoraleHW	0.3	0.1	0.0	0.4	0.0	1.0	0.1	-0.2	0.0	0.0	0.1	0.2	0.2	-0.1	0.2	0.2	0.3	0.2	-0.1	0.1	0.1	-0.1
Growth	0.3	0.4	0.3	0.1	-0.1	0.1	1.0	0.6	0.5	0.5	0.6	0.6	0.0	0.2	0.1	0.2	0.1	0.3	0.1	0.2	0.1	-0.1
ExpectVsActual	0.1	0.3	0.3	-0.2	-0.1	-0.2	0.6	1.0	0.3	0.3	0.3	0.3	-0.2	0.3	-0.1	0.1	0.0	0.2	0.1	0.1	0.1	-0.1
Manager_HardSkill	0.5	0.5	0.4	0.2	-0.2	0.0	0.5	0.3	1.0	0.8	0.9	0.5	-0.1	0.2	0.2	0.2	0.1	0.4	0.2	0.3	0.1	0.0
Manager_SoftSkill	0.3	0.4	0.4	0.1	-0.1	0.0	0.5	0.3	0.8	1.0	0.8	0.5	-0.1	0.4	0.1	0.2	0.0	0.3	0.2	0.2	0.1	0.1
Manager_Values	0.5	0.5	0.4	0.2	-0.2	0.1	0.6	0.3	0.9	0.8	1.0	0.5	-0.1	0.2	0.2	0.3	0.1	0.4	0.2	0.2	0.1	0.0
Organisation	0.4	0.5	0.4	0.2	-0.3	0.2	0.6	0.3	0.5	0.5	0.5	1.0	-0.1	0.4	0.1	0.2	0.2	0.3	0.2	0.2	0.2	-0.1
Pressure	0.0	-0.1	-0.2	0.1	0.3	0.2	0.0	-0.2	-0.1	-0.1	-0.1	-0.1	1.0	-0.3	0.4	0.1	0.1	0.0	-0.2	0.0	0.0	0.0
Remuneration	0.0	0.3	0.3	-0.2	-0.2	-0.1	0.2	0.3	0.2	0.4	0.2	0.4	-0.3	1.0	-0.1	0.0	-0.1	0.0	0.2	0.0	0.1	0.0
SkillLevel	0.5	0.3	0.0	0.6	0.1	0.2	0.1	-0.1	0.2	0.1	0.2	0.1	0.4	-0.1	1.0	0.2	0.3	0.2	0.0	0.1	0.2	0.1
TeamUnity	0.4	0.3	0.2	0.3	-0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.0	0.2	1.0	0.3	0.4	-0.1	0.2	0.1	-0.1
Challenge	0.4	0.2	0.2	0.4	-0.2	0.3	0.1	0.0	0.1	0.0	0.1	0.2	0.1	-0.1	0.3	0.3	1.0	0.1	0.0	0.1	0.2	0.0
Security	0.4	0.3	0.2	0.4	-0.1	0.2	0.3	0.2	0.4	0.3	0.4	0.3	0.0	0.0	0.2	0.4	0.1	1.0	0.1	0.2	0.0	0.1
SecurityRet	0.0	0.1	0.1	0.0	-0.3	-0.1	0.1	0.1	0.2	0.2	0.2	0.2	-0.2	0.2	0.0	-0.1	0.0	0.1	1.0	-0.1	0.0	-0.1
Learn	0.2	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.0	0.0	0.1	0.2	0.1	0.2	-0.1	1.0	0.1	0.2
Dull	0.4	0.3	0.2	0.3	-0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.1	1.0	0.0
Budget	0.1	0.0	-0.1	0.1	0.0	-0.1	-0.1	-0.1	0.0	0.1	0.0	-0.1	0.0	0.0	0.1	-0.1	0.0	0.1	-0.1	0.2	0.0	1.0

Appendix D.6. Regression Analysis per Organisation

Table D-7: Regression analysis for Organisation A

Component	R ² X	R ² X(Cumul.)	Eigenvalues	R ² Y	R ² Y(Cumul.)	Q ²	Limit	Q ² (Cumul.)	Significance	Iterations
1	0.198	0.198	2.940	0.571	0.571	0.407	0.000	0.407	S	1.000
2	0.163	0.361	2.072	0.075	0.647	-0.034	0.000	0.387	S	1.000
3	0.081	0.441	1.118	0.036	0.683	-0.105	0.000	0.323	NS	1.000

Table D-8: Regression analysis for Organisation B

Component	R ² X	R ² X(Cumul.)	Eigenvalues	R ² Y	R ² Y(Cumul.)	Q ²	Limit	Q ² (Cumul.)	Significance	Iterations
1	0.292	0.292	4.007	0.515	0.515	0.309	0.000	0.309	S	1.000
2	0.141	0.432	2.037	0.154	0.670	0.160	0.000	0.419	S	1.000
3	0.085	0.517	1.127	0.027	0.697	-0.158	0.000	0.327	NS	1.000

Table D-9: Regression analysis for Organisation C

Component	R ² X	R ² X(Cumul.)	Eigenvalues	R ² Y	R ² Y(Cumul.)	Q ²	Limit	Q ² (Cumul.)	Significance	Iterations
1	0.276	0.276	4.232	0.717	0.717	0.553	0.000	0.553	S	1.000
2	0.121	0.397	1.495	0.119	0.835	-0.139	0.000	0.491	S	1.000
3	0.094	0.491	1.320	0.046	0.881	-0.231	0.000	0.373	NS	1.000

Table D-10: Regression analysis per organisation

Variable	Power			Importance		
	Organisation A	Organisation B	Organisation C	Organisation A	Organisation B	Organisation C
Growth	0.968	0.872	0.606	7	9	14
ExpectVsActual	0.565	0.710	0.980	15	11	8
Manager_HardSkill	0.957	1.248	1.465	8	6	1
Manager_SoftSkill	0.838	1.001	1.141	10	8	7
Manager_Values	0.986	1.275	1.392	6	5	3
Organisation	0.765	1.528	1.158	13	1	6
Pressure	1.081	0.451	0.195	5	14	16
Remuneration	0.793	0.533	0.703	12	13	11
SkillLevel	1.878	1.364	1.443	1	3	2
TeamUnity	1.326	1.102	1.166	2	7	5
Challenge	1.101	1.379	0.809	4	2	10
Security	1.129	1.310	0.964	3	4	9
SecurityRet	0.365	0.236	0.378	16	16	15
Learn	0.664	0.635	1.168	14	12	4
Dull	0.810	0.717	0.677	11	10	12
Budget	0.878	0.250	0.650	9	15	13

Appendix D.7. Factor Analysis

Morale Score, Morale Measure, Results and Factors Factor Analysis

Table D-11: Morale score, morale measure, results and factors factor analysis loadings

Variable	Factor	Factor	Factor	Factor	Factor
Morale	0.265	0.782	0.470	0.083	0.053
SatisfactionJob	0.378	0.268	0.639	0.094	0.080
SatisfactionOrganisation	0.364	-0.046	0.515	-0.226	-0.021
EmpEngagement	0.086	0.891	0.205	0.099	-0.006
TurnO	-0.194	-0.005	-0.534	0.150	0.487
MoraleHW	-0.006	0.659	-0.119	-0.142	-0.094
Growth	0.703	0.053	0.178	-0.305	0.206
ExpectVsActual	0.496	-0.307	0.283	-0.430	0.280
Manager_HardSkill	0.863	0.192	0.092	0.113	-0.126
Manager_SoftSkill	0.874	0.056	0.075	0.081	0.071
Manager_Values	0.890	0.204	0.090	0.085	-0.039
Organisation	0.609	0.171	0.371	-0.235	-0.076
Pressure	-0.006	0.375	-0.261	0.265	0.404
Remuneration	0.479	-0.379	0.356	0.025	-0.100
SkillLevel	0.116	0.685	0.061	0.244	0.179
TeamUnity	0.093	0.519	-0.008	-0.466	0.258
Challenge	0.053	0.466	0.361	-0.219	0.140
Security	0.407	0.451	-0.176	-0.276	0.088
SecurityRet	0.421	-0.031	-0.027	-0.040	-0.569
Learn	0.199	0.080	0.030	0.019	0.563
Dull	-0.030	0.056	0.696	0.138	-0.012
Budget	0.059	0.013	0.062	0.651	0.289
Expl.Var	4.443	3.575	2.358	1.395	1.429
Prp.Totl	0.202	0.163	0.107	0.063	0.065

Morale Score and Factors Factor Analysis

Table D-12: Morale score and factors factor analysis loadings

Variable	Factor	Factor	Factor	Factor
Morale	0.274	0.789	0.064	-0.170
Growth	0.759	0.180	0.142	0.119
ExpectVsActual	0.619	-0.052	0.071	0.327
Manager_HardSkill	0.808	0.166	0.117	-0.276
Manager_SoftSkill	0.804	0.107	0.139	-0.292
Manager_Values	0.817	0.209	0.175	-0.283
Organisation	0.707	0.278	-0.005	0.104
Pressure	-0.230	0.412	0.156	-0.364
Remuneration	0.626	-0.197	-0.339	0.066
SkillLevel	-0.015	0.738	0.075	-0.259
TeamUnity	0.052	0.538	0.510	0.259
Challenge	0.123	0.664	-0.056	0.157
Security	0.277	0.266	0.676	-0.047
SecurityRet	0.431	-0.074	-0.096	0.152
Learn	0.124	0.087	0.277	-0.376
Dull	0.190	0.415	-0.668	0.071
Budget	-0.045	-0.010	-0.102	-0.729
Expl.Var	4.281	2.557	1.500	1.401
Prp.Totl	0.252	0.150	0.088	0.082

Appendix D.8. Analysis of Variance

ANOVA Factors to Improve Feeling Towards Work

Table D-13: Evaluate the variance between improved feeling and morale score

	MS Effect	MS Error	F	p		N	Mean	Std. Dev	Std. Err	-95%	95%
Feeling_Improve_Team	0.02	0.16	0.14	0.71	Total	180	3.60	0.60	0.05	3.51	3.69
					No	92	3.60	0.56	0.06	3.48	3.71
					Yes	88	3.60	0.65	0.07	3.46	3.73
Feeling_Improve_Capital	0.35	0.16	2.20	0.14	Total	180	3.60	0.60	0.05	3.51	3.69
					No	159	3.60	0.58	0.05	3.51	3.69
					Yes	21	3.58	0.80	0.17	3.22	3.94
Feeling_Improve_Manager	0.03	0.16	0.18	0.67	Total	180	3.60	0.60	0.05	3.51	3.69
					No	137	3.62	0.58	0.05	3.52	3.72
					Yes	43	3.51	0.68	0.10	3.30	3.72
Feeling_Improve_Training	0.02	0.16	0.10	0.75	Total	180	3.60	0.60	0.05	3.51	3.69
					No	110	3.59	0.59	0.06	3.48	3.71
					Yes	70	3.60	0.62	0.07	3.45	3.75
Feeling_Improve_Benefits	0.13	0.16	0.79	0.38	Total	180	3.60	0.60	0.05	3.51	3.69
					No	97	3.55	0.63	0.06	3.43	3.68
					Yes	83	3.64	0.57	0.06	3.52	3.77
Feeling_Environment	0.04	0.16	0.27	0.60	Total	180	3.60	0.60	0.05	3.51	3.69
					No	157	3.60	0.58	0.05	3.50	3.69
					Yes	23	3.60	0.74	0.15	3.28	3.92
Feeling_Improve_Value	0.14	0.16	0.88	0.35	Total	180	3.60	0.60	0.05	3.51	3.69
					No	140	3.58	0.62	0.05	3.47	3.68
					Yes	40	3.67	0.53	0.08	3.50	3.84
Feeling_Improve_Spares	0.52	0.16	3.23	0.07	Total	180	3.60	0.60	0.05	3.51	3.69
					No	73	3.56	0.50	0.06	3.45	3.68
					Yes	107	3.62	0.67	0.06	3.49	3.75
Feeling_Improve_Pressure	0.85	0.15	5.57	0.02	Total	180	3.60	0.60	0.05	3.51	3.69
					No	155	3.62	0.56	0.05	3.53	3.71
					Yes	25	3.43	0.81	0.16	3.09	3.76
Feeling_Improve_Policies	0.00	0.16	0.01	0.92	Total	180	3.60	0.60	0.05	3.51	3.69
					No	22	3.43	0.60	0.13	3.16	3.69
					Yes	158	3.62	0.60	0.05	3.52	3.71
Feeling_Improve_Tools	0.00	0.16	0.00	0.98	Total	180	3.60	0.60	0.05	3.51	3.69
					No	75	3.50	0.62	0.07	3.36	3.64
					Yes	105	3.66	0.58	0.06	3.55	3.78

Table D-14: Evaluate the variance between improved feeling and job satisfaction

	MS Effect	MS Error	F	p		N	Mean	Std. Dev	Std.Err	-95%	95%
Feeling_Improve_Team	0.93	0.28	3.35	0.07	Total	178	3.12	1.01	0.08	2.97	3.27
					No	92	3.12	0.93	0.10	2.93	3.31
					Yes	86	3.12	1.10	0.12	2.88	3.35
Feeling_Improve_Capital	0.86	0.28	3.12	0.08	Total	178	3.12	1.01	0.08	2.97	3.27
					No	157	3.11	0.99	0.08	2.95	3.27
					Yes	21	3.20	1.20	0.26	2.65	3.74
Feeling_Improve_Manager	0.02	0.28	0.09	0.77	Total	178	3.12	1.01	0.08	2.97	3.27
					No	136	3.17	1.01	0.09	3.00	3.34
					Yes	42	2.96	1.02	0.16	2.64	3.28
Feeling_Improve_Training	0.07	0.28	0.25	0.62	Total	178	3.12	1.01	0.08	2.97	3.27
					No	108	3.10	1.00	0.10	2.91	3.29
					Yes	70	3.15	1.03	0.12	2.91	3.40
Feeling_Improve_Benefits	0.01	0.29	0.05	0.83	Total	178	3.12	1.01	0.08	2.97	3.27
					No	96	3.22	1.01	0.10	3.01	3.43
					Yes	82	3.00	1.00	0.11	2.78	3.22
Feeling_Enviroment	0.00	0.28	0.01	0.93	Total	178	3.12	1.01	0.08	2.97	3.27
					No	155	3.10	1.02	0.08	2.94	3.27
					Yes	23	3.23	0.98	0.20	2.81	3.66
Feeling_Improve_Value	0.14	0.29	0.47	0.49	Total	178	3.12	1.01	0.08	2.97	3.27
					No	138	3.16	1.02	0.09	2.99	3.33
					Yes	40	2.98	0.96	0.15	2.68	3.29
Feeling_Improve_Spares	0.38	0.28	1.33	0.25	Total	178	3.12	1.01	0.08	2.97	3.27
					No	72	3.07	0.95	0.11	2.85	3.29
					Yes	106	3.15	1.05	0.10	2.95	3.36
Feeling_Improve_Pressure	1.45	0.27	5.31	0.02	Total	178	3.12	1.01	0.08	2.97	3.27
					No	153	3.13	0.98	0.08	2.98	3.29
					Yes	25	3.04	1.19	0.24	2.55	3.53
Feeling_Improve_Poliies	0.53	0.28	1.87	0.17	Total	178	3.12	1.01	0.08	2.97	3.27
					No	20	3.33	0.82	0.18	2.95	3.72
					Yes	158	3.09	1.03	0.08	2.93	3.26
Feeling_Improve_Tools	0.70	0.28	2.49	0.12	Total	178	3.12	1.01	0.08	2.97	3.27
					No	74	3.00	1.09	0.13	2.75	3.25
					Yes	104	3.21	0.95	0.09	3.02	3.39

Table D-15: Evaluate the variance between improved feeling and organisational satisfaction

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std.Err	-95%	95%
Feeling_Improve_Team	0.02	0.45	0.04	0.84	Total	169	2.90	1.12	0.09	2.73	3.07
					No	86	2.78	1.09	0.12	2.55	3.01
					Yes	83	3.02	1.15	0.13	2.77	3.27
Feeling_Improve_Capital	0.11	0.46	0.25	0.62	Total	169	2.90	1.12	0.09	2.73	3.07
					No	149	2.89	1.11	0.09	2.71	3.07
					Yes	20	2.95	1.23	0.28	2.37	3.53
Feeling_Improve_Manager	0.02	0.47	0.05	0.83	Total	169	2.90	1.12	0.09	2.73	3.07
					No	128	2.97	1.14	0.10	2.77	3.17
					Yes	41	2.68	1.06	0.17	2.35	3.02
Feeling_Improve_Training	0.19	0.46	0.40	0.53	Total	169	2.90	1.12	0.09	2.73	3.07
					No	101	2.87	1.11	0.11	2.65	3.09
					Yes	68	2.94	1.14	0.14	2.66	3.22
Feeling_Improve_Benefits	0.60	0.46	1.30	0.26	Total	169	2.90	1.12	0.09	2.73	3.07
					No	89	2.93	1.07	0.11	2.71	3.16
					Yes	80	2.86	1.18	0.13	2.60	3.12
Feeling_Environment	0.18	0.46	0.40	0.53	Total	169	2.90	1.12	0.09	2.73	3.07
					No	150	2.88	1.14	0.09	2.70	3.06
					Yes	19	3.05	0.97	0.22	2.58	3.52
Feeling_Improve_Value	1.20	0.45	2.64	0.11	Total	169	2.90	1.12	0.09	2.73	3.07
					No	131	2.94	1.17	0.10	2.74	3.14
					Yes	38	2.76	0.94	0.15	2.45	3.07
Feeling_Improve_Spares	0.75	0.43	1.75	0.19	Total	169	2.90	1.12	0.09	2.73	3.07
					No	71	2.66	1.13	0.13	2.39	2.93
					Yes	98	3.07	1.09	0.11	2.85	3.29
Feeling_Improve_Pressure	0.43	0.48	0.89	0.35	Total	169	2.90	1.12	0.09	2.73	3.07
					No	145	2.94	1.11	0.09	2.76	3.12
					Yes	24	2.67	1.20	0.25	2.16	3.18
Feeling_Improve_Policies	0.10	0.46	0.22	0.64	Total	169	2.90	1.12	0.09	2.73	3.07
					No	21	2.67	1.02	0.22	2.20	3.13
					Yes	148	2.93	1.13	0.09	2.75	3.12
Feeling_Improve_Tools	2.17	0.45	4.87	0.03	Total	169	2.90	1.12	0.09	2.73	3.07
					No	70	2.70	1.20	0.14	2.41	2.99
					Yes	99	3.04	1.05	0.11	2.83	3.25

Table D-16: Evaluate the variance between improved feeling and employee engagement

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std.Err	-95%	95%
Feeling_Improve_Team	0.05	0.21	0.22	0.64	Total	180	3.80	0.65	0.05	3.71	3.90
					No	92	3.82	0.57	0.06	3.70	3.93
					Yes	88	3.79	0.73	0.08	3.63	3.94
Feeling_Improve_Capital	0.14	0.22	0.63	0.43	Total	180	3.80	0.65	0.05	3.71	3.90
					No	159	3.81	0.64	0.05	3.71	3.91
					Yes	21	3.75	0.80	0.17	3.39	4.12
Feeling_Improve_Manager	0.17	0.21	0.78	0.38	Total	180	3.80	0.65	0.05	3.71	3.90
					No	137	3.82	0.63	0.05	3.71	3.92
					Yes	43	3.76	0.73	0.11	3.53	3.98
Feeling_Improve_Training	0.22	0.22	1.01	0.32	Total	180	3.80	0.65	0.05	3.71	3.90
					No	110	3.80	0.68	0.07	3.67	3.93
					Yes	70	3.80	0.61	0.07	3.65	3.94
Feeling_Improve_Benefits	0.21	0.22	0.98	0.32	Total	180	3.80	0.65	0.05	3.71	3.90
					No	97	3.71	0.69	0.07	3.57	3.85
					Yes	83	3.91	0.60	0.07	3.78	4.04
Feeling_Enviroment	0.06	0.22	0.26	0.61	Total	180	3.80	0.65	0.05	3.71	3.90
					No	157	3.80	0.63	0.05	3.71	3.90
					Yes	23	3.78	0.80	0.17	3.43	4.13
Feeling_Improve_Value	0.07	0.21	0.32	0.57	Total	180	3.80	0.65	0.05	3.71	3.90
					No	140	3.76	0.67	0.06	3.65	3.87
					Yes	40	3.95	0.56	0.09	3.77	4.13
Feeling_Improve_Spares	0.76	0.21	3.57	0.06	Total	180	3.80	0.65	0.05	3.71	3.90
					No	73	3.79	0.52	0.06	3.67	3.91
					Yes	107	3.81	0.73	0.07	3.67	3.95
Feeling_Improve_Pressure	0.48	0.21	2.30	0.13	Total	180	3.80	0.65	0.05	3.71	3.90
					No	155	3.83	0.62	0.05	3.73	3.93
					Yes	25	3.62	0.81	0.16	3.29	3.96
Feeling_Improve_Policies	0.00	0.21	0.02	0.90	Total	180	3.80	0.65	0.05	3.71	3.90
					No	22	3.53	0.64	0.14	3.25	3.82
					Yes	158	3.84	0.65	0.05	3.74	3.94
Feeling_Improve_Tools	0.00	0.21	0.00	0.95	Total	180	3.80	0.65	0.05	3.71	3.90
					No	75	3.71	0.67	0.08	3.56	3.87
					Yes	105	3.87	0.64	0.06	3.74	3.99

Table D-17: Evaluate the variance between improved feeling and staff turn over

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std.Err	-95%	95%
Feeling_Improve_Team	0.18	0.22	0.83	0.36	Total	180	2.84	0.78	0.06	2.72	2.95
					No	92	2.84	0.75	0.08	2.69	3.00
					Yes	88	2.83	0.81	0.09	2.66	3.00
Feeling_Improve_Capital	0.03	0.22	0.15	0.69	Total	180	2.84	0.78	0.06	2.72	2.95
					No	159	2.86	0.78	0.06	2.74	2.98
					Yes	21	2.67	0.79	0.17	2.30	3.03
Feeling_Improve_Manager	0.01	0.22	0.07	0.80	Total	180	2.84	0.78	0.06	2.72	2.95
					No	137	2.86	0.78	0.07	2.73	2.99
					Yes	43	2.77	0.78	0.12	2.53	3.01
Feeling_Improve_Training	0.11	0.22	0.50	0.48	Total	180	2.84	0.78	0.06	2.72	2.95
					No	110	2.81	0.82	0.08	2.65	2.96
					Yes	70	2.88	0.71	0.09	2.71	3.05
Feeling_Improve_Benefits	0.01	0.22	0.05	0.82	Total	180	2.84	0.78	0.06	2.72	2.95
					No	97	2.85	0.77	0.08	2.70	3.01
					Yes	83	2.82	0.79	0.09	2.64	2.99
Feeling_Enviroment	1.14	0.21	5.35	0.02	Total	180	2.84	0.78	0.06	2.72	2.95
					No	157	2.86	0.81	0.06	2.73	2.99
					Yes	23	2.66	0.55	0.12	2.42	2.90
Feeling_Improve_Value	0.00	0.22	0.01	0.92	Total	180	2.84	0.78	0.06	2.72	2.95
					No	140	2.86	0.78	0.07	2.73	2.99
					Yes	40	2.75	0.77	0.12	2.51	3.00
Feeling_Improve_Spares	0.06	0.21	0.27	0.61	Total	180	2.84	0.78	0.06	2.72	2.95
					No	73	2.97	0.73	0.09	2.80	3.14
					Yes	107	2.74	0.80	0.08	2.59	2.90
Feeling_Improve_Pressure	0.13	0.22	0.60	0.44	Total	180	2.84	0.78	0.06	2.72	2.95
					No	155	2.87	0.78	0.06	2.75	3.00
					Yes	25	2.60	0.73	0.15	2.30	2.90
Feeling_Improve_Policies	0.00	0.22	0.00	0.98	Total	180	2.84	0.78	0.06	2.72	2.95
					No	22	3.05	0.81	0.17	2.70	3.41
					Yes	158	2.81	0.77	0.06	2.68	2.93
Feeling_Improve_Tools	0.00	0.21	0.01	0.91	Total	180	2.84	0.78	0.06	2.72	2.95
					No	75	3.03	0.77	0.09	2.85	3.20
					Yes	105	2.70	0.76	0.07	2.55	2.85

Table D-18: Evaluate the variance between improved feeling and hard work

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std.Err	-95%	95%
Feeling_Improve_Team	0.02	0.61	0.03	0.87	Total	176	3.89	1.15	0.09	3.72	4.06
					No	91	3.95	1.15	0.12	3.71	4.18
					Yes	85	3.82	1.16	0.13	3.57	4.07
Feeling_Improve_Capital	0.00	0.61	0.00	0.96	Total	176	3.89	1.15	0.09	3.72	4.06
					No	155	3.92	1.15	0.09	3.74	4.11
					Yes	21	3.62	1.12	0.24	3.11	4.13
Feeling_Improve_Manager	0.00	0.62	0.01	0.93	Total	176	3.89	1.15	0.09	3.72	4.06
					No	135	3.85	1.14	0.10	3.66	4.05
					Yes	41	4.00	1.18	0.18	3.63	4.37
Feeling_Improve_Training	0.03	0.62	0.04	0.84	Total	176	3.89	1.15	0.09	3.72	4.06
					No	109	3.87	1.13	0.11	3.66	4.09
					Yes	67	3.91	1.19	0.15	3.62	4.20
Feeling_Improve_Benefits	1.63	0.61	2.69	0.10	Total	176	3.89	1.15	0.09	3.72	4.06
					No	93	3.89	1.09	0.11	3.67	4.12
					Yes	83	3.88	1.22	0.13	3.61	4.15
Feeling_Envirement	0.97	0.61	1.60	0.21	Total	176	3.89	1.15	0.09	3.72	4.06
					No	154	3.90	1.18	0.09	3.71	4.08
					Yes	22	3.82	0.96	0.20	3.39	4.24
Feeling_Improve_Value	4.81	0.58	8.25	0.00	Total	176	3.89	1.15	0.09	3.72	4.06
					No	136	3.85	1.22	0.10	3.64	4.05
					Yes	40	4.03	0.86	0.14	3.75	4.30
Feeling_Improve_Spares	0.78	0.61	1.27	0.26	Total	176	3.89	1.15	0.09	3.72	4.06
					No	71	3.99	1.11	0.13	3.72	4.25
					Yes	105	3.82	1.17	0.11	3.59	4.05
Feeling_Improve_Pressure	0.43	0.61	0.71	0.40	Total	176	3.89	1.15	0.09	3.72	4.06
					No	151	3.89	1.13	0.09	3.71	4.08
					Yes	25	3.84	1.28	0.26	3.31	4.37
Feeling_Improve_Policies	0.52	0.61	0.84	0.36	Total	176	3.89	1.15	0.09	3.72	4.06
					No	21	3.86	1.01	0.22	3.40	4.32
					Yes	155	3.89	1.17	0.09	3.70	4.08
Feeling_Improve_Tools	0.03	0.62	0.05	0.82	Total	176	3.89	1.15	0.09	3.72	4.06
					No	74	3.88	1.16	0.13	3.61	4.15
					Yes	102	3.89	1.15	0.11	3.67	4.12

ANOVA for Factors to Encourage Employees to Work Harder

Table D-19: Evaluate the variance between working harder and morale

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_ Improve_ Salary	0.01	0.16	0.05	0.82	Total	180	3.60	0.60	0.05	3.51	3.69
					No	85	3.62	0.62	0.07	3.49	3.75
					Yes	95	3.57	0.59	0.06	3.45	3.70
HardWork_ Improve_ Development	0.22	0.16	1.33	0.25	Total	180	3.60	0.60	0.05	3.51	3.69
					No	104	3.57	0.55	0.05	3.47	3.68
					Yes	76	3.63	0.68	0.08	3.47	3.78
HardWork_ Improve_ Team	0.07	0.16	0.43	0.51	Total	180	3.60	0.60	0.05	3.51	3.69
					No	140	3.62	0.58	0.05	3.52	3.71
					Yes	40	3.52	0.68	0.11	3.31	3.74
HardWork_ Improve_ Tools	0.21	0.15	1.39	0.24	Total	180	3.60	0.60	0.05	3.51	3.69
					No	47	3.39	0.69	0.10	3.19	3.59
					Yes	133	3.67	0.56	0.05	3.57	3.76
HardWork_ Improve_ Salary	0.00	0.16	0.00	0.98	Total	180	3.60	0.60	0.05	3.51	3.69
					No	123	3.60	0.61	0.05	3.49	3.70
					Yes	57	3.60	0.61	0.08	3.44	3.76
HardWork_ Improve_ Manager	0.03	0.16	0.18	0.67	Total	180	3.60	0.60	0.05	3.51	3.69
					No	141	3.66	0.58	0.05	3.56	3.76
					Yes	39	3.37	0.62	0.10	3.17	3.57
HardWork_ Improve_ Input	0.10	0.16	0.61	0.44	Total	180	3.60	0.60	0.05	3.51	3.69
					No	155	3.57	0.61	0.05	3.48	3.67
					Yes	25	3.74	0.55	0.11	3.51	3.96
HardWork_ Improve_ Training	0.01	0.16	0.07	0.79	Total	180	3.60	0.60	0.05	3.51	3.69
					No	150	3.59	0.62	0.05	3.49	3.69
					Yes	30	3.63	0.54	0.10	3.42	3.83
HardWork_ Improve_ Training Dev	0.20	0.16	1.27	0.26	Total	180	3.60	0.60	0.05	3.51	3.69
					No	118	3.63	0.54	0.05	3.53	3.73
					Yes	62	3.53	0.71	0.09	3.35	3.71
HardWork_ Improve_ Recognition	0.65	0.15	4.40	0.04	Total	180	3.60	0.60	0.05	3.51	3.69
					No	42	3.45	0.77	0.12	3.21	3.69
					Yes	138	3.64	0.54	0.05	3.55	3.73
HardWork_ Improve_ Leaders	0.07	0.15	0.46	0.50	Total	180	3.60	0.60	0.05	3.51	3.69
					No	142	3.64	0.57	0.05	3.55	3.74
					Yes	38	3.42	0.70	0.11	3.19	3.65
HardWork_ Improve_ Spares	0.01	0.16	0.04	0.84	Total	180	3.60	0.60	0.05	3.51	3.69
					No	137	3.64	0.58	0.05	3.54	3.74
					Yes	43	3.46	0.65	0.10	3.26	3.66

Table D-20: Evaluate the variance between working harder and job satisfaction

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_Improve_Salary	1.33	0.27	4.88	0.03	Total	178	3.12	1.01	0.08	2.97	3.27
					No	85	3.04	1.09	0.12	2.81	3.28
					Yes	93	3.19	0.93	0.10	3.00	3.38
HardWork_Improve_Development	0.36	0.30	1.22	0.27	Total	178	3.12	1.01	0.08	2.97	3.27
					No	103	3.00	0.95	0.09	2.82	3.19
					Yes	75	3.28	1.08	0.12	3.03	3.53
HardWork_Improve_Team	0.05	0.28	0.16	0.69	Total	178	3.12	1.01	0.08	2.97	3.27
					No	138	3.13	1.00	0.08	2.97	3.30
					Yes	40	3.08	1.07	0.17	2.73	3.42
HardWork_Improve_Tools	0.05	0.27	0.21	0.65	Total	178	3.12	1.01	0.08	2.97	3.27
					No	46	2.87	1.03	0.15	2.57	3.18
					Yes	132	3.21	0.99	0.09	3.04	3.38
HardWork_Improve_Salary	0.64	0.28	2.31	0.13	Total	178	3.12	1.01	0.08	2.97	3.27
					No	121	3.15	0.98	0.09	2.97	3.32
					Yes	57	3.06	1.09	0.14	2.77	3.35
HardWork_Improve_Manager	0.01	0.29	0.02	0.88	Total	178	3.12	1.01	0.08	2.97	3.27
					No	140	3.21	1.00	0.08	3.05	3.38
					Yes	38	2.78	1.00	0.16	2.45	3.11
HardWork_Improve_Input	0.31	0.28	1.11	0.29	Total	178	3.12	1.01	0.08	2.97	3.27
					No	153	3.10	0.99	0.08	2.95	3.26
					Yes	25	3.22	1.14	0.23	2.75	3.69
HardWork_Improve_Training	0.06	0.28	0.21	0.65	Total	178	3.12	1.01	0.08	2.97	3.27
					No	148	3.07	1.01	0.08	2.91	3.24
					Yes	30	3.35	0.99	0.18	2.98	3.72
HardWork_Improve_Training Dev	0.60	0.28	2.12	0.15	Total	178	3.12	1.01	0.08	2.97	3.27
					No	116	3.21	0.95	0.09	3.04	3.39
					Yes	62	2.95	1.10	0.14	2.67	3.23
HardWork_Improve_Recognition	0.36	0.28	1.27	0.26	Total	178	3.12	1.01	0.08	2.97	3.27
					No	40	3.15	1.09	0.17	2.81	3.50
					Yes	138	3.11	0.99	0.08	2.94	3.28
HardWork_Improve_Leaders	0.38	0.27	1.38	0.24	Total	178	3.12	1.01	0.08	2.97	3.27
					No	141	3.18	0.98	0.08	3.02	3.34
					Yes	37	2.90	1.09	0.18	2.53	3.26
HardWork_Improve_Spares	0.22	0.28	0.78	0.38	Total	178	3.12	1.01	0.08	2.97	3.27
					No	136	3.18	1.03	0.09	3.00	3.35
					Yes	42	2.93	0.94	0.14	2.64	3.22

Table D-21: Evaluate the variance between working harder and organisational satisfaction

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_Improve_Salary	1.48	0.46	3.24	0.07	Total	169	2.90	1.12	0.09	2.73	3.07
					No	81	2.90	1.21	0.13	2.63	3.17
					Yes	88	2.90	1.04	0.11	2.68	3.12
HardWork_Improve_Development	0.33	0.44	0.75	0.39	Total	169	2.90	1.12	0.09	2.73	3.07
					No	94	2.78	1.14	0.12	2.54	3.01
					Yes	75	3.05	1.09	0.13	2.80	3.30
HardWork_Improve_Team	0.34	0.47	0.73	0.40	Total	169	2.90	1.12	0.09	2.73	3.07
					No	132	2.96	1.11	0.10	2.77	3.15
					Yes	37	2.68	1.16	0.19	2.29	3.06
HardWork_Improve_Tools	0.01	0.47	0.02	0.89	Total	169	2.90	1.12	0.09	2.73	3.07
					No	45	2.76	1.07	0.16	2.43	3.08
					Yes	124	2.95	1.14	0.10	2.75	3.15
HardWork_Improve_Salary	0.65	0.46	1.40	0.24	Total	169	2.90	1.12	0.09	2.73	3.07
					No	115	2.91	1.07	0.10	2.71	3.11
					Yes	54	2.87	1.23	0.17	2.53	3.21
HardWork_Improve_Manager	0.35	0.47	0.75	0.39	Total	169	2.90	1.12	0.09	2.73	3.07
					No	132	2.99	1.10	0.10	2.80	3.18
					Yes	37	2.57	1.14	0.19	2.19	2.95
HardWork_Improve_Input	2.23	0.48	4.70	0.03	Total	169	2.90	1.12	0.09	2.73	3.07
					No	146	2.97	1.07	0.09	2.79	3.14
					Yes	23	2.48	1.34	0.28	1.90	3.06
HardWork_Improve_Training	0.01	0.47	0.02	0.90	Total	169	2.90	1.12	0.09	2.73	3.07
					No	141	2.94	1.14	0.10	2.75	3.13
					Yes	28	2.71	1.05	0.20	2.31	3.12
HardWork_Improve_Training Dev	0.92	0.46	2.00	0.16	Total	169	2.90	1.12	0.09	2.73	3.07
					No	111	2.90	1.08	0.10	2.70	3.10
					Yes	58	2.90	1.21	0.16	2.58	3.21
HardWork_Improve_Recognition	0.02	0.46	0.04	0.84	Total	169	2.90	1.12	0.09	2.73	3.07
					No	41	2.83	1.14	0.18	2.47	3.19
					Yes	128	2.92	1.12	0.10	2.73	3.12
HardWork_Improve_Leaders	0.24	0.47	0.52	0.47	Total	169	2.90	1.12	0.09	2.73	3.07
					No	134	2.95	1.12	0.10	2.76	3.14
					Yes	35	2.71	1.13	0.19	2.33	3.10
HardWork_Improve_Spares	0.16	0.48	0.33	0.57	Total	169	2.90	1.12	0.09	2.73	3.07
					No	129	2.99	1.12	0.10	2.80	3.19
					Yes	42	2.93	0.94	0.14	2.64	3.22

Table D-22: Evaluate the variance between working harder and employee engagement

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_Improve_Salary	0.24	0.21	1.12	0.29	Total	180	3.80	0.65	0.05	3.71	3.90
					No	85	3.85	0.65	0.07	3.71	3.99
					Yes	95	3.76	0.66	0.07	3.62	3.89
HardWork_Improve_Development	0.00	0.22	0.00	0.99	Total	180	3.80	0.65	0.05	3.71	3.90
					No	104	3.81	0.62	0.06	3.69	3.93
					Yes	76	3.79	0.70	0.08	3.63	3.95
HardWork_Improve_Team	0.04	0.21	0.20	0.65	Total	180	3.80	0.65	0.05	3.71	3.90
					No	140	3.82	0.64	0.05	3.71	3.92
					Yes	40	3.75	0.69	0.11	3.53	3.97
HardWork_Improve_Tools	0.41	0.20	2.03	0.16	Total	180	3.80	0.65	0.05	3.71	3.90
					No	47	3.60	0.76	0.11	3.37	3.82
					Yes	133	3.87	0.60	0.05	3.77	3.98
HardWork_Improve_Salary	0.01	0.22	0.06	0.81	Total	180	3.80	0.65	0.05	3.71	3.90
					No	123	3.79	0.66	0.06	3.67	3.91
					Yes	57	3.83	0.65	0.09	3.66	4.00
HardWork_Improve_Manager	0.44	0.21	2.12	0.15	Total	180	3.80	0.65	0.05	3.71	3.90
					No	141	3.85	0.63	0.05	3.75	3.96
					Yes	39	3.61	0.72	0.12	3.38	3.85
HardWork_Improve_Input	0.26	0.21	1.23	0.27	Total	180	3.80	0.65	0.05	3.71	3.90
					No	155	3.77	0.67	0.05	3.66	3.87
					Yes	25	4.01	0.55	0.11	3.78	4.23
HardWork_Improve_Training	0.14	0.22	0.64	0.42	Total	180	3.80	0.65	0.05	3.71	3.90
					No	150	3.80	0.68	0.06	3.69	3.91
					Yes	30	3.80	0.55	0.10	3.59	4.00
HardWork_Improve_Training Dev	0.16	0.21	0.74	0.39	Total	180	3.80	0.65	0.05	3.71	3.90
					No	118	3.82	0.57	0.05	3.71	3.92
					Yes	62	3.77	0.79	0.10	3.57	3.97
HardWork_Improve_Recognition	1.46	0.19	7.75	0.01	Total	180	3.80	0.65	0.05	3.71	3.90
					No	42	3.57	0.87	0.13	3.30	3.84
					Yes	138	3.87	0.56	0.05	3.78	3.97
HardWork_Improve_Leaders	0.55	0.20	2.75	0.10	Total	180	3.80	0.65	0.05	3.71	3.90
					No	142	3.85	0.60	0.05	3.75	3.95
					Yes	38	3.63	0.81	0.13	3.36	3.89
HardWork_Improve_Spares	0.24	0.21	1.12	0.29	Total	180	3.80	0.65	0.05	3.71	3.90
					No	85	3.85	0.65	0.07	3.71	3.99
					Yes	42	2.93	0.94	0.14	2.64	3.22

Table D-23: Evaluate the variance between working harder and staff turn over

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_Improve_Salary	0.00	0.22	0.02	0.89	Total	180	2.84	0.78	0.06	2.72	2.95
					No	85	2.80	0.77	0.08	2.63	2.96
					Yes	95	2.87	0.79	0.08	2.71	3.03
HardWork_Improve_Development	0.00	0.22	0.01	0.92	Total	180	2.84	0.78	0.06	2.72	2.95
					No	104	2.91	0.77	0.08	2.76	3.06
					Yes	76	2.73	0.78	0.09	2.55	2.91
HardWork_Improve_Team	0.26	0.22	1.19	0.28	Total	180	2.84	0.78	0.06	2.72	2.95
					No	140	2.85	0.80	0.07	2.71	2.98
					Yes	40	2.80	0.71	0.11	2.57	3.02
HardWork_Improve_Tools	0.02	0.22	0.10	0.75	Total	180	2.84	0.78	0.06	2.72	2.95
					No	47	2.94	0.80	0.12	2.70	3.17
					Yes	133	2.80	0.77	0.07	2.67	2.93
HardWork_Improve_Salary	0.04	0.22	0.16	0.69	Total	180	2.84	0.78	0.06	2.72	2.95
					No	123	2.81	0.78	0.07	2.67	2.95
					Yes	57	2.90	0.79	0.10	2.69	3.11
HardWork_Improve_Manager	0.00	0.22	0.02	0.89	Total	180	2.84	0.78	0.06	2.72	2.95
					No	141	2.77	0.77	0.06	2.64	2.90
					Yes	39	3.08	0.79	0.13	2.83	3.34
HardWork_Improve_Input	0.00	0.22	0.01	0.91	Total	180	2.84	0.78	0.06	2.72	2.95
					No	155	2.84	0.78	0.06	2.72	2.97
					Yes	25	2.80	0.81	0.16	2.47	3.13
HardWork_Improve_Training	0.17	0.21	0.81	0.37	Total	180	2.84	0.78	0.06	2.72	2.95
					No	150	2.82	0.80	0.07	2.69	2.95
					Yes	30	2.93	0.66	0.12	2.68	3.18
HardWork_Improve_Training Dev	0.32	0.21	1.53	0.22	Total	180	2.84	0.78	0.06	2.72	2.95
					No	118	2.91	0.74	0.07	2.77	3.04
					Yes	62	2.71	0.84	0.11	2.49	2.92
HardWork_Improve_Recognition	0.06	0.22	0.28	0.60	Total	180	2.84	0.78	0.06	2.72	2.95
					No	42	2.84	0.80	0.12	2.59	3.08
					Yes	138	2.84	0.78	0.07	2.71	2.97
HardWork_Improve_Leaders	0.11	0.22	0.52	0.47	Total	180	2.84	0.78	0.06	2.72	2.95
					No	142	2.84	0.77	0.06	2.71	2.97
					Yes	38	2.83	0.84	0.14	2.55	3.10
HardWork_Improve_Spares	0.10	0.22	0.46	0.50	Total	180	2.84	0.78	0.06	2.72	2.95
					No	137	2.84	0.79	0.07	2.70	2.97
					Yes	43	2.83	0.77	0.12	2.59	3.07

Table D-24: Evaluate the variance between working harder and hard work and morale

	MS Effect	MS Error	F	P		N	Mean	Std. Dev	Std. Err	-95%	95%
HardWork_Improve_Salary	0.08	0.62	0.13	0.71	Total	176	3.89	1.15	0.09	3.72	4.06
					No	84	3.88	1.14	0.12	3.63	4.13
					Yes	92	3.89	1.16	0.12	3.65	4.13
HardWork_Improve_Development	1.82	0.60	3.01	0.08	Total	176	3.89	1.15	0.09	3.72	4.06
					No	102	3.85	1.25	0.12	3.61	4.10
					Yes	74	3.93	1.01	0.12	3.70	4.17
HardWork_Improve_Team	3.60	0.59	6.13	0.01	Total	176	3.89	1.15	0.09	3.72	4.06
					No	138	3.97	1.08	0.09	3.79	4.15
					Yes	38	3.58	1.35	0.22	3.14	4.02
HardWork_Improve_Tools	0.08	0.61	0.13	0.72	Total	176	3.89	1.15	0.09	3.72	4.06
					No	46	3.76	1.18	0.17	3.41	4.11
					Yes	130	3.93	1.14	0.10	3.73	4.13
HardWork_Improve_Salary	0.03	0.60	0.04	0.84	Total	176	3.89	1.15	0.09	3.72	4.06
					No	120	3.82	1.15	0.11	3.61	4.02
					Yes	56	4.04	1.14	0.15	3.73	4.34
HardWork_Improve_Manager	1.89	0.61	3.08	0.08	Total	176	3.89	1.15	0.09	3.72	4.06
					No	138	4.00	1.10	0.09	3.81	4.19
					Yes	38	3.47	1.25	0.20	3.06	3.88
HardWork_Improve_Input	2.68	0.60	4.50	0.04	Total	176	3.89	1.15	0.09	3.72	4.06
					No	151	3.86	1.18	0.10	3.67	4.05
					Yes	25	4.04	0.93	0.19	3.65	4.43
HardWork_Improve_Training	1.11	0.61	1.82	0.18	Total	176	3.89	1.15	0.09	3.72	4.06
					No	147	3.88	1.18	0.10	3.68	4.07
					Yes	29	3.93	1.00	0.19	3.55	4.31
HardWork_Improve_Training Dev	0.23	0.61	0.37	0.54	Total	176	3.89	1.15	0.09	3.72	4.06
					No	115	3.90	1.11	0.10	3.69	4.10
					Yes	61	3.87	1.23	0.16	3.55	4.18
HardWork_Improve_Recognition	1.42	0.61	2.35	0.13	Total	176	3.89	1.15	0.09	3.72	4.06
					No	41	3.71	1.29	0.20	3.30	4.11
					Yes	135	3.94	1.10	0.10	3.75	4.13
HardWork_Improve_Leaders	0.15	0.61	0.24	0.62	Total	176	3.89	1.15	0.09	3.72	4.06
					No	139	3.92	1.14	0.10	3.73	4.11
					Yes	37	3.76	1.19	0.20	3.36	4.15
HardWork_Improve_Spares	0.23	0.62	0.38	0.54	Total	176	3.89	1.15	0.09	3.72	4.06
					No	134	3.87	1.17	0.10	3.67	4.07
					Yes	42	3.93	1.11	0.17	3.58	4.28

Appendix F DSS

Appendix F.1. Excel Vba Code

The following is the code that is used to generate the output report.

```

Sub Analysis()
'
' Analysis Macro
'
' Keyboard Shortcut: Ctrl+Shift+M

MsgBox "Employee Morale Evaluation in Progress"

'Set up Sheets
Dim Workbook As Workbook
Dim WSConstruct As Worksheet 'Used for slope calculation
Dim WSClearB As Worksheet 'Used to remove entry with no morale score
Dim WSSuffiant As Worksheet 'Used to remove entry with no morale score
Dim WSRegGraph As Worksheet 'Used to draw graph
Dim WSReg As Worksheet 'Used to draw graph
Dim WSTemp As Worksheet 'Used as temp sheet
Dim WSResults As Worksheet 'Used to display results
Dim WSFeeling As Worksheet
Dim WSHardWork As Worksheet
Set Workbook = ActiveWorkbook
Set WSConstruct = Workbook.Sheets("Constructs")
Set WSClearB = Workbook.Sheets("Clearblanks")
Set WSSuffiant = Workbook.Sheets("Sufficient results")
Set WSRegGraph = Workbook.Sheets("Regression Graph")
Set WSResults = Workbook.Sheets("Step 3 Results")
Set WSFeeling = Workbook.Sheets("Feeling Selection Results")
Set WSHardWork = Workbook.Sheets("HW Selection Results ")

'
'Clear past results
WSSuffiant.Range("A2:AK1048576").Clear

Application.DisplayAlerts = False
Worksheets("Regression").Delete
Application.DisplayAlerts = True

'
'Calulate the slope to the linear equaion for each row to determin the forcasted values
'Slope will be entered in the Constact sheet

```

```

Application.StatusBar = "Slope Calculation for forecasting"

'Setup column and row start locations for loop
Dim StartC As Integer
Dim StartR As Integer
Dim EndC As Integer
Dim OutR As Integer
StartC = 10      'Define Start Column
EndC = 30        'Define End Column
StartR = 8       'Define Start Row
OutR = 5         'Output row

'Define when the row loop values
Dim ir As Integer
Dim SurvCount As Integer
SurvCount = WSConstruct.Cells(1, 2).Value 'Set the limination for the forloop to the
number of surveys

'Define when the column loop values
Dim ic As Integer
ic = StartC

'Set up of y-variable
Dim YLoc As Integer
YLoc = 9         'Coloumb count for location

'Setup Sumation Var
Dim SVar As Double      'Var used to calculate Sum of (x-avg.x)(y-avg.y)
Dim SSqVar As Double    'Var used to calucate Sum of (x-avg.x)(x-avg.x)
Dim XVar As Double      'Var used in each row for loop as the x
Dim YVar As Double      'Var used in each column for loop as the y
Dim b As Double

'Get averages
Dim YAvg As Double
YAvg = WSConstruct.Cells(1, YLoc).Value 'Set equal to location of y average
Dim XAvg As Double

For ic = StartC To EndC      'Loop through the columns
    SVar = 0
    SSqVar = 0
    XAvg = WSConstruct.Cells(1, ic).Value 'Set equal to location of x average

    For ir = StartR To SurvCount + StartR
        If IsNumeric(WSConstruct.Cells(ir, YLoc).Value) Then
            If IsNumeric(WSConstruct.Cells(ir, ic).Value) Then
                XVar = WSConstruct.Cells(ir, ic).Value 'Set equal to location of x variable
                YVar = WSConstruct.Cells(ir, YLoc).Value 'Set equal to location of y variable
                SVar = SVar + (XVar - XAvg) * (YVar - YAvg)
                SSqVar = SSqVar + (XVar - XAvg) * (XVar - XAvg)
            End If
        End If
    Next
Next

```



```
b = SVar / SSqVar
WSConstruct.Cells(OutR, ic) = b
```

```
Next
```

```
'Remove entries that did not complete a sufficient number of questions
```

```
Dim Mir As Integer      'Morale i row counter
Dim Mic As Integer      'Morale i column counter
Dim MStartR As Integer
Dim MStartC As Integer
Dim ScipC As Integer
Dim MoraleLoc As Integer
MStartR = 2             'Current start row for the first result entry on the clear black sheet
MStartC = 1             'Current start column for the first result entry on the clear black sheet
MoraleLoc = 8           'Location of morale score
ScipC = 0
```

```
Application.StatusBar = "Sufficient data checker"
```

```
Application.ScreenUpdating = False
```

```
For Mir = MStartR To SurvCount + MStartR
```

```
  If WSClearB.Cells(Mir, MoraleLoc).Value > 0 Then      'Check if morale score could
be calculated
```

```
    For Mic = MStartC To EndC
```

```
      WSSuffiant.Cells(Mir - ScipC, Mic) = WSClearB.Cells(Mir, Mic).Value 'Copy value
to new sheet
```

```
    Next
```

```
  Else          'Check if morale score could be calculated
```

```
    ScipC = ScipC + 1
```

```
  End If
```

```
Next
```

```
Application.ScreenUpdating = True
```

```
'Regression analysis
```

```
Application.StatusBar = "Regression Analysis"
```

```
Dim RASStartR As Integer      'Define start location of dependant variable
```

```
Dim RAEndR As Integer        'Define start location of dependant variable
```

```
Dim DPStartC As Integer      'Define start location of dependant variable
```

```
Dim IPStartC As Integer      'Define start location of independant variable
```

```
Dim IPEndC As Integer        'Define end location of independant variable
```

```
RASStartR = 1
```

```
RAEndR = 181
```

```
RAEndR = WSResults.Cells(6, 2).Value
```

```
DPStartC = 8
```

```
IPStartC = 14
```

```
IPEndC = 29
```

```

Application.StatusBar = "Regression Analysis"

Application.Run "ATPVBAEN.XLAM!Regress",
WSSuffiant.Range(WSSuffiant.Cells(RAStartR, DPStartC), WSSuffiant.Cells(RAEndR,
DPStartC)), _
WSSuffiant.Range(WSSuffiant.Cells(RAStartR, IPStartC), WSSuffiant.Cells(RAEndR,
IPEndC)), False, True, , "Regression", False, False, False _
, False, , False

'
-----

'Copy regression results to draw graph
'Dim WSReg As Worksheet 'Used to draw graph
Set WSReg = Workbook.Sheets("Regression")
Dim Rir As Integer 'Regression i row counter
Dim Ric As Integer 'Regression i column counter
Dim RStartR As Integer
Dim REndR As Integer
Dim RStartC As Integer
Dim REndC As Integer
RStartR = 1 'Current start row for the first result entry on the clear black sheet
REndR = 33
RStartC = 1 'Current start column for the first result entry on the clear black sheet
REndC = 9

Application.StatusBar = "Draw Regression Graph"
Application.ScreenUpdating = False

For Rir = RStartR To REndR
For Ric = RStartC To REndC
WSRegGraph.Cells(Rir, Ric) = WSReg.Cells(Rir, Ric).Value 'Copy value to new
sheet
Next
Next
Application.ScreenUpdating = True

'
-----

'Sort Regression Graph

ActiveWorkbook.Worksheets("Regression Graph").AutoFilter.Sort.SortFields.Clear
ActiveWorkbook.Worksheets("Regression Graph").AutoFilter.Sort.SortFields.Add _
Key:=Range("M16"), SortOn:=xlSortOnValues, Order:=xlDescending, _
DataOption:=xlSortTextAsNumbers
With ActiveWorkbook.Worksheets("Regression Graph").AutoFilter.Sort
.Header = xlYes
.MatchCase = False
.Orientation = xlTopToBottom
.SortMethod = xlPinYin
.Apply
End With

```

```
'Sort Feeling Graph

WSFeeling.Select
Range("B7:C17").Select
Selection.Copy
Range("E7").Select
Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
:=False, Transpose:=False
Application.CutCopyMode = False
ActiveWorkbook.Worksheets("Feeling Selection Results").AutoFilter.Sort. _
SortFields.Clear
ActiveWorkbook.Worksheets("Feeling Selection Results").AutoFilter.Sort. _
SortFields.Add Key:=Range("F6"), SortOn:=xlSortOnValues, Order:= _
xlDescending, DataOption:=xlSortTextAsNumbers
With ActiveWorkbook.Worksheets("Feeling Selection Results").AutoFilter.Sort
.Header = xlYes
.MatchCase = False
.Orientation = xlTopToBottom
.SortMethod = xlPinYin
.Apply
End With
```

```
'Sort Hard Work Graph

WSHardWork.Select
Range("A7:B18").Select
Selection.Copy
Range("D7").Select
Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone, SkipBlanks _
:=False, Transpose:=False
Application.CutCopyMode = False
ActiveWorkbook.Worksheets("HW Selection Results ").AutoFilter.Sort.SortFields. _
Clear
ActiveWorkbook.Worksheets("HW Selection Results ").AutoFilter.Sort.SortFields. _
Add Key:=Range("E6"), SortOn:=xlSortOnValues, Order:=xlDescending, _
DataOption:=xlSortTextAsNumbers
With ActiveWorkbook.Worksheets("HW Selection Results ").AutoFilter.Sort
.Header = xlYes
.MatchCase = False
.Orientation = xlTopToBottom
.SortMethod = xlPinYin
.Apply
End With
```

```
'Open results
Sheets("Step 3 Results").Select
Application.StatusBar = "Analysis Complete"
MsgBox "Analysis Complete"
End Sub
```

Appendix F.2. DSS Survey Questionnaire

Organisational Morale Improvement Questionnaire

1 Demographic Questions

- 1.1. How long have you been working for your current employer (company)?
 1-2 years 2 - 5 years 5 - 10 years 10 - 20 years >20 years
- 1.2. What is your race?
 African Coloured White Asian Other
- 1.3. What is your Gender?
 Male Female
- 1.4. What is your age?
 <20 years 20 - 30 years 30 - 40 years 40 - 50 years >50 years
- 1.5. What is your highest qualification?
 Grade 10 Grade 12 Trade certificate National Diploma Bachelor Technologist
- Other: _____
- 1.6. What is your employment type?
 Permanent Fixed term contract Temporary Casual Other

2 Current work environment

This section of the survey evaluates your current work environment. This is focused on your immediate and current colleagues, managers and supervisors.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.1 I am satisfied with my current job.					
2.2 I am satisfied with the work I am required to do.					
2.3 Working harder leads to doing your job well.					
2.4 I often consider resigning.					
2.5 I work harder when I am happy at work.					
2.6 I am underpaid for the work I am doing.					
2.7 I am underpaid for my skill level.					
2.8 I enjoy the challenge of new tasks.					
2.9 I feel I am kept in the dark by management.					
2.10 Compared to other employees doing similar work, I am more productive.					
2.11 I am regularly asked to perform new duties.					
2.12 The people I work with get along well with each other.					

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2.13 I feel I am under too much work pressure.					
2.14 The people I work with are friendly?					
2.15 I have the required skills to do my current job.					
2.16 I strive to perform work more efficiently (doing things right).					
2.17 I work harder when I am committed.					
2.18 The people working around you help others when work falls behind.					
2.19 My manager knows his duties.					
2.20 My job is secure as long as I perform sufficiently.					
2.21 My current manager is concerned about the welfare of employees.					
2.22 I have confidence and trust in my line manager.					
2.23 I find my job satisfying.					
2.24 I am satisfied with the employee benefits offered.					
2.25 I am currently looking for other employment.					
2.26 My line manager often asks for my input and ideas.					
2.27 My line manager remains faithful to his/her promises.					
2.28 My line manager is well organised.					
2.29 My line manager keeps postponing tasks.					
2.30 My line manager is well qualified for his/her role.					
2.31 My line manager treats the employees fairly.					
2.32 I am making a positive difference in my workplace.					
2.33 I feel I am expected to do too much.					
2.34 I am doing more work than my colleagues.					
2.35 I have a lot to learn in my current job.					
2.36 I am using my full abilities in my current role.					
2.37 I feel pressure to work harder.					
2.38 I have sufficient knowledge for understanding the tasks I am required to perform.					
2.39 I find my job dull and repetitive.					
2.40 My income is sufficient to live comfortably.					
2.41 My line manager credits me for a job well done.					
2.42 Compared to other employees doing similar work, I am competent at identifying problems that may arise and try to prevent them or minimise their effects.					

3 Current employer

This portion of the survey evaluates you perception toward the organisation as a whole.

For each of the following questions, please tick the appropriate block were applicable.

- 3.1 In general, how satisfied are you in your current workplace?
 Very Unsatisfied Unsatisfied Neutral Satisfied Very Satisfied
- 3.2 Are you concerned about job security or possible retrenchments?
 No, not at all Uncertain Neutral Yes, slightly Yes, very Much
- 3.3 Is budget availability a constraint for improvements in your company?
 Strongly Disagree Disagree Neutral Agree Strongly agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
3.4 I am committed to the organisation.					
3.5 The organisational structure is often changed and often results in my manager being changed.					
3.6 I feel a part of the organisation.					
3.7 A small increase in my salary will make me consider moving to another company.					
3.8 The company operates efficiency.					
3.9 I am proud to work for the company.					
3.10 The people receiving promotions deserves the promotion.					
3.11 I would consider moving to a new organisation even if the offered salary is less than my current salary.					
3.12 Negative media attention has changed my opinion of my employer.					
3.13 I am inspired to go the extra mile to help the organisation improve.					
3.14 Employee relations have improved over the past three years.					
3.15 I consider my role to add value to the organisation.					
3.16 It is important to me to know my work is making a contribution.					
3.17 I am contributing to the organisation through my work.					
3.18 The policies of the organisation are limiting my work.					
3.19 I am frustrated by the company policies.					
3.20 I feel the company policies add value.					
3.21 My organisation is focussed on its people.					
3.22 My organisation offers equal opportunities to all.					
3.23 My manager's values are the same as my values.					
3.24 Other people, I work with often consider resigning.					
3.25 There are plenty of career opportunities in my organisation for those who want to advance.					
3.26 I would recommend this organisation as a good place to work.					

4 *Expected results for hard work*

This portion of the survey evaluates your expectations. Please note this is not what actually occurs at this point in time but what you would expect should occur.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4.1 Working hard leads to you doing your job well.					
4.2 Hard work improves organisational performance.					
4.3 I expect a bonus or increase if I do my work well.					
4.4 I expect my colleagues to be friendly if I do my work well.					
4.5 I expect to be respected if I work hard.					
4.6 I expect praise from my line manager if I work hard.					
4.7 I expect to have opportunities to learn if I work hard.					
4.8 I expect a promotion if I work hard.					
4.9 I expect more freedom for taking the initiative if I work hard.					

5 *Actual results of hard work*

This portion of the survey evaluates the actual result of hard work that you have experienced in your current job.

For each of the following questions, please tick the appropriate block were applicable.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
5.1 Working hard leads to you doing our job well.					
5.2 Hard work improves organisational performance.					
5.3 I receive a bonus or increase if I do my work well.					
5.4 My colleagues are friendly if I do my work well.					
5.5 I gain respect for my hard work.					
5.6 I receive praise from my line manager for my work hard.					
5.7 I have opportunities to learn if I work hard.					
5.8 I receive a promotion if I work hard.					
5.9 I receive more freedom if I work hard.					
5.10 I receive credit for work well done.					
5.11 I receive recognition for work well done.					

6 *Ideal work environment*

This portion of the survey evaluates what you would expect and require from your ideal work environment.

6.1 What will most improve your feeling towards work?				
Improved teamwork	<input type="checkbox"/>	Increased Salary	<input type="checkbox"/>	Less work pressure
Increased capital spending	<input type="checkbox"/>	Consistent work environment	<input type="checkbox"/>	Fewer organisational policies ("red tape")
More confidence in your line manager	<input type="checkbox"/>	Feeling of value	<input type="checkbox"/>	Receiving the required tools.
Receiving the required training.	<input type="checkbox"/>	Receiving the required spares.	<input type="checkbox"/>	

6.2 What will encourage you to work harder?

Increase in salary	<input type="checkbox"/>	Bonus payments	<input type="checkbox"/>	Training for skills development	<input type="checkbox"/>
Career development opportunities	<input type="checkbox"/>	Better trained managers	<input type="checkbox"/>	Recognition by managers for hard work	<input type="checkbox"/>
More team building activities	<input type="checkbox"/>	Having the opportunity to provide input in future planning	<input type="checkbox"/>	Employing natural leaders as managers and supervisors	<input type="checkbox"/>
Receiving the required tools.	<input type="checkbox"/>	Receiving the required training.	<input type="checkbox"/>	Receiving the required spares.	<input type="checkbox"/>

End of survey

Thank you for your time.

Appendix F.3. DSS Output Report

Results - Employee Morale Evaluation

Overview

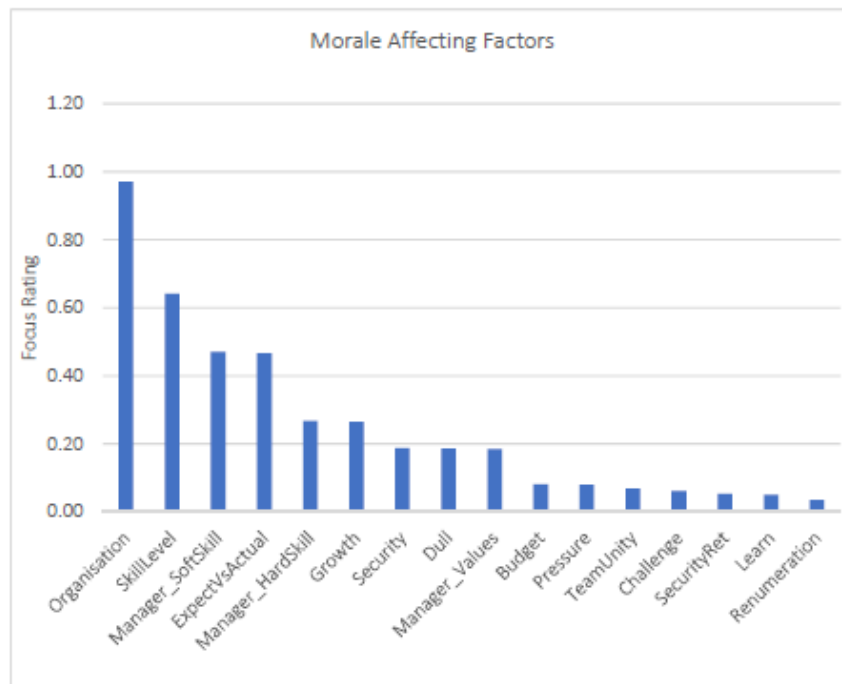
Measure	Result
Date of study	2018/10/13
Number of participants	181
Number of sufficient entries	180
Team Size	200
Team response rate	90.50%
Question completion	89.55%
Morale Score	3.27

Menu

Legend

Rating	Colour
$1 \leq x \leq 2.5$	Red
$2.5 < x < 3.5$	Yellow
$3.5 \leq x \leq 5$	Green

Prioritised Factors to be Addressed



This graphs shows the factors effecting morale rank from left to right. Showing the most significate factors on the lift and least significant on the right. The overall morale will most significantly be improved by address the item listed first.

The description of each factor can be viewed on page 5.

Results - Employee Morale Evaluation

Score Per Measure of Morale

The score indicates the average result that was achieved for each measure of morale that was evaluated. This can be used for a year to year comparison.

Measure	Score	Percentage of Responses		
		Negative	Neutral	Positive
Job Satisfaction Rating	2.86	36%	29%	38%
Organisation Satisfaction Rating	2.65	41%	32%	29%
Employee Engagement Rating	3.46	16%	17%	69%

Score Per Morale Level Result

The score indicates the average result that was achieved for each of the result of employee morale levels that was evaluated. This can be used for a year to year comparison.

Measure	Score	Percentage of Responses		
		Negative	Neutral	Positive
Staff Turn Over/ Quit Factor Rating	2.58	44%	40%	19%
Relation between work hard and morale	3.70	17%	12%	73%

Score Per Affecting Factor

The score indicates the average result that was achieved for each factor that was evaluated. This can be used for a year to year comparison.

Measure	Score	Percentage of Responses		
		Negative	Neutral	Positive
Growth Prospects Rating	2.20	62%	27%	13%
Expectations verse Reality Rating	2.63	31%	55%	1%
Manager Hardskill Rating	2.73	44%	29%	29%
Manager Softskill Rating	2.32	57%	33%	12%
Manager Value Alignment Rating	2.51	52%	27%	23%
Organisational Performance Rating	2.50	38%	54%	10%
Employee Pressure Rating	2.99	23%	47%	33%
Remuneration Rating	2.39	59%	28%	15%
Personal Skill Level Rating	3.44	15%	25%	62%
Team Unity Rating	3.20	22%	35%	45%
Drive for Challenges Rating	3.85	12%	12%	78%
Job Security Rating	3.31	21%	27%	54%
Risk of Retrenchment	2.81	39%	26%	27%
Change Experience Rating	2.88	38%	20%	44%
Interest in Work Rating	3.04	30%	25%	33%
Impact of Budget Rating	3.00	34%	24%	44%

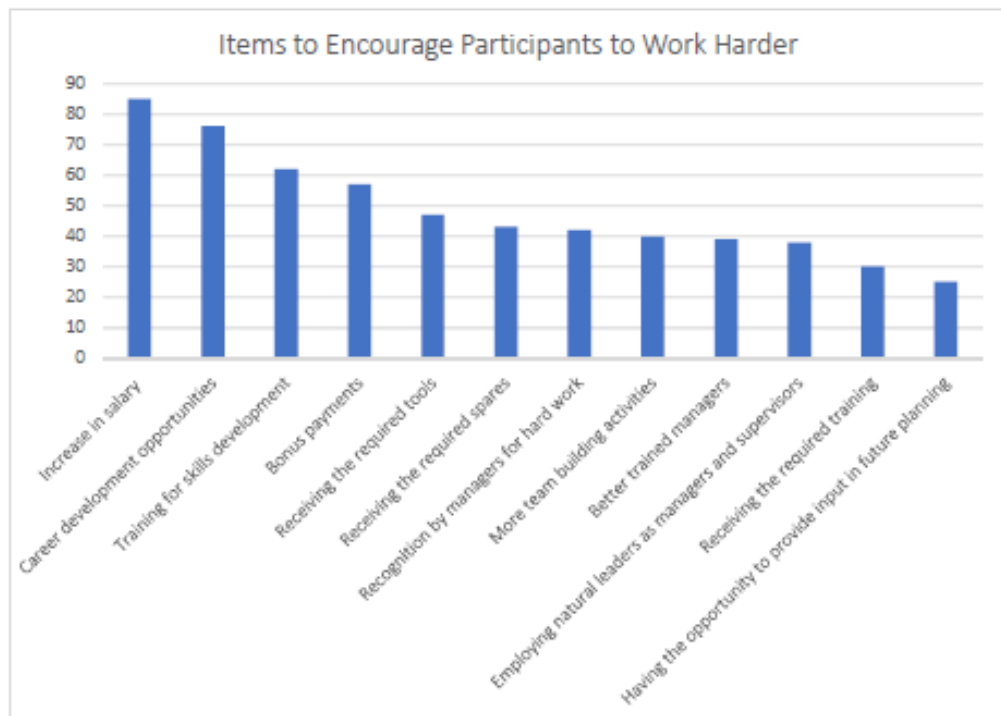
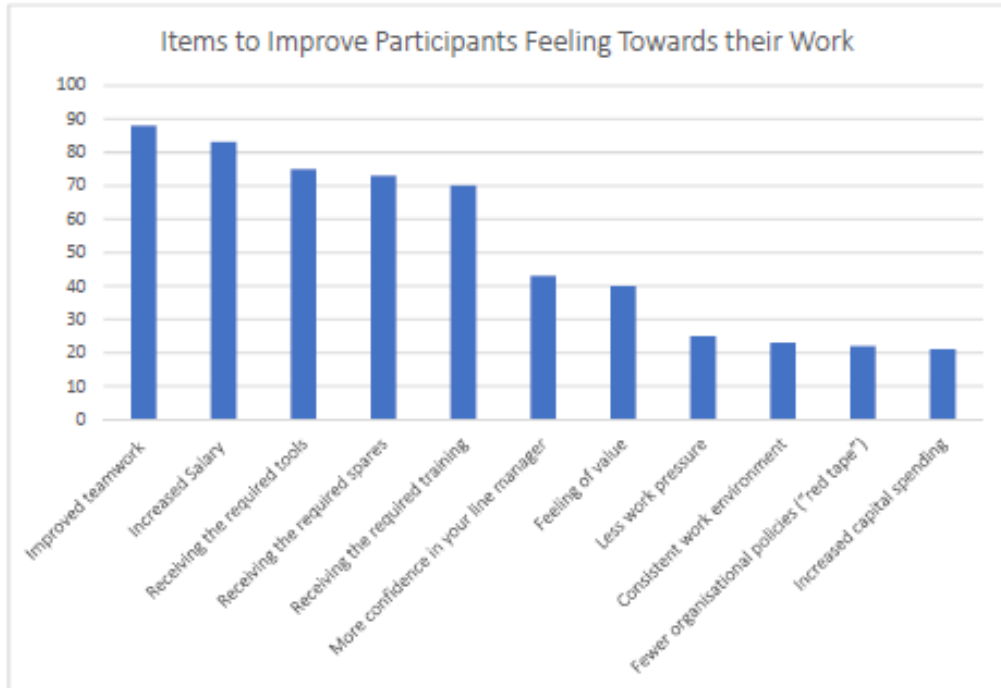
Legend

Rating	Colour	Description
$1 \leq x \leq 2.5$	Red	Negative
$2.5 < x < 3.5$	Yellow	Neutral
$3.5 \leq x \leq 5$	Green	Positive

Results - Employee Morale Evaluation

Selection Results

The selection section requested each participant to select items from the list that would most improve employees feeling towards the organisation and would encourage the employees to work harder.



Results - Employee Morale Evaluation

Score Per Demographic Group

Years Employed

Measure	1-2 years	2-5 years	5-10 years	10-20 years	> 20 years
Quantity in demographic group	12%	19%	44%	16%	6%
Question completion	91%	91%	94%	92%	88%
Morale Score	3.47	3.30	3.43	3.28	3.25

Race

Measure	African	Coloured	White	Other
Quantity in demographic group	46%	33%	15%	2%
Question completion	91%	94%	93%	98%
Morale Score	3.41	3.40	3.27	3.93

Gender

Measure	Female	Male
Quantity in demographic group	17%	78%
Question completion	88%	94%
Morale Score	3.30	3.41

Age

Measure	<20 years	20-30 years	30-40 years	40-50 years	> 50 years
Quantity in demographic group	1%	17%	41%	17%	22%
Question completion	79%	91%	93%	95%	90%
Morale Score	2.21	3.44	3.43	3.48	3.17

Qualification

Measure	Grade 10	Grade 12	Trade Certificate	National Diploma	Bachelor
Quantity in demographic group	8%	26%	45%	12%	1%
Question completion	91%	93%	94%	95%	93%
Morale Score	3.24	3.37	3.47	3.57	3.68

Employment type

Measure	Temporary	Fixed Term Contract	Permanent	Other
Quantity in demographic group	1%	6%	92%	1%
Question completion	100%	95%	92%	99%
Morale Score	4.00	3.81	3.34	3.93

Legend

Rating	Colour	Description
$1 \leq x \leq 2.5$	Red	Negative
$2.5 < x < 3.5$	Yellow	Neutral
$3.5 \leq x \leq 5$	Green	Positive

Results - Employee Morale Evaluation

Measure Description

Measure	Code	Description
Job Satisfaction Rating	SatisfactionJob	Rating to show how satisfied participants are with their jobs, this included the work they are doing and their work environment.
Organisation Satisfaction Rating	SatisfactionOrganisation	Rating to show how satisfied participants are with their the organisation.
Employee Engagement Rating	EmpEngagement	Measure to show how engaged employees are.

Morale Level Result Description

Measure	Code	Description
Staff Turn Over/ Quit Factor Rating	TurnO	Indicates participants drive to look for work or to resign.
Relation between work hard and morale	MoraleHW	Participants opinion with regards to weather they work harder when they have higher morale.

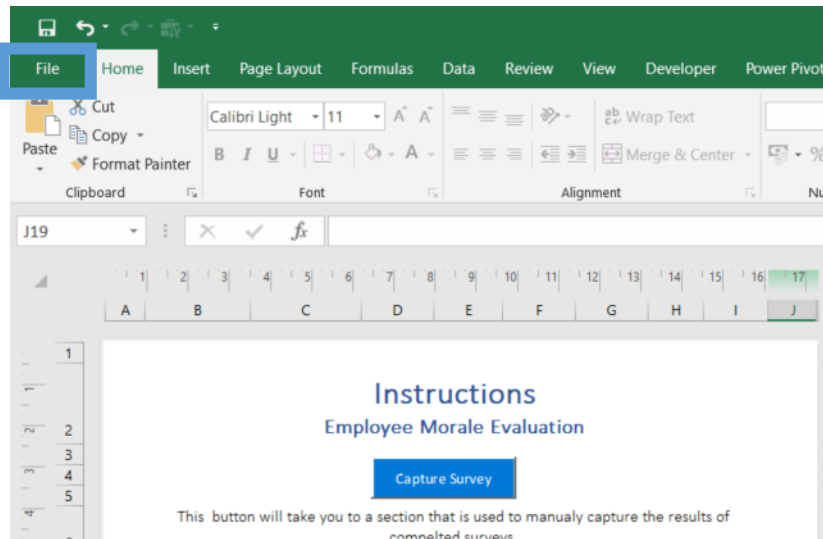
Factor Description

Measure	Code	Description
Growth Prospects Rating	Growth	Participants option with regards to their growth prospects.
Expectations verse Reality Rating	ExpectVsActual	Rating to evaluation the difference between expectations and results.
Manager Hardskill Rating	Manager_HardSkill	Participants option about their line managers hard skills.
Manager Softskill Rating	Manager_SoftSkill	Participants opinion about their line managers soft skills.
Manager Value Alignment Rating	Manager_Values	Participants opinion about their line managers values.
Organisational Performance Rating	Organisation	Participants opinion about and pride in the organisation.
Employee Pressure Rating	Pressure	The amount of pressure employees feel in their work environment.
Remuneration Rating	Remuneration	Whether employees are satisfied with the remuneration received.
Personal Skill Level Rating	SkillLevel	Whether employees feel theirs skills are utilised and they have the required skills.
Team Unity Rating	TeamUnity	How well the team functions as a unit.
Drive for Challenges Rating	Challenge	How much the participants enjoy/ dislike challenges.
Job Security Rating	Security	Weather participants are confident in their job security.
Risk of Retrenchment	SecurityRet	Weather participants are concerned about retrenchment.
Change Experience Rating	Learn	Weather participants enjoy regular changes in their work and work environment.
Interest in Work Rating	Dull	Weather participants feel their work is dull and repetitive.
Impact of Budget Rating	Budget	Weather participants are affected by budget changes.

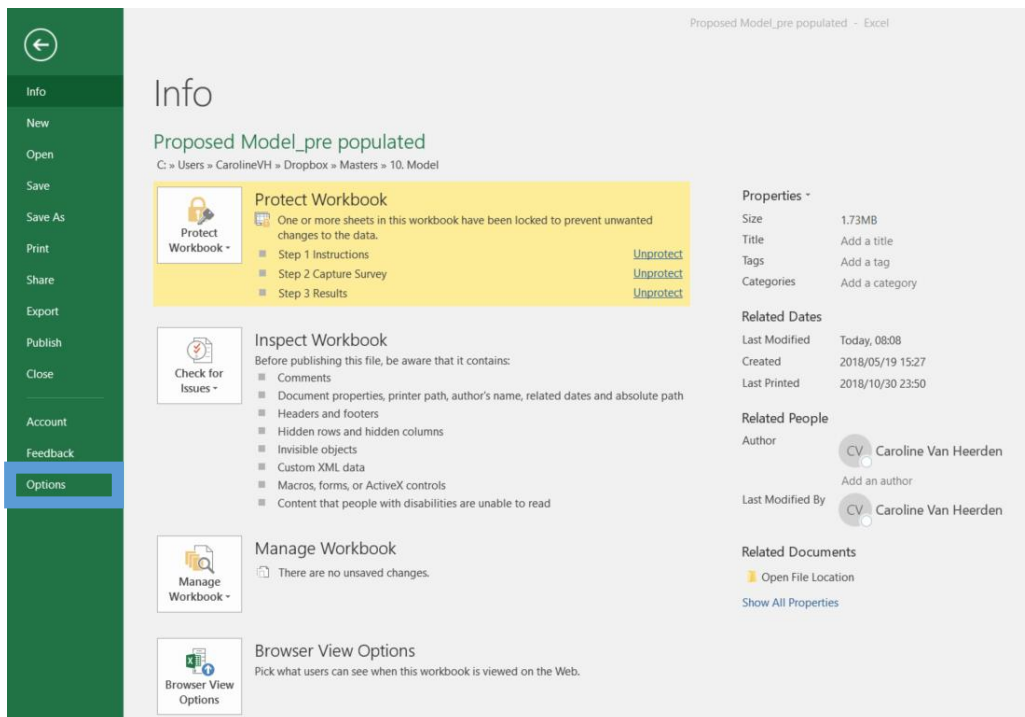
Appendix F.4. Excel Tool Activation Instructions

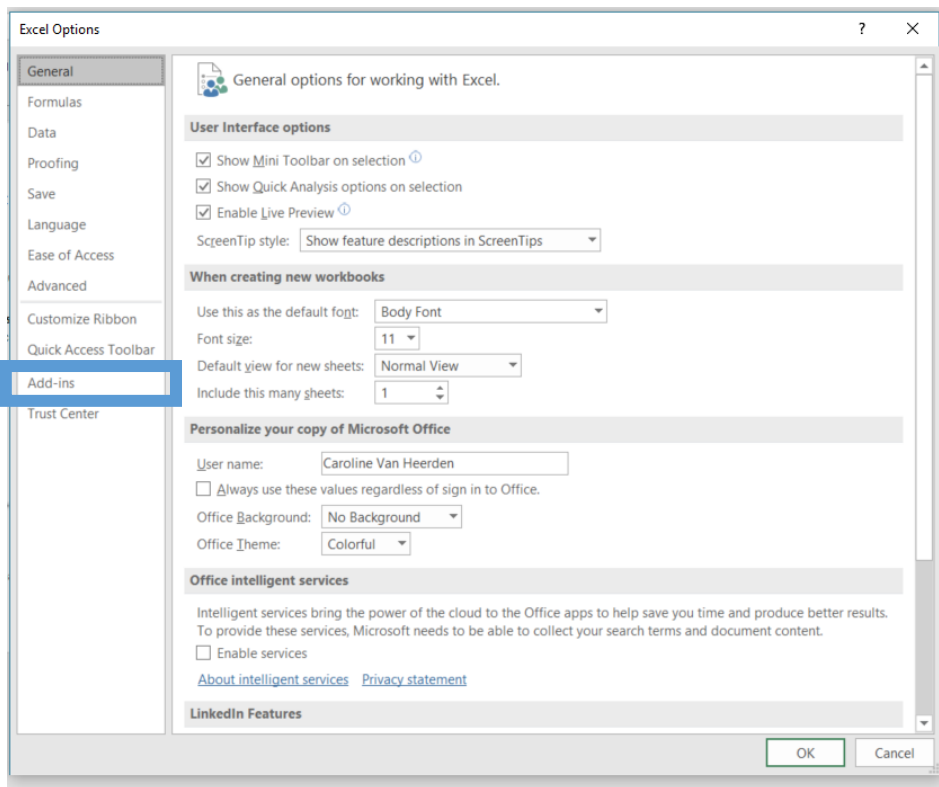
The Morale Improvement DSS utilises Excel Add-Ins. The following process can be followed to activate the tools required for the DSS to function.

1. Select *File*

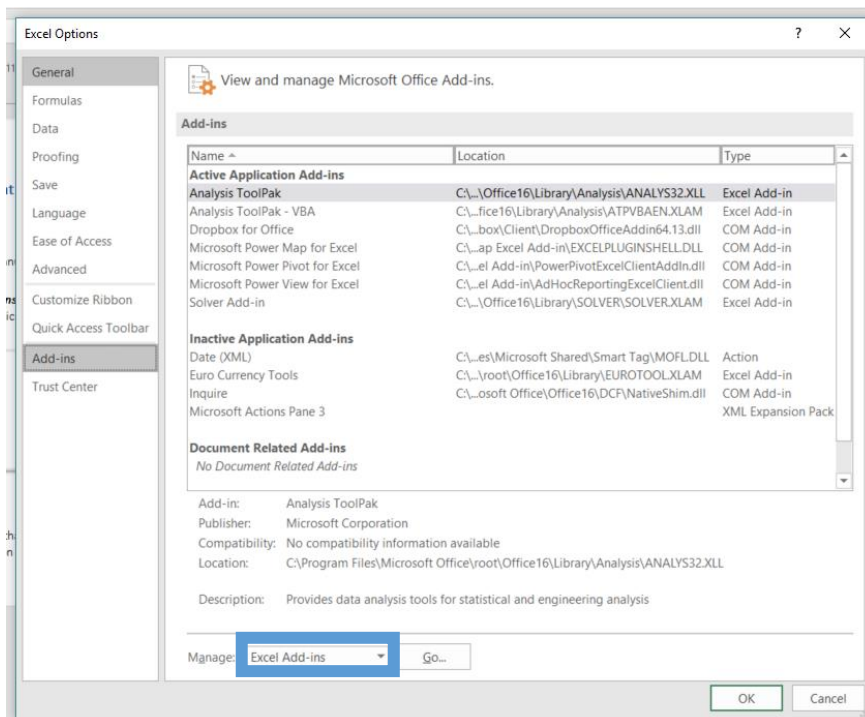


2. Select *Options*

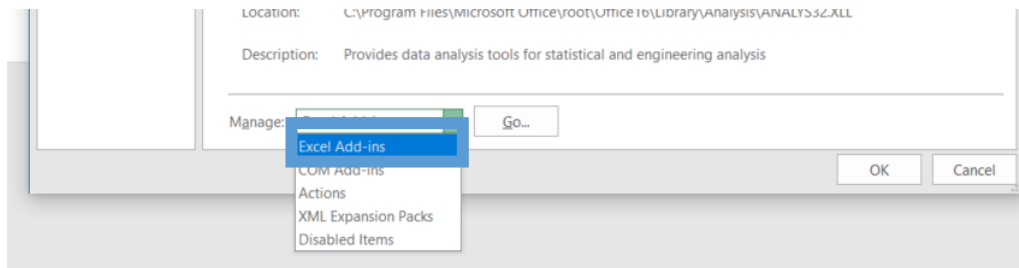




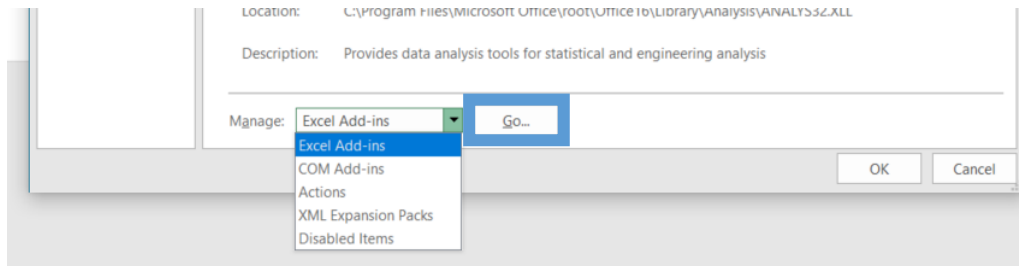
4. Open the *Manage* drop down list



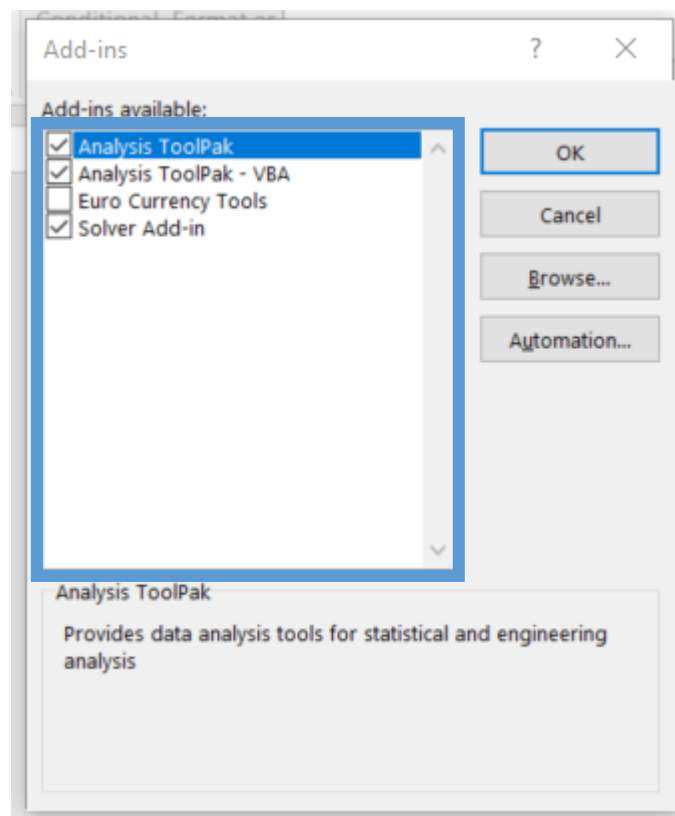
5. Select *Excel Add-ins*



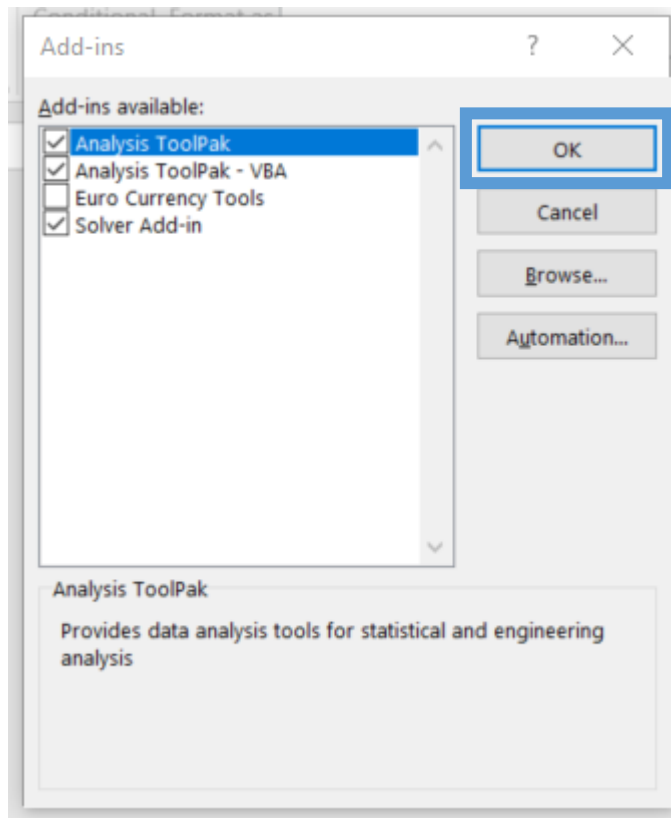
6. Select *Go*



7. Ensure *Analysis ToolPak*, *Analysis ToolPak – VBA* and *Solver Add-in* are selected.



8. Select *OK*



Appendix G Face Validation Results

Table G-25: Questions to gauge expectations

Question	Response
1. What would you expect the level of morale of the maintenance teams to be?	1.5/5 2/5 2.5/5 1.8
2. What do you expect would be the main problem experienced by employees?	Material, Salary, Safety Stability
3. What do you expect is the job satisfaction of the maintenance teams?	0.5 2, low morale that vary from grade to grade
4. How would you describe the relationship between maintenance teams and their managers?	Too subjective. People need to blame others 2/5
5. From your experience what are the benefits of high employee morale?	<ul style="list-style-type: none"> • Safety • Productivity • Quality • Continuous improvement (innovation) • Integratory • Growth • Absenteeism • Ownership

Table G-26: Questions to evaluate the process

Question	Response
1. Did you expect these results?	<ul style="list-style-type: none"> • Contradiction to reality in a few cases <i>This was also mentioned in the presentation with result with regards to how hard the employee work were discussed.</i> • The comparison to the private sector would be entrusting • There is a gap between the top structure and the people there • Disadvantage to SOEs is you cannot get rid of the rotten potatoes • Comparison to other SOEs would be good • The people who should be the buffer between himself and employees are not doing so • Underlying issues under managers • Not a 100% reflections • Did not expect <ul style="list-style-type: none"> ○ Peoples expectation and knowledge of the organisation as this was discussed with these teams ○ Or they did not take in what was explained ○ Or employees are not prepared to change their opinions ○ They were informed ○ Employees will never agree with management • 70% of the results were expected • Salary issues would be a national standard • People want promotions just to get more money • Teach people to work with their salaries • Lack of recognition could lead to employees wanting more money • There are salary discrepancies
2. What do you think of the process followed?	<ul style="list-style-type: none"> • Surveys: <ul style="list-style-type: none"> ○ Clear in communication ○ Explained that it is anonymous and the consent process • Integration with people was fine

Appendix H User Assessment Interview

Appendix H.1. Interview Guide

The questions used was derived from the question used in the case study conduct by (Borenstein, 1998).

1. Process Overview

The following process is followed as part of the face to face interviews:

1. The interviewer will introduce the following (Section 2):
 - a. The researcher
 - b. The study.
 - c. The purpose of the interview.
 - d. The interviewer will discuss the terms of confidentiality and well as the rights of the participant.
2. The interviewer will explain the interview process, including the expected duration. (Section 1)
3. The interviewer will ask if the participant has any questions.
4. The interviewer will ask questions to evaluate the perceived need for a morale improvement model at the SOE. (Section 3)
5. The interview will explain the process followed. (Section 4)
6. The interviewer will present the proposed model.
7. The interviewer will ask the interviewee questions to gauge their opinion on the proposed model. (Section 4)
8. The interviewer will ask organisation specific questions identified in the data analysis portion of this study. (Section 0)

Each interview is managed to have a maximum duration of 1 hour.

2. Introduction

The research project is entitled Methods to Improve Morale in State Owned Entities' Technical Departments. Asset management entails the optimal utilisation of assets to meet the company's goals. Substantial studies have been done on the development and selection of asset management strategies. But what is seldom discussed is that the effectiveness and productivity of tradesmen that are maintaining these assets. The morale, teamwork ability and skills of maintenance teams will determine whether the organisation can practice effective asset management.

This problem is escalated in State Owned Entities (SOE), as these organisations are under pressure to reduce cost and increase performance. In addition to this, SOEs are often discussed and criticised in the media. The lack of performance of these organisations is currently highly publicised in South Africa. Shortcomings of these

organisations not only reduces the companies' profits but, in some cases – depending on the State's involvement with the company – may also use state budgets.

The goal of the interview is to review the process followed and the resulting proposed morale improvement model. Furthermore, organisation specific questions are addressed that were identified during the survey data analysis process.

3. Model Need Evaluation

Model refers to a tool that can be utilised by the organisation to identify the factors with the most significant influence on employee morale.

Q: Has the organisation attempted to measure morale in the past?

Q: How were the results used?

Q: Were the interventions effective?

4. Validation of Research Done

Problem

The goal of the study was to address the following research problem:

There is no proven methodology that can be implemented in South African SOEs to improve employee morale.

The literature covers studies that were predominantly done in first world countries in health care, retail, hospitality and education. No similar studies were found. One study was found that covered a third world country, but the context did not match the South African working conditions.

Method followed

From the literature, factors that affect employee morale were identified. Artisans, trade hands and process workers working in the technical departments' of SOEs were invited to participate in the survey. Using survey questionnaires these factors and measures of morale were evaluated using numerous statistical analysis methods.

Proposed model

From the analysis, it was found that each organisation had different factors influencing the morale in the organisation. Thus, rather than proposing the "best fit" solution, a tool was developed that could be used to conduct the analysis in each organisation. The tool was then verified against the results obtained from the advanced statistical analysis done originally. Demonstrate the use of the model.

Model Quality

Q: What is your opinion on the model's ability to evaluate the morale of a maintenance team?

Q: What is your opinion on the model's ability to identify the significant morale affecting factors?

Q: Based on your opinion what are the strengths of the model?

Q: Based on your opinion what are the weaknesses of the model?

Model Implementation and Relevance

Q: Do you see the benefit in the use of such a model?

Q: How regularly do you suggest the analysis should be done?

Q: Do you foresee any stumbling blocks in the use of this model?

Q: Even though this tool was developed to be used in SOEs Technical Departments, can it be applied in other organisations or departments?

Process Evaluation

Q: Do you think the process followed in this study was meaningful and logical?

Ratings

Q: Please provide a rating between 1 and 5 with 1 indicating 'very poor' and 5 'very good' for each to the following:

- Quality of the morale score obtained from the model.
- Quality of the significant morale affecting factors obtained from the model.
- Presentation of results.
- Descriptions of the factors evaluated.
- The ease of use of the morale evaluation model.

User Acceptance

Q: Does the model the decision-making process? Please provide a reason why?

Q: Could you use the model in your department? Why?

Q: Would you expect to experience advantages for the utilisation of this model?

What advantages would you expect?

Q: Would you expect to experience dis-advantages for the utilisation of this model?

What dis-advantages would you expect?

Q: Please provide a rating between 1 and 5 with 1 indicating 'very poor' and 5 'very good' for each to the following:

- User interface
- Graph format of the results
- Result overview
- Factor level results

Q: What would you suggest to improve the model?

Q: Overall, how would you rate the proposed morale evaluation model?

5. Organisation Specific Questions

**These questions will vary per organisation and are based on the factors that were identified as significant at each organisation that showed to be less significant at the other organisations.*

Organisation A

Q: While conducting the data analysis the requirement for tools was identified as a significant factor effecting morale at this organisation but less so at the other organisations. Are you aware of anything that could result in this difference?

Organisation B

Q: While conducting the data analysis the requirement for increased remuneration was identified as a significant factor effecting morale at this organisation but less so at the other organisations. Are you aware of anything that could result in this difference?

Organisation C

Q: While conducting the data analysis, the requirement for spare was identified as a significant factor effecting morale at other organisations, but less so at this organisation. Are you aware of anything that could result in this difference?

Have any processes been implemented to address this?

Appendix H.2. Interview Results

Organisation A Engineering Manager

Table H-27: Interview Responses: Organisation A Engineering Manager

Question	Response
<i>DSS need evaluation</i>	
Has the organisation attempted to measure morale in the past?	I don't think so, if they did it was before I was here, it would be 15+ years ago. There was a broad study done for the road show.
How were the results used?	It was used in the road show.
Were the interventions effective?	
<i>Validation of research done</i>	
What is your opinion on the DSS's ability to evaluate the morale of a maintenance team?	It is adequate.
What is your opinion on the DSS's ability to identify the significant morale affecting factors?	It is value adding
Based on your opinion what are the strengths of the DSS?	You can look at a snapshot to see which items you can leverage. It gives a helicopter view. You can make use of it. It is value adding.
Based on your opinion what are the weaknesses of the DSS?	The results are based on personal opinion. This is subjective. It uses subjective inputs. It is not absolute. I would like to also view the next band. You may see a different picture if you look at another band.
<i>DSS Implementation and Relevance</i>	
Do you see the benefit in the use of such a DSS?	Yes, for sure, with all the chaos happening in parastatals – we need something to work from.
How regularly do you suggest the analysis should be done?	Annual basis should be sufficient. The sample should be larger.
Do you foresee any stumbling blocks in the use of this DSS?	There are always stumbling blocks when it comes to change management.
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	Yes, the it should follow the same trend.

Table H-27: Interview Responses: Organisation A Engineering Manager (Continued)

Question	Response
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	It is very thorough, very good and true. Especially the use to the regression coefficient. It gives a better view.
<i>User Acceptance</i>	
Does the DSS the decision-making process?	It will. Prioritisation with limited funds. If R100 000 is made available and you need to decide where to spend the money. This will assist to identify were to spend the money. Assist with budget allocation to boost morale.
Could you use the DSS in your department?	Yes.
Would you expect to experience advantages for the utilisation of this DSS?	Yes, I am sure.
Would you expect to experience disadvantages for the utilisation of this DSS?	Once you have started you need to be able to sustain it. People expect you to follow through. If you don't you are actually taking a step back. You need to communicate the bad news.
What would you suggest to improve the DSS?	Do survey monkey on phone (would give a 5) Increase the bands who participate in study.
Overall, how would you rate the proposed morale evaluation DSS?	These are actually good figures. It is subjective, but you took it from different angles, so it gives you a good picture. It is value adding and comprehensive. One can make user of it. It's not just an academic study for the sake of getting a qualification.

Organisation A Technical Manager

Table H-28: Interview Responses: Organisation A Technical Manager

Question	Response
<i>DSS need evaluation</i>	
Has the organisation attempted to measure morale in the past?	Yes, many years ago a partial study was done. A programme was developed to evaluate morale. But the program was stopped as the company was not BEEE.
How were the results used?	The results were not shared as the company did not for fill the BEEE requirements.
Were the interventions effective?	
<i>Validation of research done</i>	
What is your opinion on the DSS's ability to evaluate the morale of a maintenance team?	<p>You need to make sure people complete the questions.</p> <p>I still need to reflect on each of the topics.</p> <p>I don't have has an issue measuring it. I do have a problem with some of the topics that are being checked. For example, budget. This should not affect the teams as they cannot affect the budget. If it was a managerial survey budget will be relevant as they work with the budget.</p> <p><i>Following an explanation on budget answers given in qualitative answers.</i></p> <p>Rather don't refer to budget but rather the topic for example spare availability, it will not help looking at the budget.</p> <p>This is too vague. It does not pin point were the problem is. It is not broken down far enough.</p> <p>I need more information or else it is just another paper exercise. This needs be a tool to help me. Possibly a second set of question to pin point how the items should be improved.</p> <p>It is relevant but should be more to the point.</p>
What is your opinion on the DSS's ability to identify the significant morale affecting factors?	I don't know if it addresses all the problems in the company. I will need to look at what I think affects morale and will check if it is included.

Table H-28: Interview Responses: Organisation A Technical Manager (Continued)

Question	Response
Based on your opinion what are the strengths of the DSS?	<p>If a higher participation is obtained it will be a better result. Some people are just born negative. This will give you skewed results. You cannot get something positive out of this type of person.</p> <p>The other thing is people bring their personal problems to work and expect the company to fix them. They are then negative towards the company when the company is not able to fix it. I cannot see you looked at it.</p> <p>It can affect the figures and give you a skewed view.</p> <p>You can get a skewed view if the sample includes negative people.</p>
Based on your opinion what are the weaknesses of the DSS?	<p>A criteria would be that you take the correct sample.</p> <p>It's a good thing if you do something about it.</p>
<i>DSS Implementation and Relevance</i>	
Do you see the benefit in the use of such a DSS?	<p>Morale is a good thing.</p> <p>It's good for:</p> <ul style="list-style-type: none"> • Personal life • Image of company • Productivity • Relationships <p>The benefits are extreme, for a business that has a production line where they make money it is very important. If you look at skills utilisation it is critical. People work when they feel confident in what they are doing and by doing that you can create quite a safe environment; your quality and safety standards will improve.</p>
How regularly do you suggest the analysis should be done?	Annual study, should look at the same group of people.
Do you foresee any stumbling blocks in the use of this DSS?	<p>You need a person who can interpret the results. I will not be a person who can interpret the results. I am technical I cannot interpret the result. someone needs to put it in understandable terms.</p> <p>For implementation, you need to have the specific else you will bark at the wrong tree. The report needs to show more advice.</p>

Table H-28: Interview Responses: Organisation A Technical Manager (Continued)

Question	Response
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	Yes, I think so. The basics stay the same. The measures are business orientated.
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	Yes, I but I am concerned about the question completion result.
<i>User Acceptance</i>	
Does the DSS the decision-making process?	Definitely, because there are some the things that will make you think twice before you implement something and will let you think about what type of decisions you take.
Could you use the DSS in your department?	Yes, it's good to know where you stand.
Would you expect to experience advantages for the utilisation of this DSS?	Better relationships, productivity, more team work, improved maintenance quality. There is a lot.
Would you expect to experience disadvantages for the utilisation of this DSS?	It depends what you do about it. There are people who don't want you to change them. You concentrate so much on the morale and forget about the core. You are not balanced.
What would you suggest to improve the DSS?	More detail and interpretation. Possible percentage, where is the top. Graphs require more of a relationship. A benchmark would be nice to have. Would like to see who you can interact with. The ratings should be proportional to something.
Overall, how would you rate the proposed morale evaluation DSS?	The results obtained for question completion a problem and what are the causes of people not answering the questions? How does this effect the results? For the next implementation it must be made sure the people complete all the questions. For me to be able to work on this I need more sub-items. For example, pride in the organisation. I need to know what to address, what I can do. You need to have something tangible to guide what you should do. That is what I need to see. I am in the same place.

Organisation A HR Representative

Table H-29: Interview Responses: Organisation A HR Representative

Question	Response
<i>DSS need evaluation</i>	
Has the organisation attempted to measure morale in the past?	There some initiatives on employee morale. Done by head office.
How were the results used?	I don't think the results were ever used. People were interviewed. There were a lot of changes after that.
Were the interventions effective?	
<i>Validation of research done</i>	
What is your opinion on the DSS's ability to evaluate the morale of a maintenance team?	I know females are most unhappy in the organisation, but the study shows the morale is higher than the men. So, I wonder if they really responded truthfully. Did the participants understand that this would not be used against them?
What is your opinion on the DSS's ability to identify the significant morale affecting factors?	I agree and understand the organisation result. But I would expect growth to have rated to be more important. There is no surety of growth even if you achieve a qualification, someone needs to die or leave for you to grow. Otherwise it all makes sense.
Based on your opinion what are the strengths of the DSS?	The strength is the 80/20 model. If you sort out a few items, you get 80% of the benefits. Many of the items are linked. If you sort out a few items, you sort out everything.
Based on your opinion what are the weaknesses of the DSS?	The response and if people answered the truth. It depends on the information that comes from people, not systematic outputs. You do not base the result on tangible data for example absenteeism. This is tangible only of people respond truthfully.
<i>DSS Implementation and Relevance</i>	
Do you see the benefit in the use of such a DSS?	If people are demoralised, they do not come to work. It will reduce absenteeism, people idling, people fighting, increase productivity. Will assist with people's health. I get sick when I am demoralised. With the problems with the organisation I don't know if anyone would want to hire me. No matter how good I am.

Table H-29: Interview Responses: Organisation A HR Representative (Continued)

Question	Response
How regularly do you suggest the analysis should be done?	<p>It should be incorporate with the company policies and procedures.</p> <p>Every quarter, when we evaluate people's performance. We cannot expect performance when the organisation has not put in anything from the organisation. To ensure the person has been given an environment where they can perform.</p>
Do you foresee any stumbling blocks in the use of this DSS?	<p>Not really, but we are a union-infected company. People may think by doing the study you are trying to block them or get other people into trouble.</p> <p>If you want to evaluate people you should give people the opportunity to evaluate you.</p>
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	It can be implemented in any department.
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	Yes.
<i>User Acceptance</i>	
Does the DSS the decision-making process?	<p>Yes, it supports decision making processes. In one of the courses I did, the lecturer said, "you must create a quality job for a quality person to get a quality output."</p> <p>So, you need to evaluate what people like and what they don't like. To get the best out of people you need to understand them. Ensure they have what they need like spares. Make sure they are in an environment that they at least like to do. You don't always enjoy work but most of the time you should be positive rather than negative.</p> <p>This DSS helps you determine what people want. Determine the right and wrong things you are doing. Keep the right and work on the wrong. You won't be able to win with everyone.</p>
Could you use the DSS in your department?	<i>Was not asked</i>
Would you expect to experience advantages for the utilisation of this DSS?	<i>Was not asked</i>

Table H-29: Interview Responses: Organisation A HR Representative (Continued)

Question	Response
Would you expect to experience disadvantages for the utilisation of this DSS?	<i>Was not asked</i>
What would you suggest to improve the DSS?	I would like to see if it matches with production output and absenteeism.
Overall, how would you rate the proposed morale evaluation DSS?	Numbers don't lie I'm really happy with it I think it a very good tool to use when you evaluate a person let them also evaluate you.

Organisation B Engineering Manager

Table H-30: Interview Responses: Organisation B Engineering Manager

Question	Response
<i>DSS need evaluation</i>	
Has the organisation attempted to measure morale in the past?	Yes, not necessarily morale but does look at change management. Survey to look at how people are feeling. Surveys driven by HQ.
How were the results used?	Don't know what is done with the results They do produce a heat map of the results, but this does not show what can be done to change the results.
Were the interventions effective?	Get survey then results but no actions and then there should be a follow up survey to review the improvements.
<i>Validation of research done</i>	
What is your opinion on the DSS's ability to evaluate the morale of a maintenance team?	It's a good tool. Best tool, straightforward; and shows where you should attend to. For six months focus on the top two/four items. Each department can work on their own items. Keep using the DSS and allow the strategy to evolve as items are addressed.
What is your opinion on the DSS's ability to identify the significant morale affecting factors?	Covered in above answer
Based on your opinion what are the strengths of the DSS?	Able to show the issues and recommendations. Clear feedback where I should work on. Other studies showed results but no suggestions. This should not only be a management tool but should also be used by supervisors. When you know where the problems are you can go to the teams and ask for their input. For example, if team building was identified they you could ask how often and what activities they would like to do.
Based on your opinion what are the weaknesses of the DSS?	The fact that the survey is paper based rather than a computer-based. But the person may not be computer literate but with paper there may be accuracy problems with the data capturing.
<i>DSS Implementation and Relevance</i>	
Do you see the benefit in the use of such a DSS?	Addressed above
How regularly do you suggest the analysis should be done?	Once per quarter per department. A year is too long to view the results.

Table H-30: Interview Responses: Organisation B Engineering Manager(Continued)

Question	Response
Do you foresee any stumbling blocks in the use of this DSS?	Only item is the decision with regards to whether it is computer or paper based. You will need to look at the department to see how many people are computer literate. The participant should not be scared of the computer before they can do the assessment. It's not one size fits all.
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	Yes, for sure. Even operations can use this. Also, you should show this tool to the manager of the change management department. This could be a valuable tool for her.
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	Yes, it is. You have done more than expected. You have moved ahead. There are actuals and stuff I can relate to.
<i>User Acceptance</i>	
Does the DSS support the decision-making process?	Yes, definitely.
Could you use the DSS in your department?	Yes, I would like to do the analysis per department. Then after a few months redo the analysis and check results.
Would you expect to experience advantages for the utilisation of this DSS?	Definitely, not only me but organisation wide. They have tried but just need better information. Like this that also shows you what or how to implement it. Past items was only the survey.
Would you expect to experience dis-advantages for the utilisation of this DSS?	No.
What would you suggest to improve the DSS?	Only doing away with paper. Would like some sort of dashboard that is transparent to everyone.
Overall, how would you rate the proposed morale evaluation DSS?	<p>Expectation for the study:</p> <ul style="list-style-type: none"> ○ Model should be something practical that can be implemented ○ Not only for school marks ○ Should work practically not only theoretical <p>Four due to hard copy</p> <p>Would prefer a computer-based survey, I will make time for everyone to do the surveys. Not everyone will be driven to capture the information accurately. Thus, the computer-based survey will be better.</p> <p>The results are clear if you understand your department.</p>

Other comment made:

When shown the critical factors to be address, showed immediate intrust and said “I like this”; went to each item, and explained how he thinks it could be addressed and why it is important, based in his studies in management.

- You need to understand employee’s values
- What is important to each person
- Cannot manage people the same

Quit factor, people talk about leaving because they want to feel important. They say it but don’t really want to leave.

Comment on the selection section stating it is a true reflection. I like this part. Gives solutions more than this problem.

Organisation B Technical Manager

Table H-31: Interview Responses: Organisation B Technical Manager

Question	Response
<i>Model need evaluation</i>	
Has the organisation attempted to measure morale in the past?	For morale purposes, no. Did do one recently to measure employee wellness. Measured state of you, how happy you are, if you are financially stable, are you happy with the job you are doing. But does not show what the company can do to improve it.
How were the results used?	Result go to group and will see what should be looked at. They are looking at the company as a whole then also the depots. This is used to determine what they need to do.
Were the interventions effective?	N/A not been implemented yet.
<i>Validation of research done</i>	
What is your opinion on the model's ability to evaluate the morale of a maintenance team?	It will identify areas of improvement.
What is your opinion on the model's ability to identify the significant morale affecting factors?	It will need managers to be more involved with the guys on the shop floor. At times they will feel isolated. That's the most important thing that we should do as management. The model will assist with this. It should be viewed as a journey. Yes this will be a good guide.
Based on your opinion what are the strengths of the model?	Quite powerful, it should be installed in the core values. It should be given time. Especially in the teething phases. It will pay off
Based on your opinion what are the weaknesses of the model?	The negative people resisting change can over throw it. They can voice challenges until the person who is the key driver for this change can feel as if it would make them frustrated from the onset. The number of complaints can be very unmanageable, and they will show you they don't want this.

Table H-31: Interview Responses: Organisation B Technical Manager (Continued)

Question	Response
<i>Model Implementation and Relevance</i>	
Do you see the benefit in the use of such a model?	<p>Yes, for me it will have a benefit as long as it is not a tool to make a break people but rather a tool to improve the organisations output.</p> <p>Good win.</p> <p>Align it to the organisations culture, vision and mission.</p>
How regularly do you suggest the analysis should be done?	Quarterly
Do you foresee any stumbling blocks in the use of this model?	<p>The different shifts. When you speak to one person the interpretation will go haywire, everything you do goes out so quickly.</p> <p>Change management will be an issue at first. This should become a culture and should not occur once off.</p> <p>People resisting change can over throw you.</p> <p>The workshop dynamics, some will acknowledge it, other accept it, other debate it and in the debate, there will be a dialogue amongst each other and untimely they will express it.</p>
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	<i>Was not asked</i>
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	Yes.
<i>User Acceptance</i>	
Does the model the decision-making process?	Indirectly, it is more focused in the areas of people than the element.
Could you use the model in your department?	Yes.
Would you expect to experience advantages for the utilisation of this model?	<p>Would see on the third quarter. Monitor and continue with the journey.</p> <p>Can see changes year-to-year</p>
Would you expect to experience disadvantages for the utilisation of this model?	Starting the cycle from scratch with new people. New people bring new, negative energy. The movement of staff does the same.

Table H-31: Interview Responses: Organisation B Technical Manager (Continued)

Question	Response
What would you suggest to improve the model?	Add residential area to the demographics as some of these areas are very dangerous. People also do not know how to express this problem. The glossary can be separate, easier to use it as a reference Include no education and Abat Graph would like to have a target or base line.
Overall, how would you rate the proposed morale evaluation model?	Four, very good

Organisation B HR Representative

Table H-32: Interview Responses: Organisation B HR Representative

Question	Response
<i>Model need evaluation</i>	
Has the organisation attempted to measure morale in the past?	Surveys have been done as part of the culture charter.
How were the results used?	Feedback is given to the people who drive change management. I'm not sure how they utilise the information. They look at areas of most concern and look at it from a change management point of view how it can be addressed.
Were the interventions effective?	I think it is ongoing. Only recently there is a change management team on board to look at it.
<i>Validation of research done</i>	
What is your opinion on the model's ability to evaluate the morale of a maintenance team?	You will need to test it to see if it works. From what you presented I think we will get the expected results. Yes, you do have the ability to give the required results.
What is your opinion on the model's ability to identify the significant morale affecting factors?	This is useful. Once the factors are prioritised. You are able to address the negative or positive items. I love this.
Based on your opinion what are the strengths of the model?	It could show the most significant factors this is important to us. The questions zoom into the problem areas. The way the questions are structured give you the results as to what you want to measure, the output you want. I am quite comfortable to say this model will assist.
Based on your opinion what are the weaknesses of the model?	The weakness can only be found once you test it. That's where we will see what can be improved.
<i>Model Implementation and Relevance</i>	
Do you see the benefit in the use of such a model?	Huge benefits, we tend as an organisation to forget the employee side. We just look at productivity. We don't look at the cause why the peak of productivity is high or why it has dropped. The senior managers say we should align and be seen as one organisation. But the people on the ground do not see the alignment. When the assist in other area they see the different operating conditions and facilities and yet we are one organisation.

Table H-32: Interview Responses: Organisation B HR Representative (Continued)

Question	Response
How regularly do you suggest the analysis should be done?	Once a year. Shorter may not give enough time to see the benefit. Even if you have not had enough time to complete the project employees can see you are working on it.
Do you foresee any stumbling blocks in the use of this model?	No, we are doing well with sharing information with employees. The only stumbling block come in when employees are asked to do something that they do not understand. For us we have our change agents, labour and supervisors who are well informed. Employees are also eager to give feedback and take part.
Even though this tool was developed to be used in SOEs Technical Departments can it be applied in other organisations or departments?	The model can be used across, not only technical. It can be used in other departments.
<i>Process Evaluation</i>	
Do you think the process followed in this study was meaningful and logical?	The process followed was excellent. The presentation method used assisted to understand the processed followed of an outside person.
<i>User Acceptance</i>	
Does the model the decision-making process?	Definitely yes.
Could you use the model in your department?	Yes, even in HR. We want to use it. We will start here.
Would you expect to experience advantages for the utilisation of this model?	Finding ways to improve morale. You allow employees to give you information in terms of what is bothering them. It becomes easier to do at regions/ depot level than driven through HQ. There is no participation when rolled out from HQ. At depot level you can use it while when from HQ you get given it.
Would you expect to experience disadvantages for the utilisation of this model?	When you have people committed to listen. Because this is way for employees to voice their dissatisfaction and if you do not follow up. People will not participate freely because they will feel nothing is done. This is just like the other surveys that have been done. People not wanting to complete it because there are so many other surveys and they do not see the benefit for the others. Even though I like the questions in this one they are quite details and zoom into certain areas.

Table H-32: Interview Responses: Organisation B HR Representative (Continued)

Question	Response
What would you suggest to improve the model?	The model needs to be tested and a case study done. Cannot say what must be improved until it is practically implemented.
Overall, how would you rate the proposed morale evaluation model?	Would like to be part of the implementation and testing of such a model and see how it is done.