Motivating Human Assets in the Field of Physical Asset Management

by

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Thesis presented in partial fulfilment of the requirements for the degree of Master of Engineering in the Faculty of Engineering at Stellenbosch University

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Declaration

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Date: .....

Abstract

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Thesis: MEng (Industrial)

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Effective task execution is essential to asset intensive companies as it influences production and asset utilization. However, persuading employees to execute their assigned activities is recognized as one of the most challenging tasks that managers are confronted with today. Enhancing employee motivation in the workplace is considered as a means of augmenting task execution.

Traditionally it has been the duty of the Human Resources (HR) department to address elements such as enhancing employee motivation. However, this position has shifted such that line managers are often required to take over Human Resource Management (HRM) practices. It has been identified that line managers, especially engineers, are often not HR-specialists and are rarely sufficiently trained in HRM techniques and practices.

This study proposes a framework to provide managers of a primarily technical background, with a tool to assist them in assessing the extent to which aspects

of motivation are utilized in the working environment. The aim of the framework is to facilitate these managers in establishing an environment with the highest potential to motivate their employees.

An extensive literature review which covers work motivation theories and influences serves as the essence of the proposed framework. Validation of the proposed framework was accomplished by means of an expert review panel and the findings of this study support the framework structure and its applicability to industry. Shared participant views engender confidence in the ability for the proposed solution to aid managers in improving the use of motivational aspects in the management of their employees.

Uittreksel

Motivering van Menslike Hulbronne as deel van Fisiese Bate Bestuur

("Motivating Human Assets in the Field of Physical Asset Management")

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Tesis: MIng (Bedryfs)

September 2015

Effektiewe taakuitvoering is essensieel vir bate intensiewe besighede aangesien dit produksie en bate aanwending beinvloed. Dit blyk egter dat om werknemers te kry om hulle opdragte en bepaalde take effektief uit te voer een van die mees uitdagende bestuurstake in vandag se samelewing is. Die verhoging van werknemer motivering in die werkplek word beskou as 'n middel tot die verbetering van taak uitvoering.

Tradisioneel was dit die verantwoordelikheid van die Menslike Hulpbron department om aspekte soos die verbetering van werknemer motivering aan te spreek. Vandag egter moet lynbestuurders dikwels hierdie personeelfunksie oorneem. Daar is bevind dat lynbestuurders, veral ingenieurs, dikwels nie Menslike Hulpbron - spesialiste is nie en dat hulle selde voldoende opgelei is in personeelbestuurs- tegnieke en praktyke.

Hierdie studie stel 'n raamwerk voor wat bestuurders, met hoofsaaklik 'n tegniese agtergrond, as riglyn kan gebruik om te bepaal tot watter mate aspekte van motivering gebruik word om taakverryking in die werksomgewing te stimuleer. Die doel van die voorgestelde raamwerk is om hiedie bestuurders in staat te stel om 'n werksomgewing te skep met die hoogste potensiaal vir die stimulering van werknemers motivering.

'n Omvattende literatuurstudie van verskeie werkgeorienteerde motiveringsteorieë en die implikasies en manifestasies daarvan in die praktyk is ontleed en dien as grondslag vir die voorgestelde raamwerk. Verifieering van die voorgestelde raamwerk is bewerkstellig met behulp van 'n paneel deskundiges en die bevindinge van die studie ondersteun die raamwerk struktuur en die toepaslikheid daarvan vir industrie. Deelnemende medewerkers menings bewerkstellig vertroue in die vermoë van hierdie voorgestelde oplossing om bestuurders te ondersteun om die gebruik van motiverings aspekte in die bestuur van hulle werknemers te verbeter.

Acknowledgements

I would like to express my sincere gratitude to the following people and organizations:

- Prof. P.J. Vlok, my study leader, for his support and guidance
- Anglo American for the financial support
- My family, for their continued support and encouragement
- Tom, for his continued love, patience and motivation

The Author
September, 2015

Dedications

This thesis is dedicated to my parents
Rob and Angela,
for their unfailing support and love.

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Acronyms and Abbreviations

BP	British Petroleum
CEO	Chief Executive Officer
DBM	Decision Band Method
ERG	Existence, Relatedness, Growth
GFMAM	Global Forum on Maintenance and Asset Management
GNS	Growth Need Strength
HR	Human Resources
HRM	Human Resource Management
IAM	Institute of Asset Management
ISO	International Organization of Standardization
MPEM	Motivational Potential Evaluation Matrix
MPS	Motivating Potential Score
PAM	Physical Asset Management
PAMBOK	Physical Asset Management Body Of Knowledge
PAS	Publicly Available Standard
ROC	Rank Order Centroid
USD	United States Dollar

Chapter 1

Problem Statement

The aim of this chapter is to formulate the problem statement for this thesis. This is done by providing an introduction to the field of Physical Asset Management (PAM) with particular reference to the importance of people in the field of PAM. Persuading employees to execute their tasks is identified as a challenging task for managers. The lack of employee motivation in the workplace is considered as one of a number of reasons for ineffective task execution. The chapter therefore establishes the context and research domain for the thesis and the problem that is identified. Figure 1.1 shows an overview of the thesis structure and serves as a roadmap for the duration of the document.

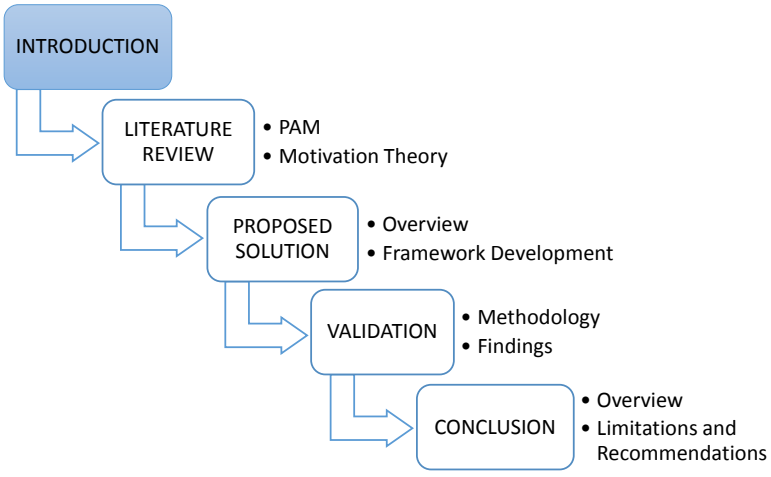


Figure 1.1: Thesis roadmap

1.1 Introduction

Organizations are facing an increasingly competitive market that is constantly changing. This has led to the implementation of strategies in order for an organization to achieve and sustain profitability in the current environment. According to Frolov *et al.* (2010), PAM has been identified as an area which can contribute to ensuring the success and future advancement of an organization. This view is shared by industries worldwide who, as a result of this understanding, are continuously seeking strategies, methods and practices to improve the management of their assets (Andersen *et al.*, 2009; Schneider *et al.*, 2006; Schuman and Brent, 2005).

1.1.1 Scope of PAM

The aim of Asset Management is for an organization to realize value from its assets through the coordination of activities. According to IAM (2011), Asset Management has developed into an expectation for organizations to sustain competency and competitiveness. Asset Management involves aspects of management including business and financial management in addition to technical, engineering, operations and maintenance management. The breadth of the knowledge base is therefore large and understanding it is difficult.

IAM (2011, p.5) establishes an understanding of Asset Management in that it "converts the fundamental aims of the organization into the practical implications for choosing, acquiring (or creating), utilizing and looking after (maintaining) appropriate assets to deliver those aims". In order to do this, an organization must pursue an optimal approach of combining costs, risks, performance and sustainability.

The scope of Asset Management is shown in Figure 1.2 which illustrates that there are six main subject groups within PAM. These include Asset Management Strategy and Planning, Asset Management Decision-Making, Life-cycle Delivery Activities, Asset Knowledge Enablers, Organization and People Enablers and Risk and Review. Figure 1.2 draws attention to the importance of the integration of these subject groups in order to ensure successful Asset Management (IAM, 2011).

PAM refers specifically to the management of physical assets. The field of PAM involves all aspects of the management of physical assets such as those shown in Figure 1.2.

The field of Asset Management has an extensive body of research as it is viewed

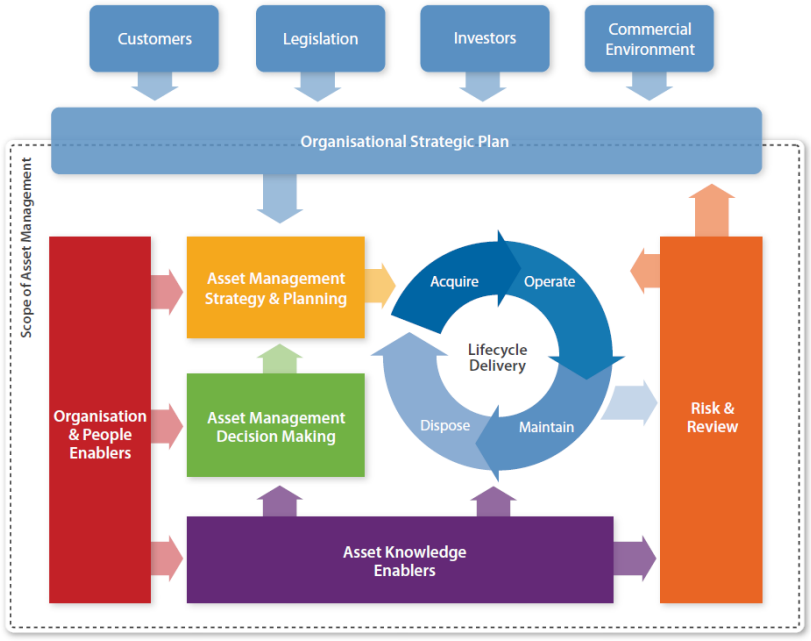


Figure 1.2: Conceptual model for PAM (IAM, 2011)

as an opportunity for improvement within an organization. PAS 55 is a Publicly Available Standard (PAS) developed by BSi (2008) to provide industry with a specification that focuses on the optimal management of physical assets. PAS 55 has been described as the "primary contributor" of the ISO 55000 series (Baum and Vlok, 2013, p.48), a standard published by the International Organization of Standardization (ISO) which provides an overview of Asset Management and Asset Management Systems (BSi, 2014). ISO 55000 has subsequently superseded PAS 55 as the most recognized international standard pertaining to Asset Management (Van den Honert *et al.*, 2013). The development of PAS 55 and ISO 55000 have formalized the field of Asset Management and provided organizations with a guideline for best practices regarding the management of physical assets. A broad landscape of the scope of Asset Management is provided in the literature review in Chapter 2.

Physical assets are characterized by PAS 55 as plant infrastructure, buildings, machinery, equipment or any other article that provides or has the potential to provide value to an organization. This is supported by Amadi-Echendu (2004), whose definition includes that a physical asset is regarded as any item with the ability to create, sustain or destroy value.

PAS 55 indicates that there exist five types of assets, of which physical assets is one type. The other types are human assets, information assets, financial assets and intangible assets. Elements of intangible assets include the reputation, morale, intellectual property and goodwill of an organization. A key argument made by PAS 55 is that the management of physical assets is not limited to the category of physical assets but is "inextricably linked to the other categories of assets" (BSi, 2008, p.VI).

ISO 55000 also reinforces the definition of a physical asset given by PAS 55, however the ISO 55000 series does not detail types of assets. A distinction is made between physical assets and intangible assets acknowledged to be non-physical assets (BSi, 2014).

A definition of Asset Management provided by PAS 55 is that it is organized and integrated activities employed by an organization to manage the performance, risks and expenditures of their assets for the total duration of the life-cycle of the assets. According to the ISO 55000 series, Asset Management is represented as "coordinated activity of an organization to realize value from assets" (BSi, 2014, p.14).

In this context IAM (2011) indicates that value can be regarded as capital value attained through buying and selling, or performance value through optimal asset utilization. However, value can also be perceived as negative such as when an asset is regarded as a liability (a risk, responsibility, or debt). In order to realize the value from these assets, the objective would be to regulate or minimize the liability.

With reference to the definitions of physical assets and Asset Management, PAM can be described as activities specifically coordinated by an organization to achieve the the optimum value from their physical assets, for the total duration of the assets' life-cycles. The life cycle of a physical asset includes acquisition or creation, utilization, maintenance and disposal (BSi, 2008).

An Asset Management System is used by an organization to direct, coordinate and control the activities of Asset Management (BSi, 2014). It therefore provides an organization with the elements to institute Asset Management policy, objectives and processes in order to ensure that the objectives of Asset Management will be achieved. The hierarchy of an Asset Management system is illustrated in Figure 1.3.

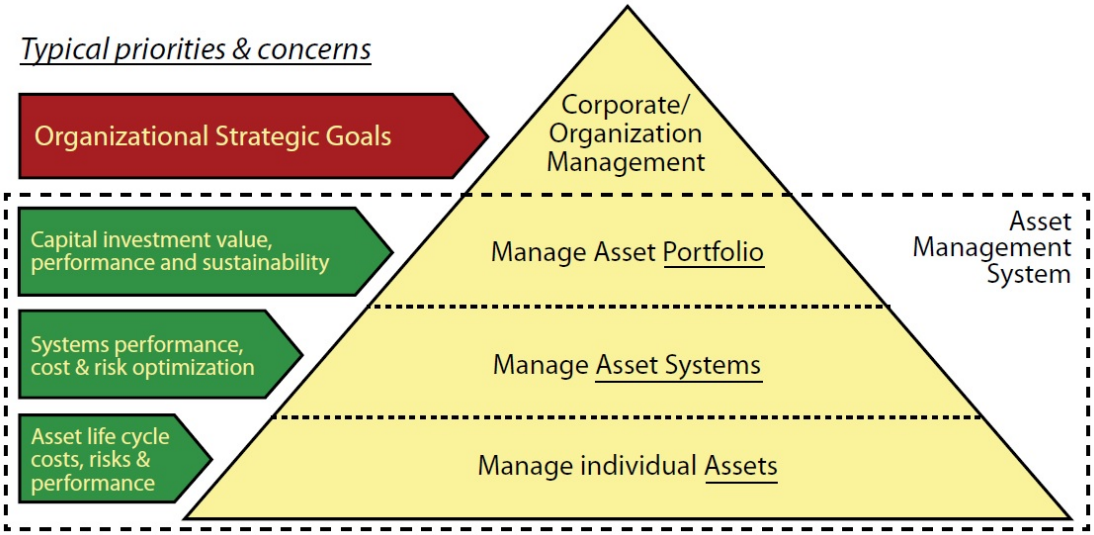


Figure 1.3: Hierarchy of assets within an Asset Management System (IAM, 2011)

The focus if this thesis is the management of individual physical assets in order to achieve optimal value during the utilization and maintenance parts of their life cycles. This is thus the bottom level of the pyramid shown in Figure 1.3.

1.1.2 People and PAM

Regardless of the level of automation that is employed at an organization, a machine or process cannot function without human input. PAM cannot be achieved by machines and processes alone but requires human contribution to succeed (Tsang, 2002). This is emphasized by IAM (2011) which considers people an integral component of Asset Management due to the fact that is it people that "do" Asset Management. It has also been accepted within industry that the human factor is crucial to the successful management of physical assets (Amadi-Echendu *et al.*, 2010; Tsang, 2002). Thus, it has been established that people and their knowledge, competence, motivation and teamwork contribute to achieving successful PAM.

This view has surpassed the traditional attitude that employees are costs and not necessarily value adding assets. ISO 55000 illustrates that human aspects such as leadership, culture, motivation and behaviour "can have a significant influence on the achievement of asset management objectives" (BSi, 2014, p.4).

Zeng (1997) has identified that one of the human factors that contributes to the

failure of successful PAM is that employees are reluctant to or avoid executing tasks within their job role. It has been recognized that one of the greatest challenges that a manager faces in today's working environment is to get employees to perform the activities within the scope of their job (Nohria *et al.*, 2008). This is especially valid for employees at the lower levels of an organization where the performance of menial but necessary tasks are executed poorly or not at all.

In terms of PAM, tasks not being executed could have a serious detrimental effect on the expected life of a physical asset. An example of this is if the required maintenance tasks for a machine are not executed, the machine could breakdown; this includes menial tasks such as greasing and tightening bolts. The consequences of machine breakdown include additional costs incurred for replacement of parts and lost production time while the machine is not operating (Wang *et al.*, 2007). Therefore, ensuring that the maintenance tasks are executed is crucial to reducing the number of machine breakdowns and consequently reducing costs.

No consensus has been reached in literature to specify why people are not executing the tasks required of them. Employees not performing their jobs has been attributed to a lack of understanding, insufficient skill, lack of resources, limited time, inadequate discipline or lack of motivation (Sull and Spinosa, 2007; Manzoni and Barsoux, 1997). These aspects will be further discussed in Chapter 2. The purpose of this study is not to understand or determine which one of these potential aspects is the chief contributor to the issue. Instead, the issue is specifically addressed through motivation and motivational theory.

1.1.3 Motivation and motivational theory

The concept of work motivation has yet to be explored in the context of PAM. It has been identified that by the IAM (2011) and BSi (2014) that a motivated workforce contributes to the successful achievement of Asset Management. However there has been little research within the PAM field that seeks to establish how to motivate employees in the PAM environment. Therefore, an approach to address the gap in the Physical Asset Management Body Of Knowledge (PAMBOK) with regard to the human aspect of PAM is considered through the study of motivation and motivational theory.

Motivation is a very difficult concept to define due to the extensive research conducted in this field (Meyer *et al.*, 2004). However, a definition considered to accommodate the various theoretical views that have contributed to the explanation and understanding of work motivation is provided by Pinder (2008, p.11):

> "Work motivation is a set of energetic forces that originates both within as well as beyond an individual's being, to initiate work-related behaviour, and to determine its form, direction, intensity, and duration."

This definition has two important features (Meyer *et al.*, 2004). Firstly, it identifies motivation as an energetic force which establishes what encourages individuals to engage in actions. Secondly, the fact that this energetic force has an effect on the form, direction, intensity and duration of motivated behaviour. Therefore, what individuals are motivated to achieve is explained in addition to how an individual will attempt to achieve this, how much effort will be expended to do so and for how long they will expend that effort.

A large number of studies in the field of Human Behaviour and Industrial and Organizational Psychology have been performed specifically in an attempt to address the issue of motivation and formulate a means to motivate people to do their work (Latham, 2005; Locke and Latham, 2004; Steers *et al.*, 2004). Work motivation theories and studies cover a wide range of motivational considerations including personality, emotions, social aspects, culture, age and gender (Kanfer and Ackerman, 2004; Cardinal *et al.*, 2002; Haslam *et al.*, 2000; Furnham *et al.*, 1999). According to Wiley (1997), interest in the relationship between people and their work dates back to the early 20th century. As a result of this, much of the literature pertaining to work motivation is considered out-dated. Despite this, the literature is still considered relevant as insight into human motivation can be gained from these studies and provides a basis for more recent theories (Steers *et al.*, 2004).

Meyer *et al.* (2004) report that work motivation has evolved from more general theories of motivation and has predominately been applied in an attempt to understand task performance. In principle, early developments in the field of work motivation were based on the concepts of drive or reinforcement. By the 1950's, various models of work motivation were developed. These theories have been referred to as content theories as the aim was to identify factors related to motivation (Steers *et al.*, 2004). Amongst these was the hierarchy of needs theory which was later adapted by Alderfer (1969). Another needs theory introduced by Murray (1938), differed from that of hierarchy of needs theory by ignoring the concept of a hierarchy and focused instead on the "motivational potency" of specific needs (Steers *et al.*, 2004). Motivational theories based on needs explain why an individual must act however the reasons why specific actions are chosen in particular situations to achieve certain outcomes are not explained (Latham, 2005).

During the 1960's, a shift in the approach to motivation was observed in that researchers focused on characterizing the processes fundamental to work motivation. Cognitive theories are considered to be central to the genre of these process theories and they attempt to understand the thought processes in which people engage in order to determine how to behave in the work environment (Steers *et al.*, 2004). Examples of process theories include expectancy theory, equity theory, goal-setting theory and social cognitive theory (Karathanos *et al.*, 1994; Latham and Locke, 1991).

Another work motivation concept that has been researched is that of job design. This concept is based on the opinion that the optimal method of motivating people is through the efficient design of jobs. Three key approaches to job design have been developed. These theories are socio-technical systems theory, activation theory and job characteristics theory (Gagné and Deci, 2005; Cooper and Foster, 1971; Scott Jr, 1966).

According to Steers *et al.* (2004), interest in the field of work motivation has declined since the 1990's. Instead of new breakthrough developments of the understanding of the principles of motivation in the working environment, numerous studies have been conducted that extend, test or apply previous theories in different settings (Manolopoulos, 2007; Sachau, 2007; Arnolds and Boshoff, 2002; Hagerty, 1999). Various influences on motivation have also been investigated. Examples of these include age, management level, culture, private and public environments, intrinsic and extrinsic aspects of motivation (Erez, 2010; Saithep, 2008; Frank and Lewis, 2004; Kanfer and Ackerman, 2004; Ryan and Deci, 2000).

The various work motivation theories and influences are further explored in the literature review in Chapter 2.

1.1.4 Utilization of motivational theory in PAM

Therefore, an investigation into the field of work motivation in connection with PAM is proposed, in order to address the gap in the PAMBOK. An application of work motivation theory in the field of PAM may yield a new means of achieving successful PAM. Therefore, this thesis investigates the field of work motivation as a method of addressing poor task execution in the workplace. The research domain of this thesis is illustrated in Figure 1.4.

Figure 1.4 indicates that in terms of the scope of Asset Management, the focus is on two of the six subject groups. These are Life-cycle Delivery Activities and Organization and People Enablers. This addresses the people aspect within the

PAM context. From the motivation field, the focus is work motivation theories and influences.

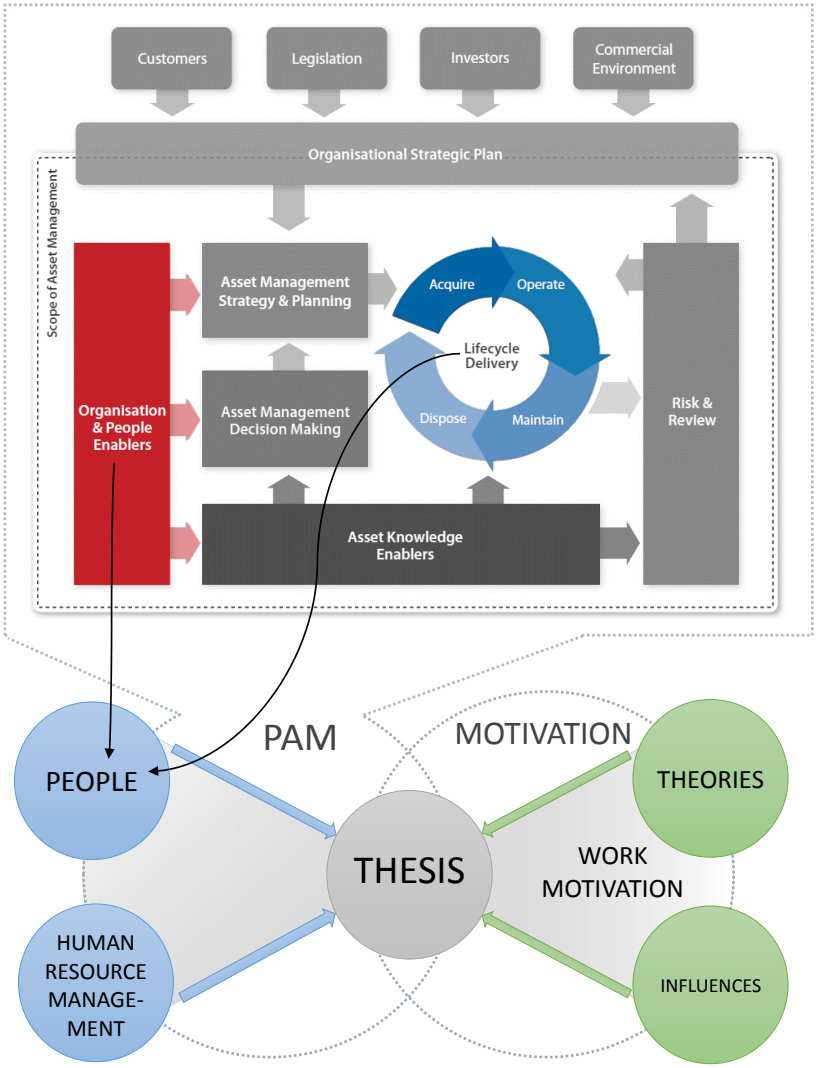


Figure 1.4: Thesis domain

1.2 Problem Statement

Despite the extensive research and studies that have developed the PAMBOK, there remains a gap with regard to the human element to the contribution of PAM. Traditionally, people have been perceived as non-value adding costs. However, this view has shifted and it has been accepted in industry that people and their

knowledge, competence and motivation are crucial to the successful management of physical assets. In spite of this, limited attention has been paid to the human factor of PAM and the potential for people to contribute to the success of PAM.

Zeng (1997) identified that a lack of task execution or poorly performed tasks contributes to the failure of PAM. One of the reasons for this can be attributed to the lack of motivation employees feel to do their work. Jobs are defined on a technical needs basis which means that they exist because the performance of a specific task is required and that task requires particular resources such as human input. However, little attention has been paid to defining job descriptions with respect to their perceived motivational potential. Herein lies a chance to contribute to the PAMBOK with the identification of aspects of motivational theory that will contribute to the performance of job activities and support the successful achievement of PAM.

Managers require a tool to assist them in motivating employees to do the jobs required of them. The tool should act as a guideline and should be flexible and applicable to industry. The complexity of motivation and the differences in peoples' opinions and requirements should also be considered. Finally, the tool should provide a holistic approach to the problem.

The study aims to address the above-mentioned needs with the development of a framework to assess the extent to which motivational aspects are utilized in the working environment. The framework should provide managers with a structured, logical approach to identify what aspects of motivation a manager should add, increase or maintain within a specific working environment in order to augment the potential of the working environment to motivate the employee. This will facilitate managers in establishing an environment with the highest capacity to motivate the employees. The research problems are translated into the following central research question.

> *Is it possible to develop a framework to assist managers in improving current management practices in the PAM environment by quantifying the level of use of motivational science in the working environment and subsequently recommending steps for intervention?*

From the central research question the following null hypothesis was derived.

H_0:	It is not possible to develop a framework to assist managers in improving current management practices in the PAM environment by quantifying the level of use of motivational science in the working environment and subsequently recommending steps for intervention.

1.3 Delimitation

In order to effectively achieve the research objectives, the boundaries of this study require some definition. In terms of the broad context, the thesis is limited to the field of PAM. Attention is focused on the importance of people in the PAM context and the requirement of human input for the successful achievement of PAM.

Furthermore, it is not the object of this thesis to understand or investigate other reasons that may contribute to poor task execution in the workplace. Therefore, reasons such as lack of understanding, insufficient skill, lack of resources, limited time and inadequate discipline are not explored.

People in the context of PAM are then linked to the field of human behaviour. This is a remarkably large field of research and as such the thesis focuses specifically on the concept of motivation. The study of motivation is also a large area of research and thus it became necessary to further limit this thesis solely to the range of work motivation. Work motivation is thus bounded to theories and studies developed and conducted in a working environment.

Of the extensive literature related to work motivation, only work motivation theories considered by the academic community to be dominant and paramount to the understanding of aspects of motivation in the workplace were explored. Other aspects of work motivation that have not been developed into theories were acknowledged but not considered in any detail. The thesis was limited to identifying aspects of motivation from work motivation theories that lead to increased employee motivation and specifically those that a line manager can influence or has the authority to manipulate. Therefore, factors such as financial incentives, pay and time off were considered outside the scope of the study.

It was also not the purpose of the study to provide solutions of how to address motivational considerations in the workplace. This is due to the variety of circumstances and procedures within different organizations and thus, the diversity of problems that could occur. Instead, the framework aims to facilitate a manager in understanding and identifying aspects within a job role that can or should be

addressed in order to enhance employee motivation in the workplace.

1.4 Research Objectives

The research objectives for this thesis are to:

1. Understand the points of contact between PAM and the motivation of people;
2. Establish aspects of motivation, from the literature on motivational theories, that are critical to motivating employees in the work environment;
3. Develop a framework incorporating these critical aspects which will allow for the level of use of the motivational aspects within the working environment to be quantified; and
4. Validate the framework through the method of face validation.

1.5 Methodology

The methodology followed in this thesis involved a broad overview of the field of PAM, with particular focus on assets and the types of assets within an organization. Also discussed was the international standard for Asset Management, ISO 55000, and its relevance within the PAM domain. This leads into a critical section of the literature study which examined the people element of PAM.

An aim of this thesis was to ascertain the aspects of motivation that have been empirically established to lead to increased employee motivation. Therefore, the literature study encompassed a comprehensive examination of the most prominent and acknowledged work motivation theories. From the literature, critical aspects of motivation specific to the working context were determined.

Using the motivational aspects derived from the literature study, a framework to assist managers in quantifying the level of use of motivational aspects in the working environment was developed.

In order to validate the proposed framework, the method of face validation was used. Data was collected through semi-structured interviews with a panel of three experts. The validation process allowed for conclusions to be made regarding the success of the framework and its applicability and suitability for use in industry.

1.6 Document Structure

The structure of this thesis follows a logical sequence with the aim that each chapter establishes the context of the subsequent chapter. Therefore, the research objectives are addressed in the order described in Section 1.4. This ensures that the reader is able to easily follow the flow of the research.

Chapter 1 – Introduction
Chapter 1 aims to provide a broad introduction to the thesis topic. It establishes the need for the study and illustrates its purpose. The problem statement, delimitation, research objectives and research methodology are defined.

Chapter 2 – Literature review
Chapter 2 presents the literature review of the research pertinent to this thesis. This includes an overview of the PAM domain and most specifically the importance of the people aspect within PAM. Focus is also applied to the work motivation theories considered to be the most dominant and distinguished in the field of motivation. Critical aspects of motivation are subsequently derived from the theories of work motivation.

Chapter 3 – Proposed solution
This chapter involves the development of the framework that will be used to quantify the level with which managers utilize motivational aspects in the management of their employees. The development of the framework is discussed and each of the steps included therein are detailed.

Chapter 4 – Framework validation
Chapter 4 describes the validation of the proposed framework through the method of face validation. The methodology of the validation is discussed in addition to the findings established by way of an expert review panel.

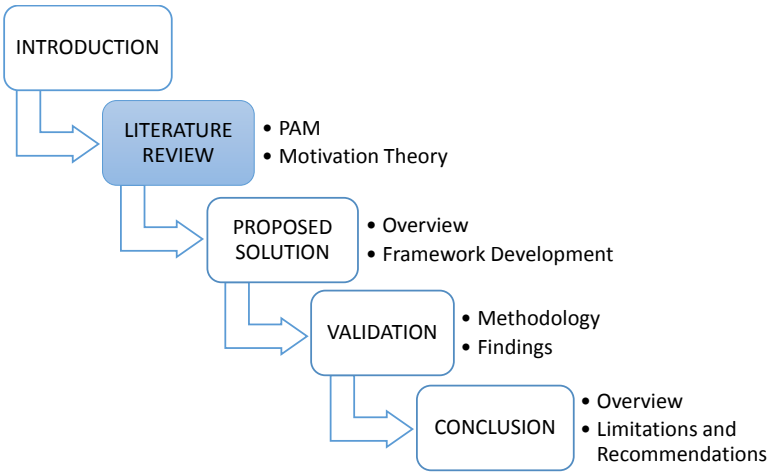
Chapter 5 – Motivational aspectsknowledge, competence, motivation and teamwork validation
Chapter 5 describes the validation of the questions derived from the motivational theories discussed in Chapter 2. Similarly to the framework validation, the method of face validation was used. The methodology of the validation is discussed in addition to the findings established by way of a subject matter expert.

Chapter 6 – Conclusion
Limitations and future recommendations for the study are discussed in Chapter 6. Concluding remarks are reviewed as a means of closing the chapter.

Chapter 2

Literature Review

The aim of this chapter is to contextualize the thesis by outlining the PAM landscape and establishing the points of contact between PAM, people in PAM and motivation. Following this, work motivation and motivational theories are reviewed in detail and aspects of work motivation that are critical to motivating people in the working environment are identified.



2.1 PAM Landscape

For the sake of academic prudence, proper contextualization and review of the field of PAM is necessary to provide a base on which the focus of the thesis can be built. It is not the object of this chapter to detail all the aspects of Asset Management,

but rather to provide an understanding of the larger PAM environment. In the context of this document no distinction will be made between Asset Management and PAM. Thus, the terms will be used interchangeably.

2.1.1 The evolution of PAM

According to IBM Global Business Services (2007), PAM is not a new or recently emerged discipline and indicates that as of 30 years ago, the concept was termed "plant maintenance". This subsequently became "equipment management" which evolved into today's thinking regarding the concept as "enterprise Asset Management". Thus, PAM has evolved over time from a perception that included only the maintenance of physical assets to one which involves the total life-cycle of physical assets. Lutchman (2006) substantiates this with the indication that until recently PAM was considered to involve only those activities associated with the maintenance of assets.

IBM Global Business Services (2007) indicates that there is much more to the evolution of PAM than a change in name. Changes regarding the actual job functions and responsibilities within PAM have also undergone transformation and advancement. The evolution of PAM and the corporate understanding of the field are depicted in Figure 2.1.

As shown in Figure 2.1, PAM has progressed from a process which relied on paper systems and was treated as a "necessary evil" in the 1970's, to the current status where PAM is aligned with organizational strategies. Early PAM (1970's) comprised of corrective maintenance techniques, which meant that something was fixed when it broke; thus it was "corrected".

The progression from the early stages of PAM to the current understanding involved the introduction of new technologies, various software systems and predictive maintenance techniques in the 1980's. Following this, systemized management in the 1990's became the trend. This involved looking at root causes of failures and the implementation of mature software systems which allowed more to be done in less time. There was also an shift in focus to deal with specific components of machines and equipment as opposed to the whole entity.

The turn of the millennium also introduced changes to the field of PAM. Organizations reached higher levels of PAM maturity and the total life-cycles of assets were considered in addition to the maintenance phase. This allowed organizations to identify and make improvements in other phases of the asset life-cycle. The use of wireless technologies also allowed for easier data acquisition related to the

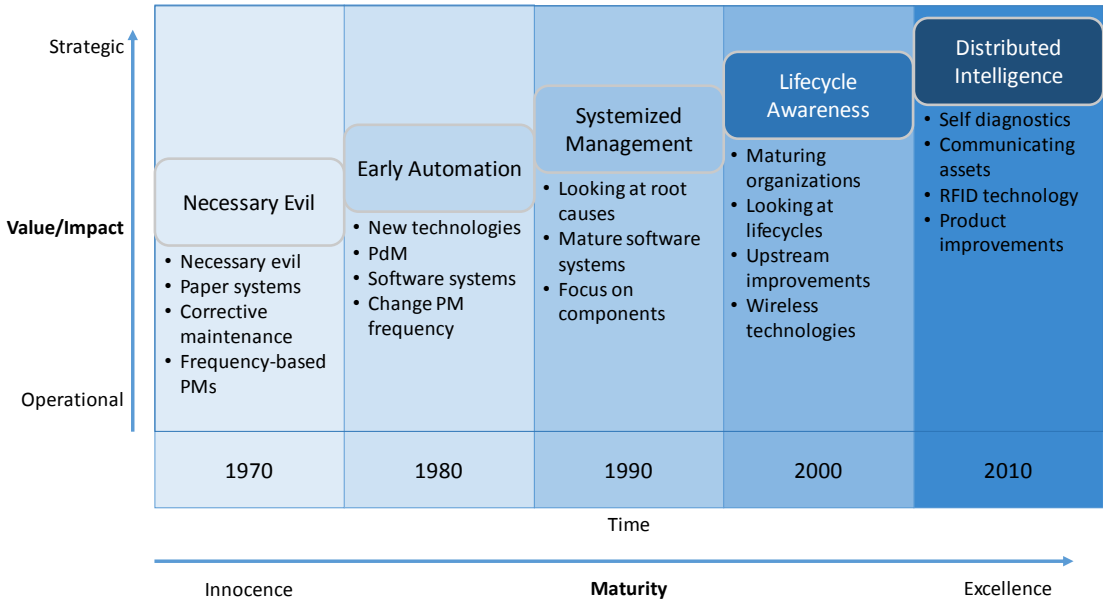


Figure 2.1: Evolution of PAM and corporate thinking (IBM Global Business Services, 2007, adapted)

assets.

IBM Global Business Services (2007) predicted that in the years following 2010, the use of management technologies would be integrated directly into the assets themselves. These technologies include self-diagnostics and Radio-frequency Identification (RFID) tags which will have the capacity to relay information such as asset status, breakdowns and performance metrics directly to the management systems in real time.

This prediction has proven accurate as RFID systems have been implemented and used successfully (Campbell *et al.*, 2011). RFID technology has been employed in numerous applications within but not limited to healthcare, food and beverage and retail industries (Zetes, 2011). Developments and progression of many of the tools, technologies and ways of thinking has occurred in recent years (Campbell *et al.*, 2011). This has allowed for further advancement of the field of PAM which assists many organizations to remain competitive in the highly competitive environment currently experienced by many industries.

Thus the value and impact of PAM has increased from an operational level at which the value contributed to an organization was limited purely to the effective

operation of machinery and equipment, to a strategic level. At a strategic level the value added to an organization is derived from various aspects of an assets life-cycle, thus allowing PAM to become an area in which an organization may gain competitive advantage. This is supported by Adriaan Scheers, Chief Executive Officer (CEO) of Pragma (a global leading PAM service provider) who stated that "for companies to survive, they need to make PAM part of their future strategic and competitive drive". It is therefore demonstrated that PAM, if effectively governed and developed, can be a strategic advantage for an organization.

Therefore, the importance of PAM has been identified in industry to the extent that it is no longer confined to the maintenance department but has risen to a level which necessitates discussion with high-profile executives.

Recent disasters such as the 2010 oil spill in the Gulf of Mexico and the energy crisis currently being experienced in South Africa, are two examples that show the importance of PAM and of ensuring that top-ranking executives are engaged in PAM decisions and activities. This ensures that the individuals responsible for critical decisions are made fully aware of the significance of PAM and entirely understand the risks of poor PAM.

British Petroleum (BP) became headline news in 2010 after one of their offshore drilling plants exploded causing millions of litres of oil to escape into the Gulf of Mexico. In addition to the eleven lives that were lost, the spill resulted in monumental damage to the environment and communities of the Gulf of Mexico and exorbitant financial losses.

The cause of the oil spill was attributed to a series of mechanical failures in addition to other organizational root causes (Muratova *et al.*, n.d.). These include cost-over safety decisions and insufficient safety systems installed. The mechanical failures that occurred indicate that the PAM was inadequate for the situation. They also led courts to declare BP at fault for the disaster due to negligence and deliberate misconduct regarding the management of the plant and the situation.

An example of a cost-over safety decision that contributed to the disaster is the cancellation of a final independent test of the drill site that failed. This test would potentially have identified the inadequacy of the seal that failed and allowed the oil to escape. However, to perform the test would induce a cost of United States Dollar (USD) 128 000 and it was therefore decided to not enforce the test (Linköping University, 2012). Thus the safety of the crew and the surrounding environment was put in jeopardy.

Linköping University (2012) reports that this spill was the biggest offshore oil spill in history and claims for damages resulting from the disaster totalled an approximate USD 70 billion. This disaster could have been avoided through consistent revision of the maintenance procedures. Also, top-level executives need to be made more aware of the consequences of selecting profit over safety as it was shown by the oil spill, this could lead to considerable financial losses. Thus, PAM clearly belongs in discussions not only involving individuals who execute the strategies and plans but also senior management personnel who make decisions related to the effective management of physical assets.

Another example illustrating the importance of PAM is that of the power supply company Eskom in South Africa. Eskom provides approximately 95% of the nation's electricity. However, since 2008 South Africa has been experiencing an energy crisis (Crowley, 2014). This led to the introduction of load shedding, a term used to describe scheduled periods of no electricity supply for specific areas of the country.

A White Paper published by the Department of Minerals and Energy (1998, p.3) was written "so as to clarify government policy regarding the supply and consumption of energy for the next decade". The document addressed the need for development of underdeveloped systems and the fact that considerable changes were considered necessary in various areas of the energy sector in order to ensure that demand did not exceed supply. Department of Minerals and Energy (1998) predicted that if no action was taken to upgrade existing power plants and develop new facilities, South Africa would sustain electricity shortages by the year 2007.

Despite having adequate warning of a potential energy emergency, Eskom and the South African government denied the possibility of a power shortage and the building and upgrading of new and existing power plants was neglected. This lasted until 2008, when nation–wide blackouts were experienced as a result of electricity demand exceeding supply.

The insufficient power supply has been attributed to deficient maintenance practices extending over many years in addition to run–down and inadequately maintained power facilities (Jermy, 2015). As reported by Bateman (2013), Eskom's maintenance programme is such that maintenance is only performed when a breakdown occurs. This indicates a low level of PAM maturity which has resulted in power plants falling into disrepair.

Thus, the need to formalize the field of PAM and the activities included therein

has been realized. This has led to the publication of internationally recognized standards developed to specifically address and guide all aspects of PAM.

2.1.2 ISO 55000 and PAS 55

The current perspective of PAM has been developed and furthered with help from PAS 55 and the subsequently published ISO 55000 series. PAS 55 is a specification published due to the demand for a specification focusing primarily on PAM (Van den Honert *et al.*, 2013). The specification therefore provides guidance regarding the optimal management of physical assets. First published in 2004, PAS 55 was revised in 2008 as consensus concerning best practices in the management of physical assets was reached at an international level (BSi, 2008).

PAS 55 is considered to be the main driver of the ISO 55000 series, which is an international standard for PAM (Van den Honert *et al.*, 2013). Despite the more recent release of the ISO 55000 series, PAS 55 is considered more user friendly and will therefore be used to establish the context of the thesis within the larger PAM landscape.

In the field of PAM an asset is described by ISO 55000 as "an item, thing or entity that has potential or actual value to an organization" (BSi, 2014, p.2). This means that an asset is something from which an organization derives benefit and that potentially contributes to the competitive advantage of an organization. Competitive advantages may, in addition to other benefits, be in the form of increased financial worth, gain of reputation, improved productivity and enhanced efficiency.

One of the key features of PAS 55 is that five broad categories of asset types are presented. These categories are physical assets, human assets, information assets, financial assets and intangible assets. Where intangible assets represent aspects such as reputation, morale, intellectual property and goodwill. Figure 2.2, adapted from BSi (2008), indicates the five categories of assets and clearly shows the link between physical assets and the other asset categories. The scope of PAS 55 only considers the categories of human assets, information assets, financial assets and intangible assets where they have a direct effect or influence on the management of the physical assets. PAS 55 defines these as critical interdependencies between the asset categories. The "total business" indicated in Figure 2.2 refers to aspects including business objectives, policies, regulation, performance requirements and risk management.

The critical interface between physical assets and financial assets include aspects such as life-cycle costs, capital investment criteria, operating costs and the value of

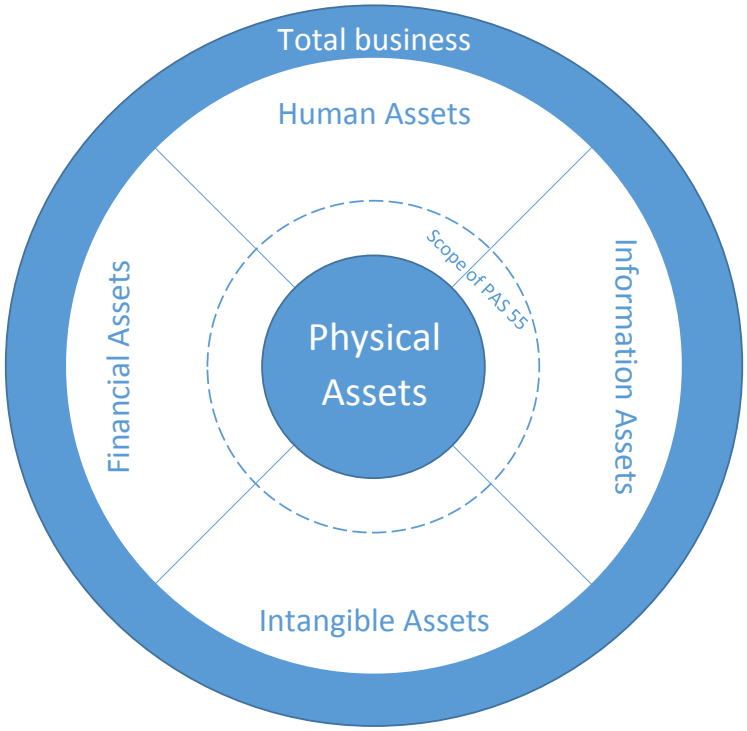


Figure 2.2: Asset categories (BSi, 2008, adapted)

asset performance. Reputation, image, morale, constraints and social impact are factors included in the critical interface between physical assets and intangible assets. Aspects included within the physical–information assets' critical interface are condition, performance, activities, costs and opportunities. The critical interface between physical assets and human assets includes motivation, communication, roles and responsibilities, knowledge, experience, leadership and teamwork.

PAS 55 does not directly address human factors such as leadership, motivation and culture, however these factors are acknowledged to be "critical to the successful achievement of optimized and sustainable Asset Management" (BSi, 2008, p. VI). The importance of giving these factors due consideration is therefore recognized.

Thus, with PAS 55 as a foundation, the intention of this thesis is to address the factors within the critical interface between human and physical assets.

2.1.3 Key PAM activities

PAM is defined by ISO 55000 as "coordinated activity of an organization to realize value from assets" (BSi, 2014, p. 14). This is further expanded to indicate that the realization of value generally involves a balance between the benefits of costs, opportunities and performance associated with the asset. Activity is also noted to refer to the approach, the planning, the plans and their implementation. This is a broad definition of PAM which incorporates all types of assets within an organization and the various activities associated with the total life-cycle of these assets. This definition also notably refers to "coordinated activity" which indicates the need for strategies and plans regarding the management of an organization's assets. Thus, PAM is considered as a holistic practice that involves all aspects of all assets and not just individual contributions.

Another definition of PAM provided by Mitchell and Carlson (2001), cited in Schuman and Brent (2005, p.567), is that it is "a strategic, integrated set of comprehensive processes (financial, management, engineering, operating and maintenance) to gain lifetime effectiveness, utilization and return from physical assets (production and operating equipment and structures)". This definition provides a clear understanding that PAM involves procedures, processes and activities that require cross-functional collaboration and engagement from various divisions within an organization in order to ensure that the most value is achieved from the physical assets. Thus, the definition is focused on physical assets but reveals the need for input from various divisions of an organization in order for PAM to be successful. The importance of planned activities or processes is also highlighted by Schuman and Brent (2005) which substantiates the relevance of PAM strategies and plans. Key to this definition is that PAM is performed in order to achieve "lifetime effectiveness" of physical assets which can only be achieved if the total asset life-cycle is considered.

Asset Management is viewed as an activity that has not been well defined or identified. This is attributed to the silo effect created by educational and professional specializations in the areas surrounding Asset Management (Hastings, 2009). The silo effect refers to the division of departments that are established to design or build assets (engineering), use and exploit them (operations or production), or to ensure that they are well cared for (maintenance). Each department is focused on reaching its own objectives, with little regard or attention paid to the other departments. This limits the opportunity to optimize activities within Asset Management and achieve the best combination of activities. According to Woodhouse (2006), it has been identified that the silo effect leads to missed opportunities. An alternative was therefore deemed necessary.

Recent development in the field of Asset Management has established the concept of Total Asset Management as a means of advancing the Asset Management field (Amadi-Echendu *et al.*, 2010). This view identifies that Asset Management is multi–disciplinary and requires input from various discipline sources including traditional engineering areas, information technology, economics and management. Hastings (2009, p.14) corroborates this and states that "Asset Management activities permeate to many levels of an organization and are not confined to a central group". Total Asset Management is therefore based on the thinking that the key to the successful management of physical assets is to eradicate the silo mentality and ensure cross-department collaboration to achieve optimized Asset Management.

One of the key benefits of the PAS and ISO publications on PAM is that they have facilitated in the shift of thinking that PAM encompasses a much wider scope than just maintenance. A document intended as a guide to PAM was published by the Institute of Asset Management (IAM) in order to further develop the field of PAM (IAM, 2011). This document characterizes the scope of PAM into six main subject groups in which key PAM activities are included. PAS 55 was used as the basis for the document.

Therefore, the six subject groups of PAM are Asset Management Strategy and Planning, Asset Management Decision-Making, Life-cycle Delivery Activities, Asset Knowledge Enablers, Organization and People Enablers and Risk and Review. The scope of PAM is shown in Figure 2.3; repeated here from Chapter 1 for the sake of convenience.

To supplement the document published by IAM (2011), the Global Forum on Maintenance and Asset Management (GFMAM) released a document describing the landscape of PAM. The aim of the document is to aid in the alignment of various advances within the field of PAM in order to develop an internationally shared understanding of PAM. Specific insights into the six subject groups shown in Figure 2.3 are provided. Therefore, the documents published by IAM (2011) and Global Forum On Maintenance and Asset Management (2014) are used as primary sources for the discussion of the subject groups identified to constitute the scope of PAM.

The scope of this thesis in terms of the PAM landscape is limited to the subject groups of Life-cycle Delivery Activities and Organization and People Enablers. Therefore, discussion of the subject groups in Figure 2.3 is limited to these two groups.

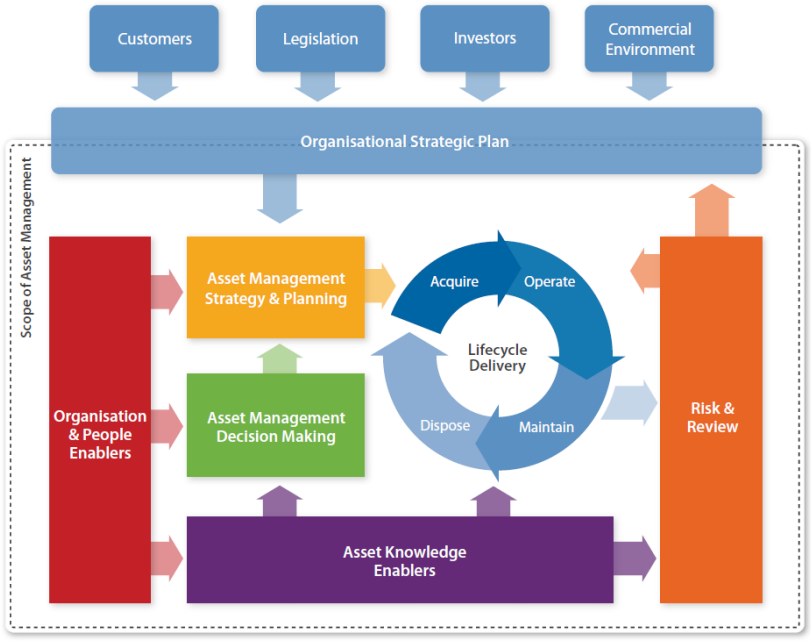


Figure 2.3: Conceptual model for Asset Management (IAM, 2011)

2.1.3.1 Life-cycle Delivery Activities

This subject group of Asset Management deals with the management of activities specific to the life-cycle of an organization's physical assets. Proper management of these activities can lead to the identification of opportunities that lead to improved asset efficiencies. However, improper management heightens the risks of increased costs associated with the acquisition, operation, maintenance and disposal of physical assets.

Subjects contained in the group of Life-cycle Delivery Activities include Technical Standards and Legislation which involves the processes that an organization uses to ensure that the PAM activities performed comply with technical standards and legislation relevant to PAM (Global Forum On Maintenance and Asset Management, 2014).

Asset Creation and Acquisition is another subject which involves an organization's processes and methods for the acquisition, installation and commissioning of assets. Also included in this subject are the policies for the approval and release of funding, delivery of assets to the operations division, actual cost tracking and recording and

benefits analysis (Global Forum On Maintenance and Asset Management, 2014).

The whole asset profile must be considered in PAM and thus the subject of Systems Engineering is important. According to IAM (2011, p.37), Systems Engineering is "the practice of ensuring effective planning, optimal design, performance, performance operation and maintenance" on the whole system of assets within an organization. This means that rather than focusing just on individual assets, relationships and interactions between all the assets within an organization must be considered.

Configuration Management is yet another subject within the group of Life-cycle Delivery Activities. Configuration Management is defined by Hastings (2009, p.16) as "keeping systematic track of changes to equipment configurations, such as technical upgrades and regulatory compatibilities". It therefore ensures that information regarding specific assets is properly recorded and available when decisions such as whether to perform maintenance or dispose of the asset are made.

The subject of Maintenance Delivery is also included in this group and relates to the coordination of people and activities that must be performed in order to ensure that an organization's maintenance strategy is successful (IAM, 2011).

Another subject within Life-cycle Delivery Activities is that of Reliability Engineering and Root Cause Analysis. O'Connor and Kleyner (2011, p.1) define reliability as "the probability that an item will perform a required function without failure under stated conditions for a stated period of time". Reliability Engineering is therefore the application of engineering principles and methods throughout an assets life-cycle in order to sustain asset reliability. In the case that failure does occur, the fundamental or root cause of the failure must be determined and recorded in order to reduce the possibility of that failure recurring in the future. Therefore, Root Cause Analysis enables feedback of actual rates of failure of a specific asset which can aid in Operations and Maintenance Decision-Making (IAM, 2011).

The subject of Asset Operations describes the processes that an organization uses in order to operate its assets so that the business objectives are achieved. Thus, the processes outline the provision of instructions to asset operators regarding the operation of the assets within the parameters of the design, maintenance and operation (Global Forum On Maintenance and Asset Management, 2014). The development of Asset Operations strategies and plans is included which describe the approach, activities and resources required for managing and implementing operations (IAM, 2011).

Resource Management is the subject that addresses the management of various resources in order to ensure that all the PAM activities are properly executed (Global Forum On Maintenance and Asset Management, 2014). IAM (2011) indicates that Resource Management involves an analysis of an organization's current resources against the future requirements in order to ensure that resources are used efficiently.

Lenahan (2011) reveals that maintenance performed on large scale assets may require the plant to be taken off line or shutdown so that the maintenance can be performed safely. Therefore, the subject of Shutdown/Outage Management describes the processes for identifying, planning, scheduling and the execution of work concerning plant shut-downs.

Another subject is that of Fault and Incident Response. According to IAM (2011, p.43), an incident response "concerns the ability of an organisation to predict and respond to asset failures and non-asset incidents in a systematic and appropriate manner". Thus, incidents must be detected and identified and the appropriate response to that incident must be recognized and executed.

Finally, the last subject in this group is Asset Rationalisation and Disposal which addresses the processes established by an organization for the decommission and disposal of ageing or under-performing assets (Global Forum On Maintenance and Asset Management, 2014).

An important observation by IAM (2011, p.34) states that "the Life-cycle Delivery Activities should not be considered in isolation as individual activities". A life-cycle approach to Life-cycle Delivery Activities is thus regarded as the best means of addressing these activities. This means that even if the asset is in one phase of its life, all the other phases and the activities that the asset will perform in those phases must be considered in order to ensure that the value obtained from the asset is optimized. Thus, PAM is a cross-functional endeavour that requires input from all the phases of an asset's life.

The group of Life-cycle Delivery Activities relies on activities performed by people on an organization's physical assets in order to ensure that the most value is obtained from those assets. If people were unavailable to perform those activities, the assets would fail. Therefore, human input is considered a key contributor to the success of asset life-cycle related activities.

2.1.3.2 Organization and People Enablers

This group within PAM focuses on the importance of people with regard to the success of an organization's Asset Management Strategy. According to IAM (2011), there exists a two way relationship between Asset Management Strategy and organizational culture and capability. This means that without either a PAM Strategy or organizational culture and capability, the other would not prevail.

Traditionally, decisions and policies regarding activities to be performed or strategies to be implemented were made "by people twice and thrice removed from the manufacturing arena" Schonberger (2008, p.1). However, a shift in thinking has occurred within the field of PAM and the importance of communication throughout an organization have been realized. Therefore, it has been established that in order for PAM Strategies to be successful there needs to exist a clear line of sight between the senior executives in the boardroom and employees on the shop floor. The subjects within this group address this need.

Included in this group is the subject of Contract and Supplier Management. This is essentially the management of an organization's suppliers in order to ensure that product or service supply never exceeds that of demand. Also contained in this subject is the matter of outsourcing. It is made clear that organizations working in partnership with suppliers and contractors obtain a performance advantage (IAM, 2011).

Asset Management Leadership is another subject considered in the group of Organization and People Enablers and is particularly relevant to this thesis. A definition of leadership in terms of PAM provided by Global Forum On Maintenance and Asset Management (2014, p.38) is that "leadership is concerned with the influence of people to deliver the Asset Management strategy and objectives of an organization". Leaders are therefore expected to provide direction for people, whether this be the entire organization or a team at the lower levels, make difficult decisions and to motivate and inspire their teams to achieve the goals of the organization. Included in this subject is the planning and implementation of the organizational leadership team, defining the PAM responsibilities and accountabilities and establishing the style of leadership required to support PAM within the organization (Global Forum On Maintenance and Asset Management, 2014).

Another subject is that of Organizational Structure and Culture which is used to establish how roles and responsibilities are designated between individuals. The flow of information between individuals, departments and functions within an organization is also defined by the Organizational Structure. Organizational Culture

refers to the process of developing a culture within an organization that specifically supports the organizations objectives and will contribute to the successful achievement of its PAM objectives.

The subject of Competence and Behaviour is also included in this group. Competence and Behaviour deals with the concept of the match between individual staff to the demands of their job roles and the contribution expected of them. Competence is defined as "the ability to do something successfully or efficiently" (Oxford Dictionaries, 2015). This is important in the field of PAM as activities specific to PAM that are performed efficiently leads to enhanced physical asset performance.

As reported by IAM (2011, p.50), "selecting and developing staff and managing their work is a hallmark of best practice Asset Management organizations". This is substantiated by Bartlett and Ghoshal (2013) who relates that competent and motivated people are critical to organizations wanting to prosper in the current business environment. Therefore, enabling people through leadership, defined roles and responsibilities and training is an important consideration for the field of PAM.

2.1.4 People in PAM

BSi (2008, p.VI) states that "the management of physical assets is not limited to the category of physical assets but is inextricably linked to the other categories of assets". It has been largely accepted in industry that human assets and the human factor are crucial to the successful management of physical assets in order to derive the maximum value from the assets (Amadi-Echendu *et al.*, 2010; Tsang, 2002). This is because it is understood that people "do" PAM i.e. that human input is required to operate and maintain machines and equipment which ultimately generates profit (IAM, 2011). This is substantiated by Mark Cutifani, the CEO of one of the world's largest mining companies, Anglo American, who stated that "Assets alone do not generate value. It is our people who are inspired to deliver sustainable value that makes a real difference".

According to Armstrong (2014, p.66), human capital comprises of the "knowledge, skills and abilities of the people employed in an organization". The human elements of an organization are described by Bontis *et al.* (1999, p.3) as "those that are capable of learning, changing, innovating and providing the creative thrust which if properly motivated can ensure the long-term survival of the organization".

For this reason, it is appreciated that people and their knowledge, competence and motivation contribute to the outcome of PAM activities. People are thus considered to be enablers of PAM. Therefore, in addition to good maintenance

and operation plans, PAM is reliant on the effective management of the people involved in PAM activities in order to ensure that physical assets contribute the most value to the organisation. This requires a discussion of the field of Human Resource Management (HRM) and its connection to PAM.

2.1.4.1 Human Resource Management (HRM)

According to Armstrong (2014, p.4) HRM is defined as "a strategic, integrated and coherent approach to the employment, development and well-being of the people in organizations". Another definition of HRM provided by Boxall *et al.* (2007, p.1) is that HRM is "the management of work and people towards desired ends". Therefore, HRM can be considered as the approach to managing people in an organizational setting and is related to the techniques utilized to achieve a motivated and capable workforce.

The general, long-term purpose of HRM is thus to ensure that organizational objectives and goals are able to be successfully achieved through people. Furthermore, HRM aims to enhance effectiveness and capability in an organization by optimally utilizing the available resources to achieve organizational objectives and goals (Armstrong, 2014).

It is suggested that 'soft' and 'hard' versions of HRM exist (Edgar and Geare, 2005). According to Legge (1998), "soft" model HRM values employees and considers them to be a source of competitive advantage for organizations due to their commitment, adaptability and high quality of skills and performance. The "soft" model HRM is therefore considered to promote employee development. Alternatively, the "hard" approach to HRM is defined as "the close integration of human resource policies with business strategy which regards employees as a resource to be managed in the same rational way as any other resource being exploited for maximum return" (Armstrong, 2014, p.8).

Legge (1998) suggests that there exist four main outcomes of HRM. These are strategic integration, high commitment, high quality and flexibility. Strategic integration refers to the capability of an organization to integrate the practices and approaches of HRM into its organizational strategies, in addition to making provision for line managers to incorporate these practices into their methods of management. High commitment refers to the willingness of employees to expend effort in support of an organization and the acceptance of the goals and values of the organization. The dimension of high quality includes ensuring that skilled and knowledgeable employees are retained by the organization and that the level of performance is such that high standards are continuously met. Flexibility refers

to ensuring that an organization has the ability to adapt and respond to changes.

These HRM outcomes are believed to contribute to organizational outcomes such as high job performance, high problem-solving, successful change, low employee turnover low absenteeism and full utilization of human resources (Guest, 1987).

Therefore, ensuring the introduction and management of strategies, policies and practices that relate to the employment, development and well-being of an organization's employees constitutes the Human Resources (HR) function (Armstrong, 2014). As a result, the HR function contributes to creating a work environment that facilitates employee development such that the value of the employees to the organization is maximized. Practices included in the HR function such as recruitment, administration, employee absence, pay and benefits, employee relations, training and development and strategic activities are performed in order to meet the needs of top management and line managers (Armstrong, 2014).

Guest (1997, p.269) states that "the distinctive feature of HRM is its assumption that improved performance is achieved through the people in the organization". Therefore, it is assumed that in the case that suitable HR policies and processes are introduced, HRM will contribute to organizational performance.

2.1.4.2 The HR role of line managers

Traditionally it has been the duty of the HR department to ensure that the people within an organisation are effectively managed. However, this position has shifted such that line managers are often required to take over HRM practices and ensure that employees under their supervision are effectively managed.

A line manager is defined as "a manager to whom individuals or teams directly report and who have responsibility to a higher level of management for those individuals or teams" (University of South Hampton, 2014). A typical example of a line manager in the context of PAM is a maintenance manager. Typical responsibilities of a line manager might include day-to-day people management, managing operational costs, providing technical expertise, allocating work and rotas, monitoring work and checking quality and measuring operational performance (CIPD, 2015).

The shift in responsibility of HRM is demonstrated by Armstrong (2014, p.84) who indicates that "increased responsibility for HR matters should be devolved to line managers where appropriate". Other authors who have investigated this transfer include Renwick (2003), Whittaker and Marchington (2003) and Renwick

and MacNeil (2002). According to Hutchinson (2008), it seems logical that HRM should be included in the role of line managers as they are in closest contact with the employees and are ultimately responsible for their performance.

However, it has been identified that line managers, especially those from a technical background, are often not HR-specialists and are rarely sufficiently trained in HRM techniques and practices. This is highlighted by Hutchinson (2008, p.3) who reports that "a common complaint was that managers lacked the necessary skills and competencies to perform the people management aspects of their job effectively and this was attributed largely to lack of training and support". Armstrong (2014) also stipulates the need for line managers to be provided with sufficient support, guidance and training in order to improve the quality of the contribution that line managers make towards HRM practices.

In the context of PAM, guidelines and standards such as ISO 55000, discussed in Section 2.1.2, do not provide sufficient information on improving people management in the PAM environment.

2.1.4.3 The execution mobilization challenge

Mobilizing employees to execute their assigned activities is recognized as one of the most challenging tasks that managers are confronted with (Nohria *et al.*, 2008). In the context of this thesis, activities and tasks are considered to be those relating to the subject of Life-cycle Delivery Activities discussed in Section 2.1.3.1. In terms of PAM, tasks not being executed could have a serious detrimental effect on the expected life of a physical asset. An example of this is that if required maintenance tasks for a machine are not executed, the following adverse effects may result (Campbell *et al.*, 2010; Mitchell, 2007; Sharma *et al.*, 2005; Swanson, 2001; Raymond and Joan, 1991):

- Lower asset reliability;
- Equipment failures are more catastrophic;
- Greater cost of asset repair;
- Increased environmental and personnel safety risks; and
- Longer asset downtimes.

There is currently no consensus in the academic and industrial domains that establishes reasons why employees are not performing the tasks expected of them, or

are performing them at a suboptimal level. Sull and Spinosa (2007) and Manzoni and Barsoux (1997) attribute this lack of action to a variety of possible reasons. These include a lack of understanding, insufficient skill, lack of resources, limited time, inadequate discipline, or lack of motivation.

The lack of understanding refers to imprecise instructions given or the fact that an employee may be unaware of the importance of a particular task and the consequences if that task is not performed or is performed inadequately. It is noted by Zaal (2011) that creating employee awareness regarding simple factors such the cost downtime or how the information that the employee collects will be used can transform operator or technician performance. Lack of understanding may result due to vague instructions communicated to the employee regarding the task requirements or if the employee fails to understand the instructions given due to a language barrier where instructions can get lost in translation. This will therefore lead to actual requirements not being accomplished to the appropriate standard.

According to Ely (1990), an individual who is required to perform a job or task must possess sufficient knowledge and skills necessary to do so. Therefore, in the event that an employee lacks the skills necessary to perform a task, that task will not be performed or will be executed poorly.

Resources can be broadly defined as the tools and other relevant materials required by an employee to perform the tasks required of him. Examples of these might be specialized equipment or tools, spare parts or consumable goods such as grease and oil. Therefore, if the employee does not have access to, or in the event that necessary resources are unavailable to the employee, the task which required those resources in order to be performed cannot be executed.

Another factor with the potential to contribute to tasks not being performed is that of limited time. This refers to the employee having insufficient hours during the working day in which to perform the activities required of him. Limited time may also contribute to tasks being rushed and therefore poorly performed or executed. An example of this is during a plant turnaround in which the entire facility is shut down for a predetermined period of time in order to perform maintenance and project jobs (Obiajunwa, 2013). Time constraints are a critical component of turnarounds due to the loss of production during that time and employees are under continuous pressure to complete tasks as quickly as possible. This means that tasks may be hurried or not performed at all which may result in unplanned turnarounds or breakdowns in the future.

A lack of discipline in the event that tasks are not performed is another reason attributed to tasks not being performed in the workplace. In this context, lack of discipline refers to the fact that disciplinary actions are not employed by the manager or supervisor; or are done so inconsistently. This may lead to poor performance of tasks due to the predisposition of some people to choose not to do work if there is no expectation of disciplinary action if tasks are not performed.

The lack of motivation is another factor that has been attributed to tasks not being performed or poor performance in the workplace (Sutcliffe, 2012). This refers to the understanding that employees do not have the motivation or are not actively motivated[1] to work and as such tasks are either not performed or are performed at a substandard level. According to Tuuli (2012), there exists support for the role of motivation in performance which substantiates the premise that a lack of motivation will contribute to poor performance of tasks in the workplace.

To attempt to address all potential contributors to substandard or non-existent task performance is a huge undertaking. Therefore, the focus of this thesis is to identify the aspects of motivation in the workplace with the potential to improve levels of task performance. In order to do this, literature and theories pertaining to motivation in the workplace will be examined and discussed.

2.2 Motivation in the Workplace

Numerous and inconsistent definitions of motivation exist in literature. This has caused much debate and disputation as to the definition that best describes motivation. However, this study specifically focuses on motivation in the workplace which has evolved from the more general theories of motivation.

A definition for motivation is provided by Ryan and Deci (2000, p.54) and states that "to be motivated means to be moved to do something". According to Pinder (2008, p.11), work motivation is defined as "a set of energetic forces that originates both within as well as beyond an individual's being, to initiate work-related behaviour, and to determine its form, direction, intensity, and duration". Work motivation can therefore be expressed as the attribute that compels individuals to engage in work related tasks or activities and the attention, effort and persistence applied to the task.

[1] Actively motivated refers to being vigorously motivated, it is thus a strong sense of motivation.

This section aims to provide a broad understanding of motivation in the workplace and an overview of theories and influences relating to work motivation.

2.2.1 Key elements of motivation

The key elements of motivation in the workplace are described in order to establish a foundation for the review of work motivation theories.

2.2.1.1 Benefits of motivation

According to Aworemi *et al.* (2011) motivation is an important concept to organizations as various benefits are derived from motivated employees. These benefits include the fact that motivation puts human resources into action, improves employee level of efficiency and leads to the achievement of organizational goals.

Putting human resources into action refers to the outcome of motivation to induce employees to increase task performance and the execution of tasks. According to Gillet *et al.* (2013), motivation may also persuade employees to become actively engaged in the execution of work related tasks. This is substantiated by Locke and Latham (2004) and Kanfer (1990) who indicate that the intensity and persistence with which an employee works are behavioural outcomes of work motivation. Together with the improvement in the level of efficiency of employees, engendering human resources into action is beneficial to organizations as the potential of their resources to contribute value is optimized.

As reported by Aworemi *et al.* (2011) organizational goals can be successfully achieved if there exists simultaneous co-ordination and co-operation within an organization. It is stipulated that this is possible to accomplish through motivated employees.

Motivation is also found to promote workforce stability which refers to the fact that employees remain loyal to an organization when they are motivated in that environment (Aworemi *et al.*, 2011). This means that employees are unlikely to leave an organization and thus their knowledge and experience are retained.

As described by Armstrong (2014, p.142), "high individual performance depends on high motivation". Therefore, another benefit of a motivated employee is the outcome of high performance. This means that motivation induces employees to perform at a higher level and produce work of a superior standard which contributes to the achievement of organizational goals.

Therefore, motivation is established to be beneficial to organizations and as such enhancing employee motivation is considered to be a valuable endeavour.

2.2.1.2 Intrinsic and extrinsic motivation

It is suggested by Ryan and Deci (2000) that motivation between individuals varies not only in the level of motivation experienced but also in the orientation of the motivation. Orientation refers to the type of motivation which "concerns the underlying attitudes and goals that give rise to action" (Ryan and Deci, 2000, p.54). For example an individual may be motivated to perform a work related task because he is interested in the work or, alternatively, because performing the task leads to the receipt of a predetermined reward.

There exist two types of motivation based on the different reasons or goals that lead to the performance of a task or action. The first type is intrinsic motivation which involves "people doing an activity because they find it interesting and derive spontaneous satisfaction from the activity itself" (Gagné and Deci, 2005, p.331). Intrinsic motivators are therefore internal to the individual such as the drive to excel, fear of failure, or the desire to be acknowledged.

This is often contrasted to extrinsic motivation, which according to Frey and Osterloh (2002) refers to an individuals' motivation to work in order to meet his non-work-related needs. In terms of the working environment, this means that an individual may be extrinsically motivated to do a job purely because it leads to a salary which satisfies the need for money. In other words, extrinsic motivation is governed by outcomes or rewards gained as a result of performing the activity. Extrinsic motivators include factors external to the individual for example pay, job security, recognition and promotions (Khan and Iqbal, 2013).

According to Ryan and Deci (2000), intrinsic motivation is a pervasive and important form of motivation but that intrinsic motivations differ from individual to individual. In terms of extrinsic motivation, it has been reported that in the case that an individual is motivated solely by extrinsic motivators, they will only perform tasks required of them if they are subject to checks or sanctions (Frey and Osterloh, 2002).

2.2.1.3 Motivation and engagement

Employee engagement is an emerging concept in research which has recently become a point of focus for researchers and practitioners (Andrew and Sofian, 2012). According to Scheffel (2012) and Marciano (2011) there exists some confusion re-

garding the differences between the concepts of work motivation and employee engagement. Therefore, this section provides a brief review of employee engagement and its connection with work motivation.

Engagement is defined by Schaufeli and Bakker (2003, p.4) as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption". Vigor is described as a state of mental resilience to apply effort when employed with a task and persist with that task even if difficulties should arise. Dedication refers to experiencing a sense of challenge, enthusiasm, significance, pride, and inspiration as a result of being occupied with a task. Absorption is characterized by being mentally consumed by the work or activity in which an individual is employed such that time passes quickly and the individual is reluctant to stop working.

Another definition is that engagement is "employees' willingness and ability to contribute to company success" and the "extent to which employees put discretionary effort into their work, in the form of extra time, brainpower and energy" (Perrin, 2003, p.2). Therefore, an employee is considered engaged when he is committed to and invested in his work.

Situational engagement is described by Lee and Lee (n.d.) to be the existence of positive work conditions such as rewards, feedback, task significance, development opportunities and clarity of expectations. Therefore, the concept of situational engagement means that an employee may be engaged by the work environment, but not necessarily by the work task.

Gillet *et al.* (2013, p.48) reports that there has been some research focused on the relationship between motivation and engagement in the work context. A study conducted by Khan and Iqbal (2013) showed the existence of a positive relationship between both intrinsic and extrinsic motivation and employee engagement. This is substantiated by de Lange *et al.* (2010) who indicates that work engagement is a motivation-related outcome. However, as indicated by Lee and Lee (n.d.), it is not the case that highly engaged employees are always motivated or that motivated employees are always engaged.

Extensive studies have been conducted on both work motivation and employee engagement. Therefore, in order to limit the scope of this study, only theories and constructs of work motivation are reviewed. As discussed, a positive relationship exists between the constructs of work motivation and employee engagement and for that reason some of the aspects of motivation identified in the subsequent sections

may be relevant to achieving an engaged workforce in addition to a motivated one.

2.2.1.4 Differing employee and management perspectives

An important consideration is that motivating factors differ between people (Jameson and Jameson, 2008). This is due to varying circumstances, needs, personalities and preferences of individuals. According to Aworemi *et al.* (2011), motivation of individuals differs both in amount and kinds of motivation (i.e. intrinsic and extrinsic motivation). Therefore, it is no surprise that the study conducted by Kovach (1987) established that employees and managers have different perspectives regarding what motivates them.

A more recent study by Rao and Raj (2004) shows similar differences between the opinion of the manager versus the employee with regard to the perception of what motivates them. The study indicated that employees working at lower levels within an organization are better motivated in terms of monetary benefits and that employees occupying positions at a higher level, such as a manager, are motivated through recognition of their work.

Therefore, the need for managers to consider these differences when attempting to enhance the motivation of their employees is established. This is due to the fact that mangers may focus effort on employing motivational aspects that they believe will lead to increased employee motivation but the employee himself may be primarily motivated by other factors. It is thus the responsibility of a manager to provide appropriate motivating factors specific to the needs of the individual employee (Rao and Raj, 2004).

It is argued that creating a supportive work environment leads to increased work motivation (Gagné and Deci, 2005). Therefore, in terms of the fact that motivators vary between individuals, the work environment should be shaped such that individual differences are accounted for. It is thus the task of the manager to facilitate the development of a work environment with the highest potential to motivate an employee with respect to the motivators specific to that individual. In order to do this, individuals' motivators should be determined (Jameson and Jameson, 2008).

It has also been established that motivating factors change over time (Kanfer and Ackerman, 2004). This may be due to changes in circumstances or needs of an individual. Therefore, managers should be aware that evaluating motivators of an individual is a continuous process.

2.2.2 Work motivation theories

Attempts to understand motivation and the behaviours that prompt and stimulate motivation date back to Greek philosophers, most markedly Epicurus, Plato and Aristotle. Pioneer theories focused on the concept of hedonism, of which psychological or motivational hedonism is based on the claim that the only motivators are seeking pleasure and avoiding pain or displeasure (Moore, 2013; Steers *et al.*, 2004; Vroom, 1964). Since then extensive research has been conducted and many other theories and models aimed at understanding the complexity of motivation have been developed and tested. Work motivation theories have been developed from the general theories of motivation (Meyer *et al.*, 2004).

Modern approaches to the study of work motivation are based on biological, behavioural and cognitive perspectives (Bernard *et al.*, 2005). The most notable modern research on work motivation was developed post 1950. Theories established from this research are argued to be fundamental in their approach to work motivation at the time of their publication and those most endorsed in literature will be discussed in detail. Many other less documented theories have evolved from these fundamental theories; however limited availability of literature and empirical studies to corroborate the validity of the theories excluded them for detailed review.

Many of the theories of work motivation that are discussed in this section were developed between 1950 and 1970. Some of these theories generated much interest at the time and various studies were consequently performed in order to establish their validity. However, with the exception of a few, enthusiasm for a number of the theories based solely on work motivation has dwindled. Therefore, much of the literature referenced in the following section is from the initial surge of interest published around the time of the original work. Although these studies and research may seem outdated, they provide insight into the progression of work motivational theories.

2.2.2.1 Needs theories

Need theories are based on the assumption that work motivation is directly related to the satisfaction of certain categories of needs (Arnolds and Boshoff, 2002). It is suggested that the fulfilment of these needs also leads to personal development and growth. Therefore, need theories are principally focused on what stimulates motivated actions and behaviour; however they do not describe why specific actions are chosen to obtain an outcome (Latham, 2005).

Needs theories reviewed in this study include Maslow's theory of hierarchical needs and Alderfer's ERG theory.

2.2.2.2 Theory of hierarchical needs

One of the most influential needs theories was developed by Maslow and published in 1954. This theory is termed the "hierarchical needs theory". Some authors such as Landy (1989) and Wahba and Bridwell (1976), consider hierarchical needs theory as a theory focused on general human behaviour instead of focusing specifically on work behaviour and motivation. However, this assessment is not shared by all researchers. There are many authors, such as Sirgy (1986), who believe that hierarchical needs theory is rooted in motivational behaviours and that it has been one of the leading influences for the development of other motivation theories such as those considering work motivation. Despite the conflicting views, given the impact of hierarchical needs theory and the research that was conducted as a result of the theory, a detailed discussion on the topic was considered appropriate.

Hierarchical needs theory suggests that there exist five categories of needs organised in a pyramid hierarchy which are fulfilled from the lowest level and progressing to those needs in subsequent levels (Gagné and Deci, 2005; Steers *et al.*, 2004). The levels of the hierarchy are shown in Figure 2.4. Beginning at the lowest level of the pyramid, the categories of needs are physiological, safety, love, esteem and self-actualization (Hall and Nougaim, 1968; Mitchell and Moudgill, 1976). Physiological needs involve the satisfaction of basic needs such as hunger and thirst. Level two involves needs associated with feeling safe and unthreatened. The need for love is fulfilled with the establishment of close and meaningful relationships while esteem needs are satisfied with achievement and self-respect. The final level to satisfy is that of self-actualization which is fulfilled by the use and improvement of an individual's skills and abilities. The key concept of this theory is the development of an individual as each level of needs is progressively satisfied. According to Maslow (1954), cited in Sirgy (1986), humans attain their full potential when they satisfy the final level of the need hierarchy.

According to Hall and Nougaim (1968), there are two characteristics deemed important in terms of the hierarchical structure. The first is that an individual prioritizes the fulfilment of needs of a particular category, beginning with those on the bottom level. Once these needs have been satisfied, the individual is able to assign more importance to the fulfilment of needs on the next level up. The second characteristic is that once a category of needs has been fulfilled, it becomes less important in the view of the individual. This means that in the event that the safety needs are satisfied, in addition to an increase in the need for love (the

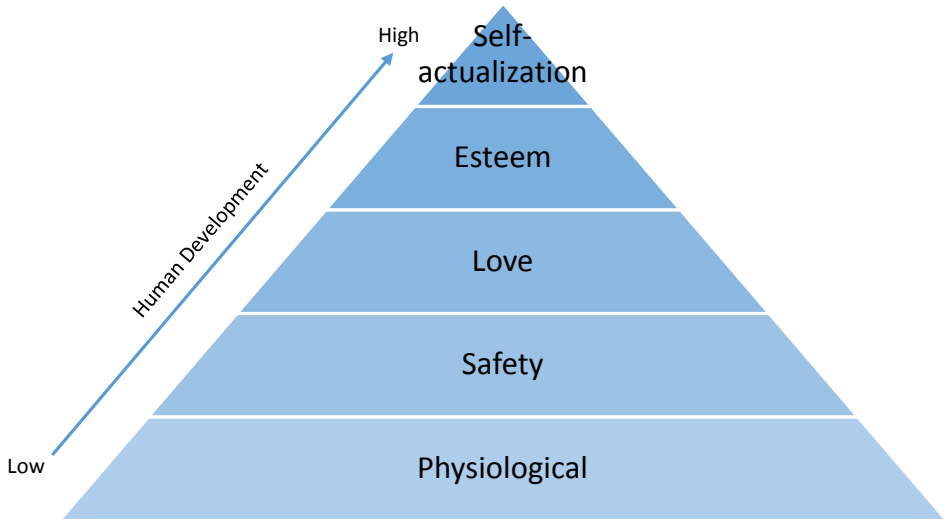


Figure 2.4: Maslow's hierarchical categories of needs

next level in the hierarchy), the need for safety decreases.

There is much research focusing on hierarchical needs theory that either supports or disproves the theory. Despite the discrepancy, it has been acknowledged that hierarchical needs theory has been a principle influence and inspiration for research that followed its publication (Betz, 1984).

2.2.2.3 ERG theory

An alternative needs theory adapted from the hierarchical needs theory is the Existence, Relatedness, Growth (ERG) theory. The name is derived from three categories of needs by which humans are suggested to be motivated: Existence, Relatedness and Growth (Arnolds and Boshoff, 2002; Wiley, 1997). The reasoning behind the development of the ERG theory was an attempt to address the limitations of the lack of empirical research of hierarchical needs theory at the time (Alderfer, 1969).

The key consideration of ERG theory is that the fulfilment of needs is not based on a hierarchical satisfaction of needs. Instead, ERG theory suggests that individuals engage in certain tasks and behaviours in order to fulfil multiple needs simultaneously.

Alderfer (1969) describes the needs for existence as those based on material and physiological requirements. Similarly to hierarchical needs theory, this includes needs such as food and water. However, work-related pay, fringe benefits, physical safety and physical working conditions are also included as existence needs (Schneider and Alderfer, 1973). One of the key features of existence needs is when resources are limited, they can be allocated to individuals such that one person gains more at the cost of another person's resource. An example of this is work-related pay; when a raise is given to one person, it excludes another person from the possibility of receiving a similar gain.

The next category of needs petitioned is relatedness. This category is an amalgamation of the hierarchical needs theory categories of safety, love and esteem as it includes all the needs associated with relationships with other individuals. These individuals can be family members, superiors, co-workers, subordinates, friends and enemies. The key difference between relatedness and existence needs is that the satisfaction of relatedness needs is assumed to be based primarily on mutual sharing of thoughts and feelings instead of a gain/loss relationship. One interesting aspect of relatedness needs noted by Alderfer (1969) is that the satisfaction of relatedness needs is not only achieved with positive elements of sharing such as acceptance, confirmation, understanding and influence. Instead, voicing feelings of anger, frustration and hostility are important to the development of meaningful relationships and are therefore integral elements for the satisfaction of relatedness needs.

Growth needs represent the desire an individual has for personal development, self-fulfilment and self-actualization (Arnolds and Boshoff, 2002). These needs are similar to, but more comprehensive than those categorised by hierarchical needs theory as self-actualization needs (Schneider and Alderfer, 1973). Alderfer (1969) suggests that the satisfaction of growth needs results when an individual is occupied with a problem that requires the full use of the individual's capacities and the development of new capacities. It is assumed that the fulfilment of growth needs leads to an improved sense of wholeness and fullness for an individual (Schneider and Alderfer, 1973).

One of the key strengths of the ERG theory is that the focus is specifically on motivation in the workplace. According to Robbins (1998), cited in Arnolds and Boshoff (2002), in comparison to hierarchical needs theory, the ERG theory is viewed as a more valid version of the need hierarchical theory.

2.2.2.4 Motivation-hygiene theory

Motivation-hygiene theory has been suggested as an alternative method to the hierarchical needs theory for the study of job satisfaction (Brenner *et al.*, 1971). Motivation-hygiene theory, also referred to as the Two-Factor Theory of Job Attitudes, was published in 1959 and is based on the assumption that individuals strive to meet two major types of needs which are satisfied with the fulfilment of factors specific to those needs (Furnham *et al.*, 1999; Soliman, 1970).

The basis for this theory are two factors regarded to be associated with motivation in the workplace: motivation and hygiene factors. Motivation factors were assumed to be those that affected job satisfaction and the factors affecting job dissatisfaction are the hygiene factors (Bassett-Jones and Lloyd, 2005; Brenner *et al.*, 1971). The term *hygiene* is based on the observed similarity between medical hygiene and the factors that contribute to job satisfaction. It was noted that the provision of good medical hygiene contributed to the prevention of disease or illness without directly making people healthy (Herzberg *et al.*, 1959, cited in Sachau, 2007).

An example of this understanding is the use of pesticides to exterminate disease-carrying mosquitoes. Pesticides do not make an individual healthy, however they are used in an attempt to impede and ultimately prevent the spread of disease or illness. Similarly to this, it was proposed that the fulfilment of hygiene factors such as fair pay, good interpersonal relations, fair company policies, technical competence and pleasant working conditions do not motivate or cause long-term job satisfaction but they do prevent job dissatisfaction (Lundberg *et al.*, 2009; Sachau, 2007; Burke, 1966).

Hygiene factors are therefore the factors that do not relate directly to the job itself; instead they are associated with the context or environment that surround performing the job (Furnham *et al.*, 1999). On the other hand, motivation factors are described as being similar to the higher levels of needs described in hierarchical needs theory as they concern the nature of the work itself and the consequences of the work (Furnham *et al.*, 1999). These factors are derived from the perception of motivation that it is "founded upon satisfaction born of a sense of achievement, recognition for achievement, responsibility, and personal growth" (Bassett-Jones and Lloyd, 2005). Examples of motivating factors include challenge of work, promotional opportunities, recognition of job well done, sense of achievement and a sense of responsibility (Hendriks, 1999). The theory suggests that motivation factors lead to job satisfaction because they appease the needs of an individual for self-actualization and self-realization (Furnham *et al.*, 1999; Burke, 1966).

The argument employed by motivation-hygiene theory is that the lack of hygiene factors cause dissatisfaction. However, the fulfilment of these factors did not generate satisfaction but led to an absence of dissatisfaction. Therefore a 'neutral state' is achieved with the fulfilment of the needs associated with hygiene factors as an individual is perceived to be neither satisfied nor dissatisfied (Furnham *et al.*, 1999). The other view is that the fulfilment of motivation factors leads to job satisfaction and subsequently the enhancement of work motivation (Lundberg *et al.*, 2009). However, the absence of motivation factors causes a state of no-satisfaction rather than dissatisfaction.

According to Brenner *et al.* (1971) and Herzberg (1986), the original research on the motivation-hygiene theory has been investigated and the results replicated in numerous studies. The results of these studies indicate support for the assumption that factors associated with increased job satisfaction and motivation are different from those driving job dissatisfaction. Other researchers have also argued against the proposition that hygiene factors do not contribute to job satisfaction and lead only to the absence of job dissatisfaction and that motivation factors are only associated with job satisfaction with no bearing on job dissatisfaction (Burke, 1966). Pinder (2008) claimed that the fulfilment of hygiene factors may also lead to job satisfaction instead of only resulting in no job dissatisfaction.

A problem associated with the methodology of the motivation-hygiene theory as argued by Vroom (1964), is that results depend on the individuals involved in the study. Vroom (1964, p.129) attributes the differences between the sources of satisfaction and dissatisfaction to "defensive processes within the individual responses". This means that when participants answer questions, the factors that led to success are recalled while others associated with failures are attributed to environmental factors (Lundberg *et al.*, 2009; House and Wigdor, 1967). Therefore, the methodology cannot be assumed to be accurate as the data is not a valid representation of the factors that contribute to job satisfaction and dissatisfaction.

Despite the criticisms pertaining to the motivation-hygiene theory, Sachau (2007) provides a solid argument substantiating the importance of the theory of satisfaction and motivation and provides reasons why it should not be dismissed in future research. These reasons include the fact that the motivation-hygiene theory should be viewed as a general framework in order to allow researchers to understand the essence of the relationships between satisfaction and dissatisfaction, happiness and unhappiness and psychological growth and psychological pain avoidance. Sachau (2007) also indicates that the model of motivation-hygiene explains the relationship between money and happiness better than models currently available in positive

psychology. Therefore, the motivation-hygiene theory has potential for application in future research projects.

2.2.2.5 Expectancy theory

Expectancy theory was developed as a basis for the study of human attitudes and motivation in the workplace (Lawler III and Suttle, 1973). Numerous models established from expectancy theory have been stated; these models differ with respect to terminology used, however the fundamental concept remains consistent (Heneman and Schwab, 1972). One of the most influential models of expectancy theory specifically dealing with work motivation was proposed by Vroom (1964), whose theory and model founded the basis of many other investigations relating to expectancy theory in the workplace (Behling and Starke, 1973). Expectancy theory has been refined since the concept was first published thus an overview of the key characteristics of the expectancy theory framework is provided.

The concept of expectancy theory was introduced by Vroom (1964) as a means of consolidating and integrating the available research and knowledge pertaining to psychology and motivation in the workplace (Lee, 2007). Expectancy theory focused on the reasons individuals choose a particular action or behaviour in order to understand what determines motivation in the workplace. The definition of motivation is that motivation is the "force" that impels an individual to perform a particular action or behave in a certain manner in the event that alternative courses exist (Lawler III and Suttle, 1973).

Expectancy theory is categorized as a process theory of motivation as it focuses on the interactions between an individual and his environment (Fudge and Schlacter, 1999). This means that it is assumed that motivation is a function of the perceptions that an individual makes regarding his environment and the expectations that are formed as a result of those perceptions. Expectancy theory suggests that individuals act in such a way as to maximise the probability of desirable outcomes for themselves (Isaac *et al.*, 2001) and is based on the relationship between three components believed to determine the force to perform an act: valence, instrumentality and expectancy.

Vroom (1964, p.15) defines valence as referring to "affective orientations toward particular outcomes". Desirable outcomes are considered to be positively valent and outcomes that the individual wants to avoid are negatively valent (Behling and Starke, 1973). This means that in order for an individual to be motivated in the workplace, the outcomes believed to proceed the work performance must be positively valued (Lambright, 2010). Thus, valence is "the degree to which an indi-

vidual values a particular reward" (Fudge and Schlacter, 1999, p.296). The crucial element here is that the individual's perception of the value of the satisfaction or reward gained from performing work at a particular level is more important than the level of performance at which the individual works or the actual reward (Fudge and Schlacter, 1999; Behling and Starke, 1973).

Instrumentality pertains to an individual's expectation that the rewards he receives closely correlate to the level of performance exhibited by the individual (Karathanos *et al.*, 1994). In other words, instrumentality is an individual's belief that if a certain action or behaviour is adopted, it will lead to particular outcomes. It is important to note that the perceived relationship between performance and rewards is the motivating factor and not the correlation that actually exists (Fudge and Schlacter, 1999).

Expectancy refers to an individual's belief in the likelihood that the performance of a particular act will give rise to a particular outcome (Vroom, 1964). This belief is also based on an individual's confidence to use his abilities and skills in order to achieve the desired outcome (Lee, 2007). The expectancy value can range from a zero value which is associated with an individual's certainty that no outcome will result with the performance of the act, to a maximum value of one which is associated with total certainty that a particular action will result in a desired outcome (Behling and Starke, 1973).

It was suggested that individuals will be motivated if they meet three criteria associated with the three components of expectancy theory (Lee, 2007). The first of these is that the behavioural outcome valence must be valued by the individual. Secondly, the individual must believe that if certain behaviour or actions are adopted, they will receive desired rewards or outcomes. The final criteria is that the individuals must have the confidence in their own abilities and expect to be capable of performing those actions or behaviours that are paramount to the achievement of the outcome.

A model following the expectancy theory suggests that there exist two factors that determine the effort that people expend to accomplish their jobs: first the value that the individual attributes to rewards that satisfy the individuals' needs, and second the perceived probability that the rewards depend on the expended effort i.e. the expectations pertaining to the relationship between effort and reward (Armstrong, 2014). This means that the higher value attributed to particular rewards and the greater perceived probability that the receipt of the rewards is dependant upon effort, greater effort will be expended by the individual.

Additionally, the model indicates that effort on its own is insufficient to lead to performance. Instead, two other variables are considered to have an effect on the achievement of tasks. The first of these is ability including characteristics such as intelligence, knowledge and skills and the second variable is an individuals' perception of their job expectations (Armstrong, 2014). This refers to the activities and tasks that a person wants to do or thinks that they are required to do. An outline of the model is shown in Figure 2.5.

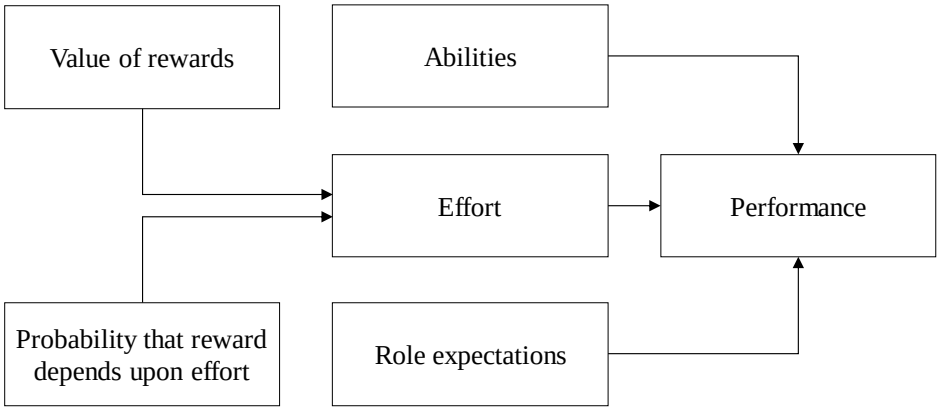


Figure 2.5: Model of expectancy theory (Armstrong, 2014)

Many studies have been conducted in order to determine the validity of expectancy theory to predict behaviour. An important observation made by Lawler III and Suttle (1973) is that proving lack of support for the theory is difficult as the result could be due to the incorrectness of the model or problems associated with the methodology used to test certain aspects of the model. Therefore, Lawler III and Suttle (1973) proposed that in order to accurately test expectancy theory, new ways or measures need to be developed. Furthermore, the number of expectancy attitudes being measured should be limited.

2.2.2.6 Goal-setting theory

Goal-setting theory is an effective motivational tool that has been substantiated with numerous empirical studies and research (Barsky, 2008). Porter *et al.* (2003) considers the theory of goal-setting to be one of the most dominant work motivation theories in literature. This concept has steadily developed and progressed within industrial and organizational psychology over a period of 25 years with roughly

400 laboratory and field studies having been conducted (Locke & Latham, 1990, 2000, cited in Locke and Latham, 2006).

The initial idea of goal-setting theory was to approach human motivation by asking individuals what they were attempting to accomplish when they partook in a certain action or behaviour (Locke, 1996). This meant focusing on the immediate intentions of an individual in order to discern the sources of the intentions. This concept was further developed by directing attention to the goals of an individual. Goal-setting theory is thus based on the presumption that all consciously motivated behaviour is goal-orientated (Meyer *et al.*, 2004). Furthermore, the development of goal-setting theory focused on the goals and intentions relating to conscious motivational factors associated with the execution of particular actions in specific situations (Kleinbeck and Forschungsgemeinschaft, 1990). A backwards approach was then adopted in order to determine the cause for goals and what makes them effective.

Goal-setting theory focuses on illustrating why some individuals perform better on work related tasks than others (Latham and Locke, 1991). According to the theory, the simplest and most direct motivational explanation of why this occurs is due to different performance goals between individuals.

Goals are defined by Locke *et al.* (1981) as that which an individual is attempting to accomplish; i.e. they are what an individual aims to achieve from the performance of an action. In the majority of studies involving goal-setting, the term *goal* refers to "attaining a specific standard of proficiency on a task, usually within a specified time limit" (Latham and Locke, 2002; Locke *et al.*, 1981). Goal-setting is the process of establishing a goal and changing it as necessary (Bandura, 1986, 1988, cited in Schunk, 1990).

There are two attributes of goals that have been the focus of study. These are content and intensity (Latham and Locke, 1991). Goal content involves a further two aspects, namely difficulty and specificity. According to Meyer *et al.* (2004), the difficulty and specificity of goals chosen by an individual can vary. In terms of goal difficulty, goals can be considered easy, moderate, difficult, or impossible to achieve. A goal can be considered to be difficult due to its complexity in that a high level of skill and knowledge is required to achieve the goal; or because of the effort required to perform the task (Locke *et al.*, 1981). Therefore goal difficulty indicates the level of competence of a task that is measured against a standard. This differs from task difficulty which refers to the nature of work that is to be accomplished (Locke *et al.*, 1981). Latham and Locke (1991) states that difficulty

is a concept of the relationship between an individual and a goal. This means that a particular goal can be considered easy for one individual but difficult for another depending on the abilities or experience of the individual.

Specificity refers to how precisely defined the goal is (Locke *et al.*, 1981). This can therefore range from vague to specific instructions or directions. The other attribute relating to goals, intensity, refers to the way that an individual sets a goal or decides how that goal is to be achieved. Factors used to measure intensity include the scope of the cognitive process, the degree of the effort required, how important the goal is to the individual and the context in which the goal is set (Locke *et al.*, 1981).

Locke and Latham (1990*a*) showed that goals that are both specific and have a high level of difficulty lead to the highest performance. Goal specificity is created with the provision of quantitative values, for example if a company aims to increase quarterly sales by 10%. Another way of increasing the specificity of a goal is with the use of a list of tasks to be accomplished (Locke, 1996). Studies conducted to establish this relationship have focused on comparing the effect of specific, difficult goals with those vaguely defined as "do your best" (Latham and Marshall, 1982; Latham and Locke, 1991). It was found that people do not perform at their optimum when striving for a "do your best" goal because of the many different levels of performance possible, including those lower than an individual's best (Locke, 1996).

According to Latham and Locke (2002) and Locke *et al.* (1981) goals can also be considered as energizers in that high goals induce the input of a higher degree of effort than low goals. This is simply because people work harder to achieve more difficult goals (Locke, 1968, cited in Locke *et al.*, 1981). Additionally, goals affect persistence with regard to performing a task (Latham and Locke, 2002; Locke *et al.*, 1981). Persistence is defined as the amount of time spent to achieve a goal (Locke and Latham, 2013). Increased goal persistence is supported by a study conducted by LaPorte and Nath (1976), who investigated the effect of learning goal instructions with a specific focus on prose learning. LaPorte and Nath (1976) attributed performance improvement observed in individuals who were assigned specific, difficult goals to an increase in study persistence that resulted from having a goal.

Therefore, goals contribute to determining what activities the individual will perform, the amount of effort that the individual will exert and the degree of persistence which the individual will apply.

Moderators are variables that enhance or lessen the goal-performance relationship. These include ability, performance feedback, goal commitment and task complexity. Ability affects the goal that an individual chooses because people favour goals that they know they have the skills and knowledge with which to obtain the level of performance required to achieve that goal (Locke and Latham, 2013). In addition to this, a study performed by Wood and Bandura (1989) indicated that the construing ability as an acquirable skill, cultivated a high sense of competence and capableness to perform work related actions. Therefore, individuals with elevated abilities opt for more challenging goals in order to expand their knowledge and skills.

In terms of the goal-performance relationship, it has been established that the engagement in difficult goals leads to increased performance thus enhancing the relationship. Performance feedback relates to the knowledge of results and it has been determined that goals are regulated much better when feedback is present (Locke and Latham, 2013). Locke and Latham (1990*b*) states that goal-setting is generally more effective when feedback pertaining to an individual's performance is given as it allows the tracking of performance in relation to that individual's goals.

Commitment to a goal is the third moderator of the goal-performance relationship. Commitment is one of the most studied aspects of the goal-setting theory and is defined as "the degree to which the person is genuinely attached to and determined to reach the goals" (Locke, 1996, p.119). This led to another finding of goal-setting theory that commitment to goals is most important when goals are specific and difficult. The reason for this is that easy, non-specific goals do not require attachment or dedication to their achievement. Also, an individual can easily reformulate or change a vague goal such that lower performance is required to attain the goal (Latham and Locke, 1991). Goal-setting theory therefore emphasises that the combination of specific, difficult goals and high commitment to those goals results in better performance (Paul *et al.*, 1969).

Task complexity is the fourth variable that moderates the goal-performance relationship. According to Latham and Locke (2002, p.708-709), "as the complexity of the task increases and higher level skills and strategies have yet to become automatized, goal effects are dependant on the ability to discover appropriate task strategies". Therefore, higher performance will be observed for simple tasks as opposed to complex tasks for specific and difficult goals. This was investigated by Wood *et al.* (1987) whose study supported the hypothesis that task complexity has moderating effects on the relationship between goals and performance.

One of the key aspects of why goal-setting theory is so popular is that there is substantial evidence establishing the generalizability of the theory as it has been used in studies which include samples of loggers, typists, engineers/scientists, government workers, and college students (Latham and Locke, 1991; Latham and Steele, 1983). The effectiveness of goal-setting theory has also been established through numerous studies and research (Gómez-Miñambres, 2012). Therefore it can be seen why Porter *et al.* (2003) considers goal-setting theory as being the most dominant in literature pertaining to work motivation.

2.2.2.7 Social cognitive theory and self-efficacy

Social cognitive theory was introduced in 1986 and was considered to be one of the dominating work motivation theories of the 21st century (Latham, 2007). According to Stajkovic and Luthans (2003), social cognitive theory was established from the social learning and/or the behavioural approach to human action, however it has developed beyond this. The theory is claimed to be a positive approach to the concept of work motivation as it focuses on an individuals' strengths instead of their flaws or weaknesses related to the motivation of incompetent or unskilled employees, overcoming change resistance, and coping with stress (Stajkovic and Luthans, 2003).

Social cognitive theory is called such as it is believed that there exist both social and cognitive aspects to motivation and action. The social side indicates the influence of the surrounding social environment on the thoughts and actions of individuals i.e. learning gained from being involved in a society. The cognitive element refers to the contribution of the cognitive processes (thought processes) to the motivation, attitude, and actions of individuals (Stajkovic and Luthans, 1998). This means that a great deal of an individual's behaviour relates to or is caused by the organizational environment in which that individual finds himself, however personality and character also contribute to the choices and actions an individual makes (Stajkovic and Luthans, 2003).

Self-efficacy is considered to be a crucial construct of the social cognitive theory as it "deals specifically with the control of human action through people's belief in their capabilities to affect the environment and produce desired outcomes by their actions" (Stajkovic and Luthans, 2003). Self-efficacy is defined as the personal confidence of an individual that his skills and abilities stimulate motivation, cognitive resources, and strategies for the successful completion of a work related task (Bandura, 1997, cited in Stajkovic and Luthans, 2003). Therefore, an individual's faith in his efficacy effects the choices that are made, his goals, the amount of effort expended on a specific task, the perseverance when difficulties arise, the amount of

stress experienced, and how susceptible that individual is to becoming depressed (Bandura, 1991, 1989). Stajkovic and Luthans (2003) consider self-efficacy to be the key psychological means of motivating individuals in the workplace.

Stajkovic and Luthans (2003) claim that many work motivational theories of a cognitive nature focus on a process-oriented investigation of the aspects or factors that affect the relationship between an individual's actions and the outcomes from these actions. It is noted that the fundamental mechanisms that affect the strength of those relationships are not specified. Social cognitive theory therefore attempts to remedy this by establishing the determining factors of human action, as well as describing five basic capabilities that provide them with the motivation to start, perform, and sustain positive work behaviour.

The determining factors of human action endorsed by social cognitive theory are the individual, the environment and the behaviour of the individual (Stajkovic and Luthans, 1998). Social cognitive theory postulates that these factors experience reciprocal influences upon each other leading to the belief that human action results from a combination of these three factors. Therefore, as shown in Figure 2.6, it is assumed that individuals are simultaneously products and architects of their motivation, their respective environments and their behaviours.

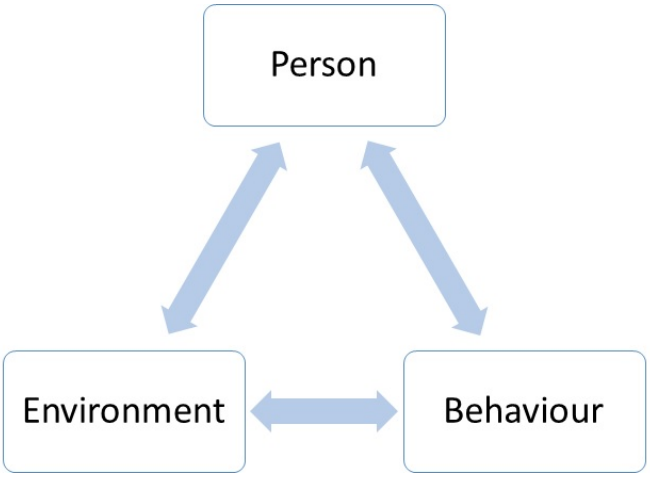


Figure 2.6: Triadic influences in Social Cognitive Theory (Stajkovic and Luthans, 2003)

Stajkovic and Luthans (1998) indicate that the relationships shown in Figure 2.6 do not imply that the strength of these relationships is the same between each of

the factors. Instead, it is argued that despite the fact that all three of the factors might exist at a particular time or in a specific situation, they do not necessarily exercise equal and concurrent influence on the individual. This means that the motivational strength of the influencing factors will be dependant on different situations, activities and people.

The study by Compeau and Higgins (1995) provides support for the social cognitive theory in a training environment. Studies including Lent *et al.* (1994) and Prussia and Kinicki (1996) provide further insight into the empirical research of social cognitive theory.

2.2.2.8 Equity theory

Equity is defined as the quality of being fair and equal or of being treated fairly and equally. Being treated fairly and treating others fairly is considered important and a desirable trait (Mowday and Colwell, 2003). However, according to Mowday and Colwell (2003), establishing "what it means to be fair or how people make judgements about whether or not they have been treated fairly" is difficult. In order to address this, equity theory was introduced in 1963.

Equity theory is considered by Hook and Cook (1979) to be a cognitive social comparison theory as it aims to explain employees' cognitive and behavioural responses to perceived unfairness in a working environment (Steers *et al.*, 2004). The theory considers perceived unfairness as a means of motivating an individual to strive for and achieve equity (Karathanos *et al.*, 1994). The comparison component of equity theory suggests that employees continuously compare the contributions that they make to the organization with the rewards received as a result of those contributions (Karathanos *et al.*, 1994). Equity theory associates an individual's contributions as inputs and their rewards as outcomes. Another element of the comparison component of equity theory is that an individual also compares the ratio of his outcomes to inputs with the ratio of the outputs to inputs of another individual or group of individuals in a similar position (Middlemist and Peterson, 1976).

The individual who does the comparing is referred to as "Person" and the individual or group of individuals used for comparison as "Other" (Middlemist and Peterson, 1976). In this context, Other may refer to a different individual in a similar job as Person or the individual who previously held Person's current position (Adams, 1963). This notation will be adopted for the remainder of this section.

The key element of equity theory is the assumption that equity exists when Person

perceives the ratio of outcomes to his inputs to be equal to that of Other (Cosier and Dalton, 1983). Therefore, inequity is considered to exist in the event that the two ratios are perceived to be unequal (Hook and Cook, 1979).

Research and studies have chiefly focused on the conditions that lead to an individual's perception of equity or inequity in addition to the possible ways or methods adopted to reduce perceived inequity (Middlemist and Peterson, 1976).

In terms of the conditions that lead to perceptions of inequity, it was proposed that these conditions result specifically from Person's perception of inputs and outcomes and are not necessarily characterized by the situation (Mowday and Colwell, 2003). Inequity can result from Person believing that they are receiving either more or less rewards than Other or if higher or lower contributions are thought to be made by Person than by Other. Pritchard (1969) states that equity is also considered to exist in situations where Person's outcomes do not correlate with his inputs but Other's ratio is perceived to be the same as that of Person. This means that Person's inputs can be higher than his outcomes but he will not feel inequity if he thinks that Other is in the same situation.

Equity theory also predicts possible consequences of feelings of inequity. These include the assumption that tension is felt by Person when he believes he is in a state of inequity (Pritchard, 1969). It is predicted that the amount of tension felt by Person relates proportionally to the perceived magnitude of the inequity and that this tension will motivate Person to reduce the feeling of inequity (Mowday and Colwell, 2003). Equity theory predicts that the motivational force to reduce the inequity is proportional to the magnitude of the inequity present (Adams, 1963).

It is postulated that Person can reduce his feelings of inequity in a number of ways. This includes changing his or Other's inputs and/or outcomes, distorting his or Other's inputs and/or outcomes, changing the individual or group Person compares himself to, or by quitting the job or situation (Latham, 2007; Carrell and Dittrich, 1978).

Mowday and Colwell (2003) reports that "Adams felt that people would select a method of reducing inequity that maximized positively valent outcomes and/or minimized increasing effortful inputs". This hypothesis was confirmed to have clear empirical support by Goodman and Friedman (1971) who established that Person selects the method of reducing or resolving inequity in such a way as to maximize positive outcomes. The main criticism regarding equity theory is however that it

is unable to predict which method an individual will choose in order to reduce his perceived inequity (Mowday and Colwell, 2003).

Equity theory is not considered a comprehensive theory of motivation owing to its focus on the process of evaluation of outcomes followed by individuals and their reaction to the outcomes that they receive. However, similarly to most motivational theories, equity theory considers and establishes performance to rewards relationships such as those investigated in expectancy theory. Therefore, the concept of equity and equity theory is understood to be an important link to understanding motivation in the workplace. In addition to this, Mowday and Colwell (2003) suggests that equity theory initiated much research that focused on the motivational implications of individuals being unfairly treated in the workplace. Therefore the importance of equity theory is substantiated in the context of work motivation.

2.2.2.9 Job design theory

Job design theory is formulated around the notion that the job itself is the key to motivation. Boring and tedious jobs are thought to decrease an individual's motivation to perform well. Alternatively, jobs that are well designed and clearly defined are believed to increase the job satisfaction, motivation and learning efforts of employees in addition to reducing stress associated with the work environment (Garg and Rastogi, 2006).

Therefore, job or work design is a concept that refers to adding or modifying tasks within an existing job specifically to improve employee motivation and productivity (Hackman and Oldham, 1975). Other benefits that job design aims to achieve include more intrinsically satisfying work, an improved sense of contentment, increased employee attendance, retention, performance and pro-activity.

An application of work design is job enrichment which according to Paul *et al.* (1969, p.1) "seeks to improve both task efficiency and human satisfaction by means of building into people's jobs, quite specifically, greater scope for personal achievement and individual recognition, and more opportunity for individual advancement and growth." Conceptually job enrichment requires that a job is improved by incorporating more variety into the tasks, necessitating an increased level of knowledge and skill to perform the job, and increasing the autonomy and responsibility of employees with regard to how they work (Garg and Rastogi, 2006). Job enrichment therefore, focuses on the behavioural systems associated with the workplace and is referred to as "vertical job loading" as it allows individuals to perform tasks that were originally executed by supervisors or managers (Chung and Ross, 1977).

Another approach to job design is job rotation. This application is widely used at various levels of management and in diverse industries (Kaymaz, 2010). The technique involves rotating workers between a variety of jobs in a specified time period (Jorgensen *et al.*, 2005). This leads to increased task variety and decreased stress on the body, especially for physical labour. There is some risk associated with job rotation; Jorgensen *et al.* (2005) indicates that in the case that employees are not suitable for the job, potential losses in productivity could result. However, a study conducted by Kaymaz (2010) indicated that job rotating has a positive effect on motivation.

Job enlargement is yet another approach to job design. This technique focuses on the technical aspects of a job and tasks therein (Chung and Ross, 1977). Job enlargement is often referred to as "horizontal job loading" as it involves the addition of more tasks to the original job description. Therefore, the task variety is increased as well as the skills and knowledge required to perform the extra work.

Chung and Ross (1977) claim that job enrichment can provide greater increases in motivation than job enlargement due to the participatory element that the job enrichment technique necessitates. However, Chung and Ross (1977) indicate that the approach that will lead to the largest increase in employee motivation is a combination of both job enrichment and job enlargement.

Theories based on the concept of job design include the socio-technical systems theory and the job characteristics theory, both of which are discussed in detail. A more recent approach to job design, job crafting is also briefly reviewed.

2.2.2.10 Socio-technical systems theory

The aim of the socio-technical systems theory is to provide insight into the relationship that exists between the social and technical aspects of the workplace (Hackman and Oldham, 1976). The basis for the theory is a production systems' need for both a technology (machinery, plant layout and raw materials) and "a work-relationship structure" that connects the workers and operators to the technology and each other (Cooper and Foster, 1971). According to Rice (2001) and Cooper and Foster (1971), demands and limits are made and placed by the technology that depicts the feasible type of work structure. The resulting work structure adds its own social and psychological properties that create their own needs in terms of the required tasks independent from those of the technology.

Current manufacturing systems and processes require a combination of technical and social systems in order to achieve optimal performance. Cooper and Foster

(1971) introduce the concept of man-machine complementarity which is based on the consideration that systems should be designed such that the social and technical systems i.e. man and machine work together. This differs with traditional methods of process systems design in which the technical aspect would be devised first and then the human aspect fitted to that (Appelbaum, 1997).

As reported by Rice (2001), the traditional method assumes that a specific work structure is required in order to perform the necessary tasks. This leads to the thinking of equating employees and machines which has produced the "machine theory of organization". This thinking has caused Rice (2001) to assert that the social and psychological needs to the employees are not being met. As a result of this, it is suggested that the traditional approach leads to average, undistinguished performance that negatively impacts the social aspect of the system (Appelbaum, 1997).

In order to avoid these negative impacts and ensure that the social and psychological needs of employees are met, it is proposed that work should be designed so that the social and technical elements work together to achieve positive outcomes (Appelbaum, 1997). This concept was investigated by Trist *et al.* (1963) who looked at coal-miners in the United Kingdom and the introduction of new technology into the mines (Trist *et al.*, 1963, cited in Appelbaum, 1997). Before the changes the method of coal mining involved groups of miners (no more than three) who worked together at a particular location. In the group no miner was given a specific task; instead each man performed the task that was necessary at that particular time. Miners were therefore satisfied due to the variety of tasks performed that in turn led to a sense of accomplishment. Cooper and Foster (1971) states that this meant that "in socio-technical terms, the social-psychological and the task requirements were congruent".

The introduction of new machinery such as mechanical coal-cutters and conveyors allowed for the method of mining to change and it was expected that these technologies would largely increase the productivity and output of the mines. These technologies meant that instead of small areas being mined by a team, many workers would be able to work a single long wall (Cooper and Foster, 1971). An approach called the longwall method was therefore implemented and the principle of "one man-one job" was introduced (Trist *et al.*, 1963). The principle involved the introduction of large groups of miners with specialized skill sets instead of the former method of using small teams. Each miner was allocated a skill set and placed in the corresponding shift. The first shift consisted of miners all cutting into the coal wall. Miners in shift two worked at moving and shovelling the coal onto

the conveyor. Shift three involved the placement of roof supports and expanding of the entrance ways in order to allow for the advancement of the wall.

Negatives of the longwall method are stated by Appelbaum (1997). During each shift miners had to perform only the job designated to that shift and task variety became non-existent as a result. Miners were also spread out along the coal face limiting any communication between them. Supervisors also experienced trouble as they managed a whole shift which consisted of groups of 40 to 50 miners and could not oversee each individual's activities.

Appelbaum (1997) reports that although the longwall method of coal extraction had created expectations of increased productivity, the opposite happened and low productivity was observed. This is considered to be due to the lack of task variety and challenging work experienced by the miners.

One negative aspect of the socio-technical systems theory is that it provides limited instruction or direction detailing how to complete the activities associated with work design other than emphasizing the necessity of including both social and technical aspects into the work (Hackman and Oldham, 1976). Therefore, no details are provided that describe how to analyse the system before the change, in order to establish what should be changed and exactly how.

The key to socio-technical systems theory is that the design of these systems is not a one time event. Instead it is a continuous process that involves constantly changing work and its characteristics to fit the increasingly developing working conditions that are experienced in industry.

2.2.2.11 Activation theory

Activation theory specifically focuses on employee behaviour associated with simple and repetitive tasks. The theory serves to explain variance in task behaviour as an individual becomes accustomed to performing the activity in a particular environment. Activation theory was published in 1966, who decided that evidence for "performance decrements and dissatisfactions frequently observed in repetitive industrial tasks" needed to be established (Scott Jr, 1966, p.4). Investigations of brain stimulation research specifically focused on activation or alertness were the foundation of activation theory.

Scott Jr (1966) proposed that a decline in the level of activation is expected for an individual performing a simple and repetitive task due to the individual becoming familiar with the environment and the required responses. Activation level can

be described as the degree to which an individual is alert and focused on the job at hand. Scott Jr (1966) introduces the concept of "motivational drift" which is defined as the decline in performance as a menial task is successively repeated such as those performed in an assembly-line. This decrease in performance can be considered as a result of the decrease in motivation to perform well and effectively, hence the term "motivational drift". Therefore, activation and motivation are similar as a reduction of either of them results in decreased job performance.

A number of behaviours have been suggested that will lead to an increased level of activation which, according to the theory, will enhance job performance. Behaviours include stretching, shifting or changing positions and social activity such as conversation to colleagues. The key to these behaviours is the introduction of variation to the task in order to decrease the repetitiveness of that task.

The introduction of variation specifically by the employee is also a method of increasing or sustaining activation during a repetitive task. For example, an individual may decide the order in which elements of a task are performed. In this way, repetitiveness is reduced as once one element is complete, the individual can be assured of a change in activity as the next element of the task is started. Scott Jr (1966) suggests that the introduction of individual variation can potentially lead to a sustained activation level for a long time period which could result in increased or sustained high performance and morale.

Activation theory therefore expects that with increased variation included into the schedule of a repetitive task, the activation level of the employees will remain high thus leading to optimal performance. This was validated by studies conducted by Oldham *et al.* (1995), Bergum and Lehr (1962), Sipowicz *et al.* (1962) and McGehee and Owen (1940) which indicated that the inclusion of factors such as rest periods, music and knowledge of results in simple or repetitive tasks led to at least temporary performance improvements.

Therefore it can be concluded that the incorporation of variation factors into a normally simple or repetitive task will lead to increased or at least sustained motivation and performance levels for longer periods of time than would be achieved without those factors.

2.2.2.12 Job characteristics theory

Job characteristics theory was developed by Hackman and Oldham and is based on the assumption that if jobs contain particular characteristics, certain needs of the employees will be met and they will be motivated to increase their performance

(Hackman and Lawler, 1971). It was originally developed as a model of task motivation, but has also been considered in analyses focused on person-environment fit such as that conducted by Kulik *et al.* (1987).

Job characteristics theory states that there exist five core job dimensions or characteristics that affect three psychological states. A number of positive work outcomes, including work motivation, are assumed to result if the psychological states are present (Hackman and Oldham, 1976). The core job dimensions are skill variety, task identity, task significance, autonomy and feedback (Evans *et al.*, 1979). Rousseau (1977) provides the following definitions for each of the job dimensions.

1. Skill variety: that an individual is able to use various skills in his work;
2. Task identity: provision for an individual to do work that is meaningful, or a complete project;
3. Task significance: that an individual is provided the opportunity to perform work that positively affects other individuals;
4. Autonomy: the freedom of an individual to make decisions pertaining to their work process; and
5. Feedback: results of performance are made known to the individual.

The critical psychological states are experienced meaningfulness of the work, experienced responsibility for the work outcomes and knowledge of the actual results of the work activities. The important aspect of these three states is the degree to which an individual perceives that each of the critical psychological states has been experienced or achieved (Hackman and Oldham, 1976). According to Hackman and Oldham (1975), the original model hypothesized that the work outcomes that would develop in the presence of all of these states are high internal motivation, high quality work performance, high satisfaction with the work and low absenteeism and turnover. The job characteristics model is shown in Figure 2.7.

The critical psychological states are assumed to be internal to the individual and therefore are not considered aspects of the job that can be redesigned (Hackman and Oldham, 2005). It is therefore the presence of the job characteristics indicated in Figure 2.7 that induces an individual to experience the psychological states which lead to the various personal and work outcomes. These characteristics can therefore be manipulated or changed in order to achieve increased individual motivation of employees.

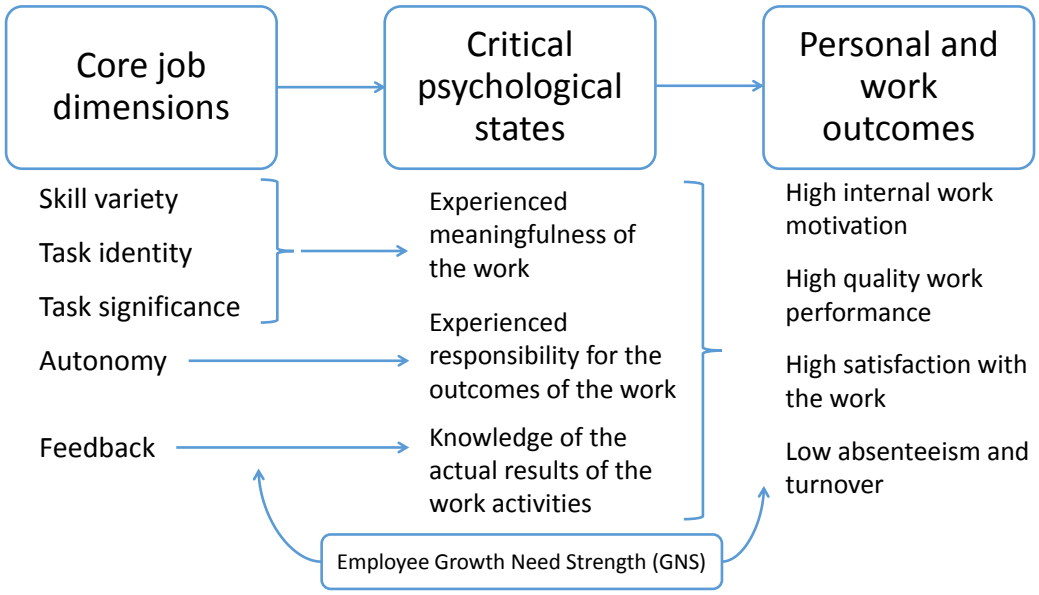


Figure 2.7: The job characteristics model (Hackman and Oldham, 1976)

Figure 2.7 indicates the job characteristics that are assumed to contribute to each of the critical psychological states. Hackman and Oldham (1976) assumed that the job characteristics of skill variety, task identity and task significance combine additively to determine the experienced meaningfulness of the work. Therefore, autonomy and feedback are considered to determine experienced responsibility for the work outcomes and knowledge of the results respectively (Hackman and Oldham, 2005).

This led to the concept of the overall motivating potential of a particular job, which is the degree to which a job or particular task stimulates internal work motivation. The motivating potential of a job is considered to be highest when:

1. The job is high in at least one of the job dimensions that determine experienced meaningfulness of the work;
2. The job has high autonomy; and
3. The feedback in the job is high.

Therefore, the Motivating Potential Score (MPS) is determined using Equation 2.1.

$$\text{MPS} = \left(\frac{\begin{matrix}\text{Skill} \\ \text{variety}\end{matrix} + \begin{matrix}\text{Task} \\ \text{identity}\end{matrix} + \begin{matrix}\text{Task} \\ \text{significance}\end{matrix}}{3} \right) \times \text{Autonomy} \times \text{Feedback} \quad (2.1)$$

The formula indicates that when a job is low on either autonomy or feedback, the overall MPS is reduced to a low score. However, the job dimensions of skill variety, task identity and task significance do not have such a strong influence on their own and a considerable reduction of the MPS will result only when all three of these characteristics are low.

As shown in Figure 2.7, the concept of Growth Need Strength (GNS) is also incorporated into the job characteristics model. GNS is defined as "a measure of the extent to which individuals differ in their needs for high order growth" (Evans *et al.*, 1979, p.357). Therefore, individuals considered to have high needs for growth are thought to have more positive responses to complex jobs than individuals with a low GNS (Hackman and Oldham, 2005).

One of the main criticisms of the job characteristics theory is that the motives of an individual's needs or perceptions of his work are insufficiently described. Job characteristics theory assumes that a job or task is independent to the perceptions of the individual performing that job or task. The theory therefore provides no specification regarding situational and social influences on those perceptions (Roberts and Glick, 1981). Another flaw with the theory is that it is considered effective only for individuals who have high GNS and no attention is focused on identifying job characteristics or task attributes that apply to individuals with low GNS (Roberts and Glick, 1981).

Job design is one of the fundamental theories of motivation in the workplace. As a result, considerable research has been conducted in this area. Current studies have shifted to focus more on the social attributes of jobs. Another shift from earlier work on job design is the move from a top-down approach in which assessments of and changes to jobs were primarily made by managers or consultants, to that of a bottom-up approach known as job crafting (Oldham and Hackman, 2010).

2.2.2.13 Job crafting

Job crafting is an approach to the concept of job design in which employees are encouraged to design their own work in order to fit their motives, strengths and passions better (Berg *et al.*, 2013, 2008). Wrzesniewski and Dutton (2001) define job crafting as "the physical and cognitive changes individuals make in the task or relational boundaries of their work". Changing physical task boundaries relates

to an individual's adjustment of the manner of or number of activities that are performed to accomplish the prescribed job. Changing cognitive task boundaries involves changing the perception of one's job. The change of relational boundaries refers to the consideration an individual gives to social interactions while performing his job (Berg *et al.*, 2013). A shown by McGehee and Owen (1940), the concept of job crafting is not a new one however it has recently become one of interest to researchers.

Oldham and Hackman (2010) suggest that in the event that changes to a job are initiated by the employee, the work is likely to challenge the employee more, increase in complexity and be more meaningful to the employee. Wrzesniewski and Dutton (2001) assume that employees who engage in job crafting do so in order to create work that they find more satisfying. Increases in these aspects, as per the goal-setting, expectancy and job characteristics theories of motivation, will lead to positive work and personal outcomes such as increased effort applied to the job, motivation and performance. It is suggested that even if the changes to a job are not initiated by the employee, job crafting will still be successful if the employee participates in the process of the job crafting (Oldham and Hackman, 2010).

The chief outcome of job crafting is considered to be an improved perception of the meaningfulness of the work in which an individual engages. In this context, meaningfulness defines the degree of significance to which an individual assigns his work. According to Berg *et al.* (2013), increased meaningfulness leads to other benefits in the work environment including increased job satisfaction, motivation, and performance.

There are many examples of job crafting in the workplace. These include preserving work which involves performing extra work in order to complete a task, ensuring that individuals are able to communicate effectively with their team and have access to the resources necessary to complete the job and addressing any problems that may put a project at risk (Wrzesniewski and Dutton, 2001). Mutual empowering is another example which involves the teaching of skills to other individuals participating in a project or task.

2.2.3 Other motivational influences

Work motivation theories in addition to those discussed in this section were also investigated. These included Frederick Taylor's Theory of Scientific Management, Activation Theory, Internal versus External Control, Sigmund Freud's traditional Theory X, Theory Y developed by Douglas McGregor, the Hawthorne Effect, Bernard Weiner's Three-Dimensional Theory of Attribution, Self-regulation The-

ory, Self-determination Theory, Reinforcement Theory, and Motivation-Maintenance Theory. These theories were not considered in detail due to the fact that they lack evidence indicating validity or convey essentially similar concepts and details as those that are discussed.

Motivational concepts including mood, emotion, affect, gender, personality, culture, and groups were also explored. These influences of motivation were not considered for review in this study as they are aspects that cannot be influenced by a manager. Therefore, these considerations fall outside the scope of the study. Further information on these concepts of motivation is discussed by Porter *et al.* (2003), Saavedra and Kwun (2000), Davis (1995), Hackman and Oldham (1976) and Adams and Jacobsen (1964).

2.3 Discussion

It has been argued that instead of focusing on how motivated an employee is during the execution of a task and assuming that a high motivation score likened to positive organizational performance, focus should be shifted to understanding what motivates people to perform well (Lee and Lee, n.d.).

It has also been argued that a supportive work climate affects the intrinsic motivation of employees (Gagné and Deci, 2005). Therefore, similarly to the concept of situational engagement discussed in Section 2.2.1.3, it is recognized that even though a work task may not have potential to motivate an employee, the work environment may facilitate the enhancement of his motivation. Managers must therefore establish a work environment that accounts for the motivational aspects derived to be critical to enhancing employee motivation.

In order to achieve this, managers must understand what motivates employees and incorporate these considerations in their management style. As discussed in Section 2.2.1.4, motivators differ between people. For this reason, it is considered insufficient to generalize motivators for a group of employees working at the same organizational level. Instead, individual preferences should be determined in order to ensure that motivators specific to the individual are employed in the work environment.

The extensive literature on work motivational theories and constructs was reviewed in order to identify aspects that have been established to motivate people in work environments. A number of motivational aspects were discovered that can be implemented by a line manager in a working environment in order to establish

and maintain a more motivated workforce.

As discussed in Section 2.3, in many organizations line managers do not have authority to influence factors such as pay and time off. Therefore, incentives and benefits were excluded from the scope of the study. Instead, motivational aspects associated with the day to day work environment of the employee were the focus of the study.

Accordingly, critical aspects of motivation derived from the needs theories discussed in Section 2.2.2.1 include the development of skills, recognition for achievement, skill variety and challenging jobs. These were deemed critical as they contribute to meeting the needs of self-actualization of the hierarchical theory of needs and the needs of growth from the ERG theory. These aspects also relate to motivation factors described by motivation-hygiene theory.

Expectancy theory considers that people are motivated in the workplace when they perceive that the rewards gained from work performance are suitable or appropriate to the effort and performance input. Therefore, facilitation of the perceived relationship between effort and reward is considered a critical motivational aspect to be incorporated into the working environment as a means of enhancing employee motivation to perform tasks.

Additionally, it was established that in order for an individual to be able to judge whether or not the rewards and outcomes are suitable for specific behaviour and effort, they must be fully aware of the expectations required of them. Therefore, another critical motivational aspect derived from expectancy theory is expectation awareness.

The basis for goal-setting theory is the concept that all consciously motivated behaviour is goal-orientated, thus individuals engage in certain actions or behaviour because they want to achieve a goal. According to the theory, goals need to be specific, in that they are well defined and difficult, in that either a high level of skill or knowledge or heightened effort is required to achieve the goal. The critical motivational aspect derived from this theory is therefore the need for employees to have specific and difficult goals that align with those of the organization.

Social-cognitive theory establishes that people are motivated when they feel self-efficacy i.e. when they are confident in their abilities and skills to perform the work. Therefore, a critical motivational aspect realized from this theory is that the skills of an individual must be developed and maintained in order to ensure that that

employee remains confident in his abilities and thus delivers a high performance level.

The equity theory focuses on the perception of fairness and unfairness in the workplace. Viewing this from a context which a manager can influence, the perception of fair treatment by the manager is considered. For instance does the manager treat employees with respect and is he consistent in the management of employees? This critical aspect of motivation is termed the balance of equity.

One of the most revealing theories of motivation that was investigated was that of job design which is based on the idea that the job itself is the key to achieving motivated employees. An example discussed in the context of socio-technical systems theory highlighted the importance of skill variety and performance feedback as factors to motivate people. Additionally, activation theory established the advantage of increased variation in a work environment. Therefore, critical motivational aspects of skill variety, performance feedback and variation were established.

The most informative job design theory was the job characteristics theory which focuses on the concept that if certain characteristics are incorporated into a job, the needs of the job holders will be met thus leading to increased motivation of those individuals. The core characteristics identified to enhance motivation are skill variety, task identity, task significance, autonomy and feedback. The characteristics of task identity and task significance were merged into the critical motivational aspect of understanding of job contribution. Thus, the critical motivational aspects derived from the job characteristics theory included the understanding of job contribution, autonomy and feedback.

The various aspects of motivation established to be critical to enhancing motivation in the workplace and derived from the theories of work motivation discussed in Section 2.2.2 are summarized in Table 2.1.

Thus, a total of twelve critical aspects of motivation identified to augment work motivation were established. These include skill development, perceived relationship between effort and reward, achievement recognition, specific and difficult goals, challenging tasks, awareness of expectations, balance of equity, skill variety, understanding of job contribution, autonomy, task variation and performance feedback.

Table 2.1: Critical motivational aspects derived from theories of work motivation

Motivational theory	**Critical motivational aspects**
Needs theories	Skill development, Recognition for achievement, Skill variety, Challenging jobs
Expectancy theory	Perceived relationship between effort and reward, Expectation awareness
Goal-setting theory	Specific and difficult goals
Social-cognitive theory	Skill development
Equity theory	Balance of equity
Socio-technical systems theory	Performance feedback, Skill variety
Activation theory	Task variation
Job characteristics theory	Understanding of job contribution, Skill variety, Autonomy, Feedback

2.4 Chapter Summary

In summary, Chapter 2 provides an overview of the landscape of PAM and the value of human input in PAM activities is established. The key activities, Organization and People Enablers and Life-cycle Delivery, within the scope of PAM are discussed.

One of the fundamental considerations of the human element is that people are not performing the PAM tasks required of them. In terms of maintenance activities, this leads to a decline in the health of an organization's physical assets which causes increased failures and downtime and consequently incurs costs. Therefore, motivating employees to execute their assigned activities is considered a valuable undertaking.

A number of aspects were established to contribute to inadequate task performance among individuals. This thesis addresses the issue by focusing on the lack of motivation as a reason for tasks not being executed in the workplace. Therefore, literature and theories regarding work motivation were examined in order to identify the critical aspects that have been established to improve motivation in the workplace. The critical aspects were limited to those that a manager can directly influence. Consequently, incentives and benefits were excluded from the scope of the study.

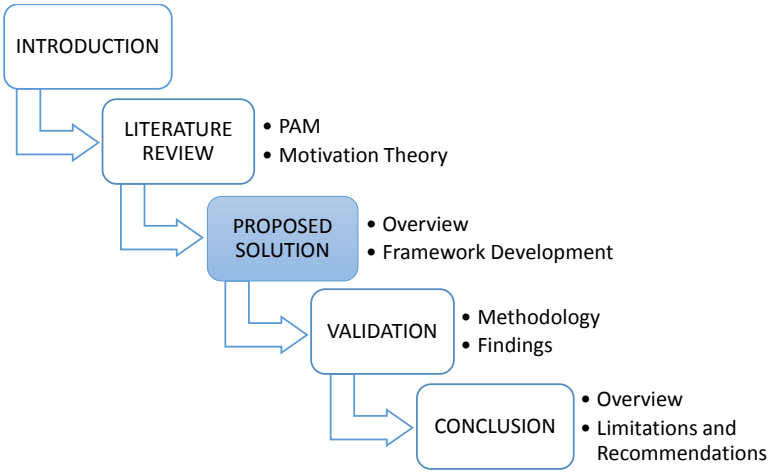
The challenge for managers is to determine what motivational aspects to incorporate in the work environment in order to enhance the motivation of the employees. The level at which those aspects should be employed is also often unclear. Chapter 3 therefore aims to incorporate the motivational aspects derived from literature in a framework to aid managers in determining what motivational aspects should be included, modified or maintained in the work environment in order to optimally enhance employee motivation.

Therefore, this chapter established the PAM landscape with particular reference to the people aspect of PAM. In addition to this, theories of work motivation were reviewed in order to ascertain aspects of motivation established to enhance employee motivation. Thus, the first and second objectives of this thesis as identified in Section 1.4 were achieved in this chapter.

Chapter 3

Proposed Solution

The literature review of Chapter 2 establishes the scope of PAM and provides context for the application of work motivation literature to the field of PAM. Subsequently, various theories of work motivation are discussed and interventions of these theories deemed critical to enhancing the motivation of employees in the workplace are identified. This provides a foundation to propose a framework to aid managers in identifying the prevalence of key motivational interventions within a job role. Chapter 3 thus provides a brief overview of the proposed solution, after which the development of the proposed framework is reviewed in detail.



3.1 Overview

As discussed in Section 2.1.4.3, motivating employees has become one of the most challenging considerations for managers. It was identified that although managers are aware of motivational interventions they do not include or incorporate them in the management of their employees. The fundamental aim of the proposed solution is therefore to provide a structured guide to assess the extent to which motivational interventions are utilized by a manager with respect to a particular job role and working environment.

It is clear from the literature review that the field of work motivation is vast and consists of diverse theories and concepts. The people aspect of this field also contributes to the complexity of addressing the lack of motivation in the workplace due to varying cultures, genders and personalities between individuals. The focus of the proposed solution is therefore limited to interventions of motivation specific to the context of a job role as those are the factors that a manager has the power to influence. These job role specific motivational interventions are derived from literature and detailed in Section 2.3.

Therefore, the proposed framework consists of a step-by-step, procedural methodology which establishes a series of activities to apply to a particular job role in order to ascertain the extent to which a manager makes use of motivational interventions in the management of their employees. To achieve this, the prevalence of each of the motivational interventions within the job role as perceived by the manager is measured. In addition to the prevalence, each of the motivational interventions is weighted according to their perceived importance within the job role. These factors are also based on the perception of the manager. The factors then contribute to a Motivating Potential Score (MPS) which refers to the potential that the current level of use of the motivational interventions as understood by the manager has to motivate the job holder.

As well as identifying the perception of the prevalence of motivational interventions in the job role according to the manager, it is also important to establish the motivational interventions considered important to the job holder. The proposed framework therefore includes a step to measure the prevalence and importance of the motivational interventions within the job role as understood by the employee. This is regarded to be imperative as the perceptions of importance of motivational interventions differ between supervisors and workers (Kovach, 1987). Therefore, if a manager considers one motivational interventions to be hugely important but the job holder does not agree; increasing the prevalence of that intervention within the job role may not have the desired effect on the motivation of the job holder.

This allows for an element of the employee's individual preferences regarding motivational interventions to be accounted for and be made known to the manager. Employee perceptions regarding the extent to which the manager applies motivational interventions to the job role also provide an understanding of how the employee regards the effort expended by the manager to motivate him.

The outcome of the proposed framework is thus to provide managers with a deeper understanding of the contribution that they are making towards motivating the employees under their supervision, both from their perspective and from the point of view of the job holder. The proposed framework should act as a guide to determine what interventions of motivation a manager should add, increase or maintain within a specific job role in order to augment the potential of the job role to motivate the job holder.

Due to varying organizational structures and policies within different organizations, the proposed framework was developed to be a generic model. This allows the user to be flexible with regard to the application of the framework.

It must be noted that it is not the aim of the proposed framework to provide solutions of how to address the problems associated with interventions of motivation included in the framework. This is due to the variety of circumstances and procedures within different organizations and therefore the diversity of problems that could occur. Instead, the proposed framework aims to facilitate a manager in understanding and identifying interventions within a job role that can or should be addressed in order to enhance employee motivation in the workplace. This enables the user to become aware of possible problem areas regarding motivation in the job role and to search for the issues and possible solutions within those areas.

3.2 Proposed Framework Development

Figure 3.1 shows a graphical representation of the proposed framework. There are several steps within the framework, each of which contribute to a greater understanding of the job role being assessed as well as the contribution made by the existing level of use of motivational interventions towards motivating the job holder.

Each of the steps in the proposed framework are numbered. This serves as a logical guideline for the sequence in which processes or activities within the framework should be performed.

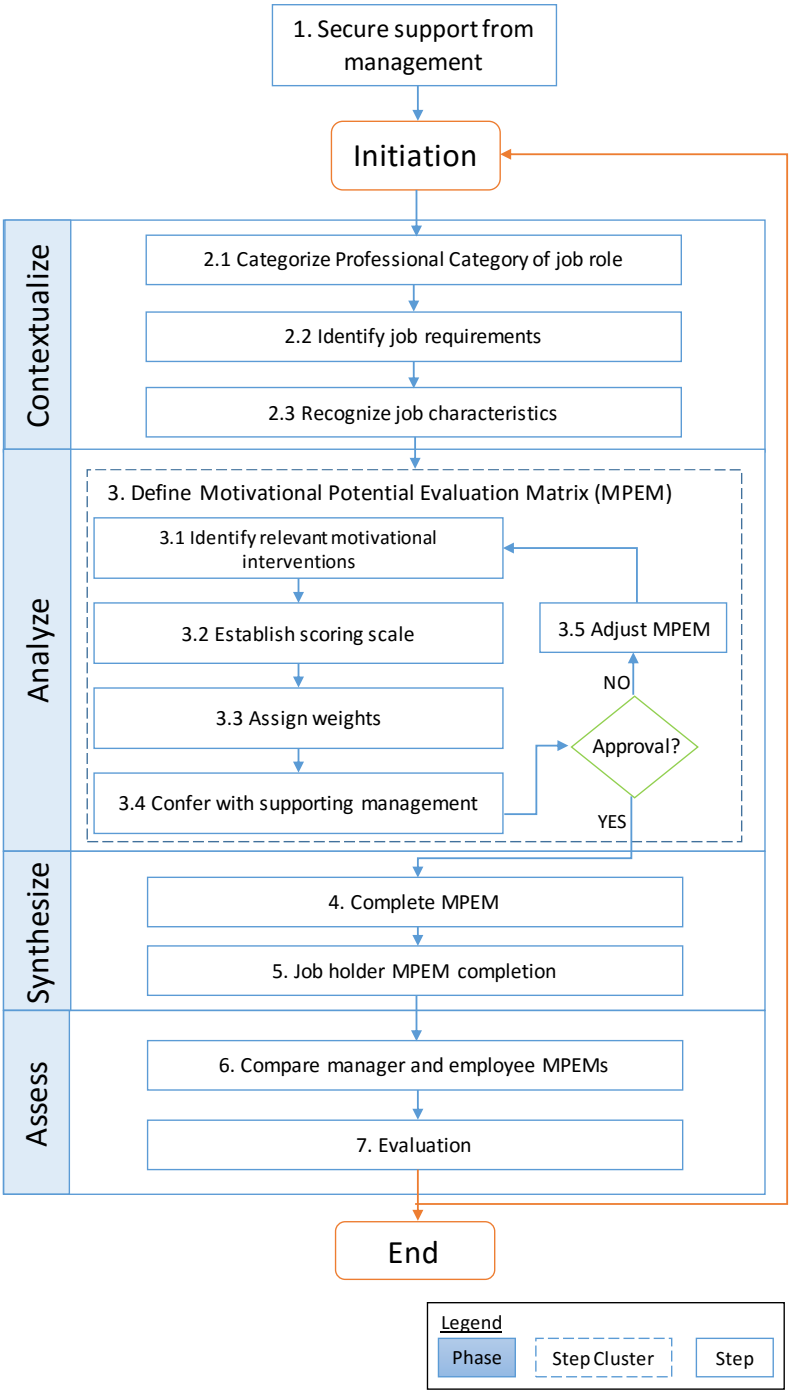


Figure 3.1: Proposed framework

Another feature of the proposed framework is that it should be able to be applied in industry by an individual who is not an expert in the field of motivation. Therefore, a simple, hypothetical example of the implementation of the framework is discussed concurrently with the explanation of the key steps in order to provide additional understanding of the technical elements of the framework.

One of the aims of this chapter is to provide points of discussion in order to guide the user to the successful application of the proposed framework. It is important to note however, that the discussion points related to employee motivation should not be limited to those suggested in this chapter. Rather, the discussion points provided should serve to stimulate further considerations and topics that are relevant to the organization, job role or user of the proposed framework.

3.2.1 Assumptions

A number of assumptions regarding both the user and the individual whose job role is being assessed must be made in order to ensure that the proposed framework is initiated at a standard basis.

It must be assumed that the user of the proposed framework has the desire to perform the assessment of the job role in which demotivation has been identified. This is an important assumption as it refers to the fact that if the user does not want to conduct the analysis of a specific job role, the process will be conducted in such a manner so as to get it done as fast as possible. Consequently, the analysis is performed hurriedly and may result in inaccurate measurement of the motivational potential of the job role. The reason for this is that the user may not have the time to properly perform the analysis and aims to complete it without full consideration of the elements within the proposed framework.

Another assumption that must be applied is that the individual whose job role is being assessed has the knowledge and expertise required to perform the tasks and activities within his job role successfully. This assumption is made due to the assertion in Section 1.3 to limit the scope of the thesis to consider only a lack of motivation as a reason for a poor level of task execution in the workplace and not the other reasons discussed in Section 2.1.4.3.

The assumption that the user of the proposed framework has the ability, knowledge and understanding necessary to apply the framework to a work environment must also be made.

3.2.2 Step 1: Managerial support

It is noted by Pride *et al.* (2014) that the support of senior management is crucial to the success of any endeavour within an organization. Therefore, securing senior management support is the first step in the proposed framework.

This step ensures that upper management is made aware of the lack of motivation identified of employees in specific job roles. It also allows the user of the proposed framework to convey to senior management the need to establish an understanding of the features of the job role that should be changed or adjusted in order to enhance the motivation of the job holder.

An important consideration in Step 1 is to determine exactly whose support is required in order to ensure the success of the project of addressing motivation in the workplace. Engaging senior management is critical, however the term *senior management* is vague as it can mean any level of management higher than that of the individual wanting to introduce the project. Thus, it is important to establish which individuals must be approached who have sufficient authority to provide the project leader with the resources and support necessary for the completion of the project.

Following this, the project must be presented to the senior management. It may be necessary to provide senior management with a thorough business case for the project or discuss the concept in a formal meeting. Important considerations that should be clarified are the project goals, the risks associated with the project and the potential benefits.

The framework shown in Figure 3.1 is a generic depiction of the proposed framework. In order to solicit managerial support, it is suggested that the user incorporates company specific colours and icons into the figure such that it represents a typical company poster. The company specific figure therefore becomes a selling point to generate interest in the project to evaluate the use of motivational interventions in a job role.

The outcome of Step 1 is therefore to ensure that senior management supports the undertaking to address the level of motivation within certain job roles of the organization. This guarantees that the project will not dissipate after only one attempt but will endure; thus ensuring that the most value is derived from implementing the proposed framework.

3.2.3 Step 2: Contextualization of job role

The second step of the proposed framework is to define the scope of work within the job role that is being analyzed. This means that all activities for which the job holder is responsible and accountable must be clearly identified. Therefore, Step 2 ensures that all the activities in which the job holder partakes are recognized by the manager or supervisor conducting the analysis and establishes the range of activities and responsibilities to which the proposed framework will be applied.

3.2.3.1 Step 2.1: Professional Category classification

One of the first elements to consider is the level of the job role within the hierarchy of the organizational structure. Due to varying hierarchies and organizational structures, this can be simplified by identifying in which professional category the job role lies as defined by the Decision Band Method (DBM). The DBM is a method of describing the levels within an organizational structure on the basis that the decision-making requirements included in a job role determine the value that the role contributes to an organization and thus where the role lies in the organizational hierarchy (Ryerson University, 2008).

DMB involves three steps of classification including Banding, Grading and Sub-grading. For the purpose of the proposed framework, classification of the professional category of the job role within the organization is limited to Banding which is the most general classification. Ryerson University (2008) provides a comprehensive overview of the DBM including Grading and Sub-grading classifications. Therefore, in terms of the proposed framework, the aim is to determine in which Band the job role being assessed lies. A simple guideline to the Banding classification is shown in Table 3.1 adapted from Vorster (2014).

Identifying the Band or level that the job role lies within an organization allows the user to describe whether the job holder occupies a leadership position or if the job role requires the job holder to follow people and instructions. This is important as it establishes the capacity or opportunity available to the job holder to make autonomous decisions in addition to providing understanding of the level of the decision making and responsibility required within the job role.

3.2.3.2 Step 2.2: Identify job requirements

The scope of duties and responsibilities of the job holder must be established in order to gain an understanding of the requirements of the job holder within the job role. This refers to describing the activities, duties and tasks consigned to the job holder. It is important to consider all duties and assignments even if they are

Table 3.1: DBM guideline

Band	Kind of Decision	Level
F	**Policy making** - Make policy decisions in all major areas of operation	Top Management
E	**Programming** - Plan the implementation in all major areas of operation	Senior Management
D	**Interpretive** - Interpret, plan and choose action within limits of discretion set by plan	Middle Management
C	**Routine** - Decide the process necessary to implement required actions	Skilled
B	**Automatic** - Decide on the cycle of operations within a process	Semi-Skilled
A	**Defined** - Decide only on the elements of the operation	Unskilled

performed infrequently. Details of the nature of the work should also be noted. Thus it must be determined if the activities within the job role are primarily physically demanding such that they required agility, coordination, manual dexterity, or energy requirements or if they require mental concentration and some level of focus i.e. sensory demanding. It must be noted that a job role can incorporate both physically and sensory demanding tasks. Should this be the case, the user should establish the approximate percentage of tasks that fall in each category.

A description of the purpose of the job should be established in order to ensure that the user of the proposed framework is fully aware of the importance of the job role within the scope of the organization. This refers to identifying the contribution that the job role and the activities therein makes towards achieving the goals of the organization.

3.2.3.3 Step 2.3: Recognize job characteristics

In addition to identifying the activities required to be completed within the job role, another element to consider is whether the job is technically or people orientated or both. Technically orientated refers to whether the activities within the job role primarily include activities such as operating machinery or equipment, performing maintenance and designing equipment or processes during which the designer interacts chiefly with a computer. On the other hand, a job role that is people orientated involves managing people such as employees, contractors, cus-

tomers or investors and the issues associated with these people including employee safety, liaising and communicating with contractors or dealing with customer complaints. A job role can be orientated such that both technical and people management activities are included in the scope of the role.

The environment within which the activities of the job role are executed is another factor of the job role that should be considered. The environment refers to how safe and comfortable the working conditions are in addition to the culture in the workplace. This includes factors such as the feeling of camaraderie, the approachability of the supervisors and managers and the extent to which the employees are respected and valued.

Typical education and experience level of the job holder should be evaluated. This is not directly within the scope of the job role, however, it is considered an important factor as it allows the user to establish opportunities for further skill and education development within the job role.

An additional element to evaluate when defining the scope of the job role is to determine if the job role is considered mundane or if application of advanced technical expertise is required in order to perform the activities included in the role. The importance of this is to establish the variety and complexity of the tasks within the job role.

Another factor to consider is the nature of usual contact with others. This can either be to assist or be assisted in problem solving or task performance and includes the frequency of contact and/or consultation with supervisors, colleagues or employees supervised. Contact with others is important, especially with a supervisor, as it provides opportunities for the job holder to receive feedback regarding the performance of tasks within their job role. Not included for consideration is the availability of tools, equipment and technology as this refers to the lack of resources discussed in Section 2.1.4.3 that falls beyond the scope of the proposed framework.

The outcome of Step 2 is therefore to establish the context of the job role that is being assessed such that all the elements of the role are fully understood. The key is to identify the job role as it exists now and not as it should be or will be in the future. This ensures the accuracy of the evaluation of the job role as all of the elements that contribute to the various critical interventions of motivation are recognized by the individual performing the evaluation.

In order to provide a general example for the user of the proposed framework, not all the elements discussed in Step 2 will be detailed. The objective is rather to define a non-specific job role from which to further the example.

Therefore, to establish the levels of the organizational structure in which the example centres the user, determined to occupy Band D of the DBM, is evaluating a job role that typically falls in Band C. The management personnel approached to support the scheme to evaluate the motivational potential of the job role are considered to occupy Band E of the DBM as they are Senior Management.

To provide contextualization of the hypothetical job role being assessed, due to the Band C classification, it can be surmised that there is some degree of responsibility and ample freedom to make decisions regarding the work process. The nature of the work is understood to be approximately 30% physically demanding and 70% requiring mental concentration.

The job role is considered to be both technically and people orientated as the job role requires the management of a team of employees. In terms of the work environment, it is not considered particularly hazardous as the job holder is required to wear standard personal protective equipment but no specialized equipment is necessary in the standard day-to-day activities.

Activities and tasks required of the job holder are considered to require technical expertise and experience and though some of the tasks might be mundane, the job role requires the job holder to engage in a variety of tasks and activities. The level of contact with the supervisor of the job role involves meetings conducted once every two weeks and quarterly reviews during which feedback regarding performance is given. Other forms of contact include interaction with peers typically in the same DBM Band as the job holder and communication with the employees under the job holder's supervision.

3.2.4 Step 3: MPEM

The core of the proposed framework are the interventions of motivation deemed to be critical to enhancing employee motivation in the context of a job role. The critical motivational interventions, derived from the various motivational theories discussed in Section 2.2.2 of Chapter 2, include the definition of specific and difficult goals, facilitation of the perceived relationship between effort and reward, the

scope for the development of the employees skills, an awareness of job expectations, challenging tasks, skill variety within the job role, the level of understanding of the job role contribution, a level of autonomy, a balance of equity, achievement recognition, task variation and performance feedback.

It must be noted that the user of the framework should be made aware of hygiene factors discussed in Section 2.2.2.4 and the contribution they make to employee motivation. The key point illustrated by the motivation-hygiene theory is that although hygiene factors do not directly enhance employee motivation, an employee will not be motivated if these factors are not considered satisfactory by the employee. It is therefore important that although a line manager may not have direct control over hygiene factors such as fair pay, time off, and safety policies, the user of the framework must be aware that without these factors in place, incorporating the critical motivational interventions in the working environment may not lead to enhanced employee motivation. The hygiene factors can therefore be considered as a precursor to motivating factors.

In order to measure the level at which each of the motivational interventions exists within a specific job role, a Motivational Potential Evaluation Matrix (MPEM) was developed. The aim of the matrix is to establish the extent to which each motivational intervention contributes to the potential of the job role to motivate the job holder.

Step 3 of the proposed framework therefore involves defining the MPEM within the context of the environment that it is being implemented. Definition of the MPEM involves Step 3.1: identifying the motivational interventions that are to be assessed within the specific job role, Step 3.2: establishing a scoring system in order to evaluate the level at which the motivational intervention is prevalent within the job role, Step 3.3: assigning a weight value to each of the motivational interventions, Step 3.4: conferring with supporting management regarding the suitability of the MPEM with regard to the job role being assessed and Step 3.5: adjusting the MPEM if deemed necessary by supporting management.

A MPS is then calculated in order to quantify the potential of the job role to motivate the job holder as perceived by the manager. Table 3.2 depicts a fundamental template for the MPEM. Each of the elements within the matrix are discussed in subsequent sections. Note that further explanations for the questions included in Table 3.2 are provided in Section 3.2.4.1 (Step 3.1) to facilitate the answering of the questions. The Final Score and MPS elements are included in the MPEM for completeness and will be discussed in Section 3.2.5.

Table 3.2: Motivational Potential Evaluation Matrix

	Score						
Motivational intervention	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Weight**	**Final Score**
To what extent are specific and difficult goals defined?	1	2	3	4	5		
To what extent is the perceived relationship between effort and reward facilitated?	1	2	3	4	5		
What is the scope for skill development?	1	2	3	4	5		
What is the condition of the role expectation awareness?	1	2	3	4	5		
What is the degree of skill variety required?	1	2	3	4	5		
To what extent are achievements recognized?	1	2	3	4	5		
To what extent are tasks challenging?	1	2	3	4	5		
To what extent is the treatment of employees fair between individuals?	1	2	3	4	5		
What is the level of task variation?	1	2	3	4	5		
What is the level of understanding of job role contribution?	1	2	3	4	5		
To what extent is autonomy promoted?	1	2	3	4	5		
What is the level of performance feedback within the job role?	1	2	3	4	5		
MPS						**Sum of Final Scores**	

3.2.4.1 Step 3.1: Motivational intervention identification

The key consideration of Step 3 is to identify the interventions of motivation deemed to be relevant to the context of the job role to be assessed. Therefore, in Step 3.1 it can be decided that all of the motivational interventions shown in Table 3.2 should be included in the matrix or that some of the motivational interventions are irrelevant to the job role being assessed. As a result, these interventions will be excluded from the matrix. It is recommended however that all of the motivational interventions be included in the MPEM and if one intervention is considered irrelevant it can be given a weight of zero which effectively eliminates it from contributing to the MPS. This ensures that for future iterations of the MPEM, if the intervention does become relevant, it is not forgotten.

Obtained from goal-setting theory discussed in Section 2.2.2.6, the first critical motivational intervention is the definition of specific and difficult goals. This refers to the need for goals and objectives to be established which provides the job holder with an aim and allows him to fulfil his need for achievement and accomplishment of difficult tasks discussed in Section 2.2.2.2. As indicated in Section 2.3 the goals established to be met by an employee should align with the organizational goals in order to achieve the ultimate goal of success of the organization. The main consideration for this motivational intervention is that the goals need to be specific (clearly defined) and understood by the job holder and difficult so that a job holder is challenged to make use of his skills, expertise or heightened effort in order to achieve the goal. Therefore, to evaluate this motivational intervention, the user needs to establish the degree to which goals exist within the job role, the extent to which those goals have been defined and the difficulty of the goals with respect to the individual employee's skill level and experience.

Expectancy theory, discussed in Section 2.2.2.5, considers that people are motivated in the workplace when they perceive that the rewards gained from work performance are suitable or appropriate to the effort and performance input. In terms of translating this to something which a line manager has the capacity to influence, the extent to which the relationship between effort input and reward outcome is facilitated is measured. In order to do this, the user must consider the three key components of expectancy theory: valence, instrumentality and expectancy. To reiterate from Section 2.2.2.5, valence is the degree to which a reward is valued by the receiver, instrumentality is the expectation that the reward correlates to the level of performance expended and expectancy is the perceived likelihood that task performance will result in a reward or particular outcome. Therefore, to answer the question "To what extent is the perceived relationship between effort and reward facilitated?", the user must consider the degree with which a manager

ensures that the rewards or outcomes of task performance are valued by the employee, that they will certainly be applied and are not empty promises and that they align (according to the perception of the employee) with the performance input.

The scope for skill development established as a critical motivational intervention from needs theories and social cognitive theory discussed in Section 2.2.2.7, refers to the importance of ensuring that there exist opportunities within the job role from which a job holder can sustain and develop his skill set. Such opportunities include training and coaching or the chance to observe competent people perform particular tasks. It is shown in Section 2.1.4.2 that the development of employees' skills is fundamental to the success of an organization. Therefore, in order to evaluate this intervention of motivation, the user needs to identify the availability of skill development opportunities within the job role.

As discussed in Section 2.2.2.5, expectancy theory established that an individuals' perception of their job expectations has an effect on the successful achievement of tasks. The perception of expectation refers to the definition and clarification of the outcomes required of the job holder and as such the identification of the degree of duties and responsibilities included in the job role as discussed in Section 3.2.3 is important. Thus, it is essential that the job holder is fully informed of exactly what tasks are expected to be performed in addition to being aware of work performance and quality requirements established through well defined goals. The user must consider the job holder's awareness of the expectations required of him within the scope of the job role in order to measure this motivational intervention.

Job characteristics theory, discussed in Section 2.2.2.12, prescribed a number of the motivational interventions considered to be critical to enhancing the motivation of a job holder. The first of these is that skill variety is required within a job role in order to increase the potential for the job holder to be motivated. Skill variety refers to the need to perform an assortment of tasks that ensure that various skills are used. This reduces the monotony of the work and the potential for poor performance of required tasks. An example of this is in the case that the job role requires an employee to sit in front of a computer for the duration of the workday. In order to provide the employee with the opportunity to use other skills this requirement should be adjusted to include other tasks, even seemingly insignificant ones.

Integrating skill variety into job roles that only require the completion of a few, related tasks may be difficult. In such a case the intervention may be eliminated

from the motivational potential evaluation matrix. However, if skill development is incorporated into the job role, the job role may be adjusted such that the job holder is able to make use of the developed skills thereby introducing skill variety into the job role. In order to measure the prevalence of skill variety within a job role, the degree of skill variety required to complete the tasks included in the job role is considered.

Recognizing achievements is established in Section 2.2.2.4 to be a motivating factor. This refers to acknowledging and appreciating an employee in the event that the employee accomplishes an important goal or milestone. In order to measure this, the extent to which achievements are recognized by the manager is considered.

It is shown in Section 2.2.2.4 that incorporating challenging tasks meets a persons need for self-actualization and self-realization. Challenging tasks refer to tasks that may be difficult or complex for an individual to solve. The level of the challenge is dependant on the individual's skills and knowledge of the context of the task. Thus, the extent to which tasks are challenging according to the employee's skill and experience level within the job role is measured.

In the context of this framework, equity refers to how fairly an employee is treated. As discussed in Section 2.2.2.8, this is an important consideration as people respond to their perceptions of fair treatment and as such employee performance may be enhanced or worsened per their perception of equity. Evaluating the condition of equity thus requires considerations of a manager's treatment of employees and the consistency with which he manages the employees.

Activation theory discussed in Section 2.2.2.11 establishes the case for the importance of variation in the work environment. Variation refers to the incorporation of diversity in order to alleviate monotonous and repetitive tasks and enhance employee motivation. Examples such as incorporating rest periods into the work schedule or playing music have been suggested as ways in which a manager can facilitate variation in the workplace. Therefore, this critical motivational intervention is evaluated by considering the level of variation in a work environment.

Task identity and task significance were presented by the job characteristics theory to contribute to motivation in the workplace. A combination of these two factors translates to the motivational intervention of an understanding of work meaningfulness which refers to the importance for an individual to engage in activities that are regarded to be meaningful. Therefore, the motivational intervention of understanding of work meaningfulness is the extent to which a job holder is aware

of the importance and contribution of the tasks that they perform within the job role. Evaluating this motivational intervention requires considering the level of understanding that a job holder maintains regarding the contribution of his job role and the activities therein.

The degree of autonomy within a job role is another motivational intervention proposed by the job characteristics theory. Autonomy relates to the freedom provided to the job holder concerning the tasks within the job role and decisions pertaining to the execution of those tasks. This includes decisions regarding the order in which specific tasks are performed, the manner in which they will be achieved, or the time spent on each task. Therefore, to establish the prevalence of this motivational intervention within a job role, the user must assess the degree that a job holder is allowed to make decisions specific to the job process.

Feedback is the final intervention of motivation considered by job characteristics theory to contribute to motivation in the workplace. The level of feedback refers to how often the performance of an individual is evaluated and importantly, how often the individual is made aware of the results of the evaluation. The time periods between performance feedback is important as an individual cannot know that they need to increase performance if they are unaware of poor performance levels for an extended period of time. In addition to this, it is important to consider whether or not the details provided to the job holder during feedback is meaningful and will contribute to enhanced work performance. In order to determine the level of feedback within a job role, the opportunities available for the employee to receive feedback from the manager are assessed as well as the contents of the feedback. Feedback contents refers to what information and details the manager is communicating to the employee.

Determining which motivational intervention are relevant to the job role being assessed involves establishing what interventions already exist in the job role. These interventions therefore need to be included in the motivational potential evaluation matrix in order to gauge the contributions that the motivational interventions make towards the motivational potential of the job role. Also important is to identify motivational interventions previously not included in the job role but that have been established in Section 2.2 to enhance motivation of employees in the workplace. The applicability of each of these interventions to the job role must be evaluated and the feasibility of incorporating them into the job role ascertained. Evaluating the applicability of a motivational intervention to a job role requires consideration of the factors of the job context established in Section 3.2.3 (Step 2).

3.2.4.2 Step 3.2: Establish scoring scale

Once the critical motivational interventions have been identified within the job role, the next step is to establish the scale within which the interventions will be assessed. The number of points or options within the scale must be selected. It is recommended that the user select one of three possibilities.

The first option is to use a 5-point scale. This is considered a viable option as it has been proved to be effective in measuring the work motivation and engagement of individuals worldwide (Tremblay *et al.*, 2009; Harter *et al.*, 2006). According to Losby and Wetmore (2012), the 5-point Likert scale is used most commonly. However, it has been argued that the 5-point scale does not provide sufficient options of choice to measure the true attitudes of the respondents due to the tendency for some people not to select options at each end of the scale (Goodwin, 2009).

Thus, a 7-point scale has been proposed by Goodwin (2009) to be more accurate in establishing the true attitude of the user. The reason for this is in the case that the user avoids selecting the options at the ends of the scale, there still exist five options from which to choose. A disadvantage of a 7-point scale however, is that it may take additional time to complete the survey.

Another option is to make use of a 6-point scale. The main advantage of an even scale is that is forces the user to select a positive or a negative result as opposed to an uneven scale in which the user can give an average score if they are unsure.

For the purposes of this thesis, the MPEM shown in Section 3.2.4 makes use of a 5-point scale. However, the user may select one of the other options per individual preference.

Also included in Step 3.2 is the need to appropriately quantify all the values of the scale. This refers to establishing what constitutes a score of "2" as opposed to a "5" in the MPEM. In order to make the scale values generic for all of the motivational interventions included in the MPEM, instead of using measures of quantity such as the number of occurrences within a specific time period, the measures will be based on a Likert-type scale which according to Losby and Wetmore (2012, p.4) is "an ordered scale from which respondents choose one option that best aligns with their view". It is thus a scale of perception. Additional information regarding Likert and Likert-type scales is provided by Losby and Wetmore (2012).

Since the aim of the MPEM is to quantify the prevalence of each of the moti-

vational interventions within the job role, it is considered appropriate to use the classifications of "very poor", "poor", "fair", "good", and "excellent" as shown in Table 3.2.

Once the scale has been selected, a score based on the user's perception of the prevalence within the job role of each of the motivational interventions included in the MPEM is selected. An example for the motivational intervention of the Level of Feedback is that if the user recognizes that he does not meet with the job holder often enough or has insufficient time to discuss progress or performance when he does meet with the job holder, a score of "1" or "2" could be selected. This therefore indicates that the Level of Feedback within the job role is "very poor" or "poor".

An element to consider when assessing the score of each of the motivational interventions is the concept of social desirability. This refers to an option or choice selected such that it puts the role in a positive light. An example of this is if the score is selected to be 4 or 5 when in fact the prevalence warrants a lower score. Inaccurately scored interventions lead to unreliable results at the end of the analysis which could result in suboptimal changes being made to the prevalence of the motivational interventions within the job role.

3.2.4.3 Step 3.3: Motivational intervention weighting

In addition to quantifying the scores corresponding to each motivational intervention, the weight of each intervention must also be established. This is Step 3.3 in the proposed framework. Weighting pertains to the level of importance which each motivational intervention is judged in the context of the job role to which the framework is applied.

A weight factor is included in the MPEM as it is established in Section 2.2.1.4 that opinions regarding the importance of the motivational interventions differ between workers and managers. Thus, it has been established that prioritizing the motivational interventions contributes to the exactness with which managers can make decisions regarding what motivational interventions to address in the job role. Incorporating the weight factor into the MPEM therefore establishes an indication of manager versus employee preferences regarding what motivational interventions should be prevalent in the job role.

Determining standard weight values for the motivational interventions requires extensive analysis across a wide range of individuals occupying different job roles. For the purposes of this thesis, the weight values are assigned using a basic weight-

ing method per the user's perception of the importance of each of the motivational interventions. Future research or development of the proposed framework can establish standard weight values or an analytical method with which to determine weight values.

Due to the fact that standard weight values are not utilized in the MPEM, the user may not wish to include the weight factor in the analysis. The recommendation in such a case is that a weight of value one is selected for all of the motivational interventions included in the MPEM. Weights can then be applied in subsequent iterations of the proposed framework per the user's discretion or as the job role is better understood.

In the event that variable weight values will be used, a number of weighting methods to determine key factors exist. A simple and effective possibility called the Rank Order Centroid (ROC) method, is to prioritize the motivational interventions according to their perceived importance. Therefore, the motivational intervention considered to be the most important will be ranked first with the least important intervention being assigned the value corresponding to the total number of motivational interventions included in the MPEM. These rankings are then converted to a weight value for each of the motivational interventions. The conversion formula is shown in Equation 3.1.

$$W_i = \left(\frac{1}{M}\right)\sum_{n=1}^{M}\frac{1}{n} \tag{3.1}$$

where M refers to the number of motivational interventions and W_i is the weight for the i^{th} ranked motivational intervention. Thus, i refers to the ranking number of the motivational intervention and not the number corresponding to the order of the motivational interventions shown in Table 3.2.

To illustrate this method according to the MPEM shown in Table 3.2, there are a total of twelve motivational interventions and thus the motivational intervention ranked first will have a weight value of

$$\begin{aligned} W_1 &= \left(\frac{1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}+\frac{1}{7}+\frac{1}{8}+\frac{1}{9}+\frac{1}{10}+\frac{1}{11}+\frac{1}{12}}{12}\right) \\ &= 0.26 \end{aligned}$$

and the last ranked motivational intervention will have a weight value equal to

$$W_8 = \left(\frac{\frac{1}{12}}{12}\right)$$
$$= 0.007$$

The chief disadvantage of the ROC method is that the weight values are highly dispersed, with the effect of the last ranked motivational interventions almost nil (Chang, 2004 cited by Touran *et al.*, 2009). However, the ROC method is considered simple and easy to use and thus suitable to use for the MPEM.

As indicated in Section 3.2.4 (Step 3.1), in the case that the user wishes to exclude one or more motivational interventions from the MPEM, it is recommended that a weight of zero is selected for these interventions. The motivational interventions will effectively be eliminated from the MPEM; however should the excluded motivational intervention become relevant in subsequent iterations of the framework, the intervention will not be forgotten. Should a weight of zero be assigned to a motivational intervention, that intervention is excluded from the ROC method of weighting and therefore does not contribute to the value of M in Equation 3.1.

Once selected, the weight values are entered into the MPEM in the column "Weight" and the row corresponding to the specific motivational intervention.

3.2.4.4 Step 3.4: Feedback to management

An important consideration for the proposed framework is to ensure that the support of senior management is maintained. In order to do this, the MPEM that has been defined should be presented to the supporting management. This allows the senior management to be aware of what motivational interventions are being assessed and identify those that may be subject to adjustment if necessary.

Therefore, Step 3.4 requires that the user of the proposed framework confers with senior management and attains approval of the MPEM defined for application within the organization. Conducting a meeting with the relevant supporting and senior management provides a means in which concerns and issues regarding the MPEM can be raised and handled promptly.

3.2.4.5 Step 3.5: Matrix adjustment

In the event that senior management finds the MPEM to be unsuitably defined or misaligned from the organizational objectives, it will not be approved. Therefore,

adjustment of the MPEM definition should be made to support the requirements or suggestions of the supporting management.

Changes to the MPEM definition could include the addition or elimination of one or more motivational interventions that are to be considered. Another possibility would be the need to adjust the scoring scale (from a 5-point to a 6-point scale) or the weights assigned to each of the motivational interventions within the MPEM.

The outcome for Step 3 is therefore to properly define the MPEM such that the motivational interventions included therein align with the objectives of the organization and the MPEM has the continued support of senior management.

For the sake of the example, all of the motivational interventions discussed in Step 3.1 will be included in the MPEM. A 5-point scoring scale will be used with the score classifications of "very poor", "poor", "fair", "good", and "excellent" as shown in Table 3.2.

The ROC method will be used to determine the weight values of each of the motivational interventions. Table 3.3 shows the ranking of both the importance and feasibility factors for the motivational interventions and the final rank value. Also indicated in Table 3.3 are the weight values calculated using Equation 3.1.

Table 3.3: ROC weighting for hypothetical job role

Motivational intervention	**Importance**	**Weight**
Specific and difficult goals	2	0.18
Perceived relationship between effort and reward	7	0.05
Scope for skill development	5	0.08
Expectation awareness	8	0.04
Degree of skill variety required	6	0.07
Achievements recognized	9	0.03
Challenging tasks	10	0.02
Condition of equity	12	0.01
Level of variation	11	0.01
Level of understanding of job role contribution	3	0.13
Degree of autonomy	4	0.11
Level of feedback	1	0.26

3.2.5 Step 4: MPS calculation

In order to quantify the potential of a job role to motivate the job holder, Step 4 involves the calculation of a Motivational Potential Score (MPS) adapted from the job characteristics theory discussed in Section 2.2.2.12. The MPS is simply used to evaluate the extent to which the motivational potential of the motivational interventions within the job role are being employed.

The score and weight values are multiplied in order to emphasize the factors that are more important or which will be more feasible to enhance within the specific job role. This determines the Final Score that the particular motivational intervention contributes to the motivational potential of the job role. Summing the Final Score values establishes the MPS of the job role.

The ideal MPS for the specific job role is determined by multiplying the weight of each motivational intervention by the highest score used in the MPEM. In the

case of Table 3.2, this would be the value five. The sum of all of these values is therefore the highest motivational potential that can be achieved by the specific job role in terms of the motivational interventions assessed.

For the sake of establishing MPS values that can be easily compared with one another, the actual MPS score is represented as a percentage of the ideal score.

Table 3.2.5 indicates a hypothetical example of an MPEM completed by a manager.

Motivational Intervention	Very Poor	Poor	Fair	Good	Excellent	Weight	Final Score
To what extent are specific and difficult goals defined?	1	2	(3)	4	5	0.18	0.53
To what extent is the perceived relationship between effort and reward facilitated?	1	2	3	(4)	5	0.05	0.22
What is the scope for skill development?	1	2	(3)	4	5	0.08	0.25
What is the condition of the role expectation awareness?	1	(2)	3	4	5	0.04	0.08
What is the degree of skill variety required?	1	2	(3)	4	5	0.07	0.20
To what extent are achievements recognized?	1	2	3	(4)	5	0.03	0.13
To what extent are tasks challenging?	1	2	(3)	4	5	0.02	0.07
To what extent is the treatment of employees fair between individuals?	1	2	3	(4)	5	0.01	0.03
What is the level of task variation?	1	2	(3)	4	5	0.01	0.04
What is the level of understanding of job role contribution?	1	(2)	3	4	5	0.13	0.27
To what extent is autonomy promoted?	1	2	(3)	4	5	0.11	0.32
What is the level of performance feedback within the job role?	1	2	(3)	4	5	0.26	0.77
Actual MPS							**2.92**
Ideal MPS							**5**
Percentage							**58%**

Therefore, the actual MPS of the job role is equal to 2.92. The ideal MPS is determined to be 5. Therefore the actual MPS as a percentage of the ideal MPS equals 58%. This means that the manager perceives himself to be exploiting only 58% of the motivational potential within the job role to motivate the job holder. It can therefore be surmised that if this was enhanced, the job holder would experience greater motivation to perform the tasks required by the job role.

3.2.6 Step 5: Job holder MPEM

As discussed in Section 3.1, it is not only the perception of the manager that is important when evaluating the prevalence of motivational interventions within a job role. Due to the fact that it is in fact the job holder who is affected by the existence or non-existence of motivational interventions in the job role, obtaining feedback from the employee is crucial.

Therefore, Step 5 is used to ascertain the perceptions of the job holder with regard to the importance of the motivational interventions with respect to the job role. The job holder therefore ranks the motivational interventions according to the ROC method shown in Step 3.3. From this, the weights are calculated per Equation 3.1.

The job holder's view of the prevalence of the motivational interventions within the job role must also be confirmed. Therefore, the job holder must score each of the motivational interventions. Subsequently, the MPS for the employee is calculated as discussed in Section 3.2.5.

It must be noted that the job holder must have zero knowledge of the scores or weights assigned by the manager in order to ensure unbiased results. The employee should be made aware of the concept of social desirability and warned against assigning inaccurately high scores to ensure that there are no undesirable consequences if the results of the analysis prove unfavourable to the manager.

The ranking of importance identified by the employee and weight values for the hypothetical MPEM are shown in Table 3.4.

Table 3.4: Employee ROC weighting for hypothetical job role

Motivational Intervention	**Importance**	**Weight**
Specific and difficult goals	5	0.08
Perceived relationship between effort and reward	8	0.04
Scope for skill development	4	0.11
Expectation awareness	2	0.18
Degree of skill variety required	7	0.05
Achievements recognized	9	0.03
Challenging tasks	10	0.02
Condition of equity	12	0.01
Level of variation	11	0.01
Level of understanding of job role contribution	6	0.07
Degree of autonomy	3	0.13
Level of feedback	1	0.26

Table 3.5 indicates a hypothetical example of an MPEM completed by the job holder.

Table 3.5: Example of an MPEM completed by the job holder

Motivational Intervention	Very Poor	Poor	Fair	Good	Excellent	Weight	Final Score
To what extent are specific and difficult goals defined?	1	(2)	3	4	5	0.08	0.16
To what extent is the perceived relationship between effort and reward facilitated?	1	2	3	(4)	5	0.02	0.08
What is the scope for skill development?	1	(2)	3	4	5	0.11	0.22
What is the condition of the role expectation awareness?	1	(2)	3	4	5	0.21	0.42
What is the degree of skill variety required?	1	(2)	3	4	5	0.03	0.06
To what extent are achievements recognized?	1	2	3	(4)	5	0.03	0.13
To what extent are tasks challenging?	1	(2)	3	4	5	0.02	0.07
To what extent is the treatment of employees fair between individuals?	1	2	3	(4)	5	0.01	0.03
What is the level of task variation?	1	2	(3)	4	5	0.01	0.04
What is the level of understanding of job role contribution?	1	2	(3)	4	5	0.05	0.15
To what extent is autonomy promoted?	1	2	(3)	4	5	0.15	0.45
What is the level of performance feedback within the job role?	1	(2)	3	4	5	0.34	0.68
Actual MPS							**2.38**
Ideal MPS							**5**
Percentage							**48%**

Therefore the actual MPS perceived by the job holder as a percentage of the ideal MPS is 48%. This means that the employee perceives the manager to be utilizing only 48% of the motivational potential within the job role. There is clearly a disparity between the MPS of the manager and that of the job holder. The MPS of 58% calculated for the manager compared to the MPS of 48% calculated for the employee suggests that however well the manager believes he is employing motivational interventions in the management of his employees, the employee considers the manager's use of motivational interventions to be less. Thus, it is identified that there is scope for the manager to address one or some of the motivational interventions in the MPEM.

3.2.7 Step 6: Compare manager and employee MPEMs

In order to enhance the MPS and thus potentially increase the motivation of the job holder, Step 6 involves identifying the motivational interventions that should be addressed within the scope of the job role. This requires the user to consider the MPEMs completed by both the manager and the job holder. Thus, the perceptions regarding the prevalence of the motivational interventions within the job role are analyzed from two perspectives, the manager and the job holder.

Firstly, the manager and employee MPSs should be evaluated. A low MPS gained from the managers MPEM indicates that opportunities for improvement exist due to the prevalence of the motivational interventions in the job role as perceived by the manager. Thus, the manager indicates that insufficient attention is being paid to incorporating optimal levels of motivational interventions into the job role.

A low MPS gained from the MPEM completed by the employee indicates that the employee does not believe that the motivational interventions are being utilized optimally within the scope of the job role. Therefore, according to the employee, there exists improvement opportunities with respect to the level of motivational interventions. A comparison of the manager and employee MPSs allows the user to identify the perception of the motivational potential that the manager contributes to the job role versus the employee's perception of the manager's contribution.

To determine which motivational intervention or interventions within the job role to focus on, the score values of the MPEM are considered. A low score indicates potential for improvement of that particular motivational intervention.

In the event that the manager is aware of some or all of the motivational interven-

tions included in the MPEM, specifically assessing the MPEM completed by the manager indicates the extent to which the manager applies the motivational interventions in the job role and thus low scores show opportunities for improvement. An example of this might be that despite the fact that the manager is aware of the importance of feedback as a means of motivating employees, he might never have considered whether the level of feedback provided to the job holder is optimal. The MPEM therefore brought that intervention into consideration thus providing the manager with an opportunity to evaluate the prevalence of the motivational intervention in the context of the particular job role. Therefore, low scores in the MPEM completed by the manager indicate areas that the manager believes require improvement.

Another outcome of the analysis of the manager completed MPEM is that it provides a platform for the manager to discover motivational interventions previously unknown or unconsidered to be incorporated in the manager's management strategy. The opportunity lies in establishing those interventions into the job role such that the job holder experiences enhanced motivation.

The perspective of the employee regarding the prevalence of motivational interventions in the job role must also be considered. In terms of the MPEM completed by the employee, motivational interventions that the employee believes are lacking or insufficient within the job role are identified. This information is important to the user as it engenders the manager's understanding of how the employee perceives the prevalence of the motivational interventions in the job role. For example, if the manager considers that the prevalence of a particular motivational intervention is sufficient but the employee does not agree, the opportunity exists to create alignment between what the employee perceives as sufficient versus the opinion of the manager. This is done in order to achieve an optimal level of prevalence of that motivational intervention to enhance the motivation of the job holder.

If the weight value is included in the MPEM analysis, the user must take account of the motivational interventions that the employee considers as important. This is crucial as an employee is more likely to be motivated by an intervention that he perceives as important as opposed to one only considered meaningful by the manager. Thus, if the manager expends particular effort to incorporate a motivational intervention into the job role that does not lead to enhanced employee motivation, it can be understood that the reason may be because the employee does not value that intervention of motivation with the same regard as the manager.

On the other hand, motivational interventions ranked with low importance by the

employee should not be disregarded as they may be something that the employee has not previously considered as motivational and thus assigned a low rank of importance. An example of this is that the job holder may not realize the degree of motivation that a particular motivational intervention provides. It has been established in the extensive literature review of Chapter 2 that all of the interventions included in the MPEM contribute to enhanced motivation.

The aim of the proposed framework is to provide a method of establishing or identifying motivational interventions within a job role that are not optimally utilized. It is therefore not within the scope of the proposed framework to provide methods or techniques of how to improve or change the motivational interventions within a job role. However, examples of possible solutions include horizontal and vertical job loading, job rotation (discussed in Section 2.2.2.9), forming natural work units, opening feedback channels and increasing a job holder's personal accountability or responsibility for their work.

It is important to note that as discussed in Section 2.2.2.13 and reported by Oldham and Hackman (2010) and Nielsen *et al.* (2009), including an employee in the process of change within a job role enhances the employee's motivation to perform the tasks required of him. Therefore, one of the key features of Step 6 is to ensure that the job holder is able to be involved in and provide input into any changes regarding his job role. This also guarantees that the job holder is made aware of any new tasks or requirements within his job role.

3.2.8 Step 7: Evaluation

In order to ensure that value is gained from conducting the proposed framework, the results of the analysis should be evaluated. Alignment between any changes to the job role and the objectives and policies of the organization must be confirmed. Enquiries should be made periodically to the job holder regarding the effect of the changes within the job role. This also ensures that the user of the proposed framework remains updated with the consequences of the changes or modifications made as a result of the framework.

As in Step 3.4, it is important to ensure that managerial support is sustained in order to guarantee that the value of the proposed framework is maintained. Therefore, Step 7 also involves continued feedback to senior and supporting management of the outcomes of the proposed framework and an overview of changes and modifications to the job role that have transpired. The user can also then make recommendations for changes or adaptations to the proposed framework in the event that the analysis should be conducted for other job roles within the

organization.

According to Achtenhagen *et al.* (2013), sustained value creation requires that an analysis is shaped, adapted and renewed in order to identify opportunities for improvement. Step 7 therefore also acts as a feedback loop in the proposed framework shown in Figure 3.1. This means that the proposed framework should be revisited from time to time in order to ensure that the use of motivational interventions within a job role is optimized to create an environment that engenders motivated employees. The use of motivational interventions within the working environment is not static and as such, should be reviewed periodically to ensure that they are being utilized to best enhance the motivation of the job holder. This allows for additional information or environmental changes that may have occurred since the previous assessment, to be considered. Furthermore, repetition of the proposed framework allows for further changes to be made to the job role with the aim of creating a job role that has the maximum potential to motivate the job holder. Fixed time periods should be set at which evaluation of the use of motivational interventions by a manager should be performed.

3.3 Discussion

Due to the complexity of the human condition and varying personalities and preferences among individual employees and managers in different job roles, this proposed framework is not a one solution fits all scenario. Therefore, the proposed framework is intended as a flexible guideline with which to assess the motivational potential of a job role and should be adjusted to different situations as the user deems necessary.

The aim of the proposed framework is thus not to provide solutions to specific motivational problems as the problems themselves vary from situation to situation. It must be understood that the key objective of the proposed framework is to aid in the understanding of the core elements regarding motivation in the workplace. This means that suggestions and solutions describing possible methods of incorporating or changing the motivational interventions within the working environment remains outside of the scope of this study.

Therefore, the extent to which this proposed framework is adopted and used by an organization should be based on a “fit for purpose” assessment. This means that an organization may not need to make use of all the elements of the framework due to the circumstances of the organization or the context in which the proposed framework is applied.

The proposed framework is considered an iterative process. It is consequently, by no means a process that is completed once and never again. Instead it is presumed wise that the process be repeated periodically in order to ensure that a job is creating as much potential for the increased motivation of the job holder as possible. The periods of time between iterations relies on the manager's discretion. However, as a guideline, the proposed framework should be executed on a yearly basis. This allows managers to establish areas within the job role that require attention or adjustment in order to create and sustain employee motivation.

Therefore, after the first evaluation, the aim is to re-evaluate the situation, re-prioritize the motivational interventions and thus re-assess the motivational potential of the job role.

3.4 Chapter Summary

This chapter discusses the development of a proposed framework to establish the extent to which managers apply motivational interventions to the job roles of their employees. This is done by measuring the prevalence of each of the motivational interventions considered in the proposed framework. A MPS of the job role is thus calculated which gives an indication of the capacity of the job role to motivate the job holder.

An overview of the proposed framework is provided in the chapter and a step-by-step guide of each of the elements of the framework is presented to guide a user through the processes within the framework. This includes details regarding the objectives, requirements and outputs of the proposed framework.

The outcome of the proposed framework is to provide managers with direction as to what interventions of motivation should be addressed within a job role in order to enhance the level of motivation of the job holder.

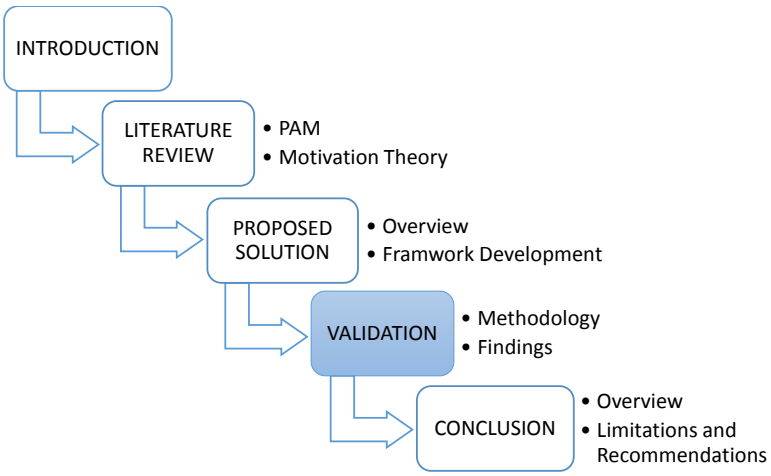
In line with the research objectives of this study discussed in Section 1.4, the third research objective to develop a framework incorporating the critical interventions of motivation which will allow for the level of use of the motivational interventions within the work environment to be quantified, was achieved.

Validation of the proposed framework is discussed in Chapter 4.

Chapter 4

Framework Validation

The aim of this chapter is to establish the validity of the framework proposed in Chapter 3. An overview of the approach utilized to validate the framework is discussed. Thereafter, the methodology and findings of the framework validation are detailed. A discussion of the findings of semi-structured interviews involving a group of experts in the field of PAM is subsequently presented. Included in the discussion are changes made to the proposed framework as a result of the findings.



4.1 Overview

It is established in Chapter 3 that the primary objective of the proposed framework is to provide a tool to guide managers to identify motivational interventions in the

working environment to include or modify such that the motivation of the employees under their supervision is enhanced. The proposed framework is targeted at, but not limited to, managers from a chiefly technical background.

According to Carson (1986, cited in Beecham *et al.*, 2005), validation is defined as "the process of ensuring that the model is sufficiently accurate for the purpose at hand." Robinson (1997) states that validation is establishing whether the right model has been developed. Therefore, validation can be described as confirming that a developed model or framework is suitable to the context for which it was designed.

Therefore, the aim is not to verify whether the proposed framework actually results in enhanced employee motivation. Instead, the framework validation is used to ascertain the potential of the proposed framework as a guide to assist managers in the PAM environment to assess the extent to which motivational interventions are utilized in the working environment. The framework validation is thus strictly limited to ascertaining the strengths and weaknesses of the proposed framework and substantiating that the components and steps included in the framework are consistent with its expected application.

In order to acquire an understanding of the suitability and applicability of the proposed framework to industry and thus validate the framework, the perceptions and thoughts of experts in the field of PAM were collected through questions posed during semi-structured interviews.

4.2 Methodology

In order to validate the proposed framework, a qualitative methodology was followed. This approach was derived primarily from the validation method developed by Borenstein (1998), which describes qualitative-based validation as a main principle. Face validation was considered to be an applicable method with which to validate the proposed solution.

Face validation is defined by Shuttleworth (2009) as a "measure of how representative a research project is at face value" and is evaluated by a group of leading experts in the field. Therefore, face validation is based on the principle of assessing, through expert review, the logic of a developed framework or method (Sargent, 2005) and whether it may be viable and valuable for use in industry. An example of a face validation method is a structured expert assessment of descriptions, animations or results of a framework or model (Klügl, 2008).

According to Borenstein (1998), the key objective of face validation is to ensure that the view of the framework designer and that of a potential user are aligned or consistent in a timely and cost-effective manner. This ensures that any potential flaws or misalignments between the industry requirements as understood by the framework designer and the potential user, are illustrated and can be addressed before implementation. Therefore, face validation acts as a method to revise and refine the developed framework such that it aligns with the requirements of potential users.

In addition to aligning the designer and potential user views, the methodology followed to validate the proposed framework is used to establish the applicability of the framework to potential users and to assess the assumptions, methods, and generic structure of the framework from independent sources.

Although face validation has been expressed as a weak form of validation (Drost *et al.*, 2011), a number of studies have utilized this method of validation including those conducted by DeWalt *et al.* (2007), Beecham *et al.* (2005), and Gibson and Strong (2001). The reliability of using expert judgement is shown by Lauesen and Vinter (2001) who discovered that the use of experts to predict techniques to prevent requirements defects produced good results. The value of expert review and criticism is also recognised by Rosqvist *et al.* (2003).

4.2.1 Expert panel

The face validation of the proposed framework was done through interviews conducted with experts in the field of PAM. Per the recommendation of Lauesen and Vinter (2001) to target participants from different backgrounds and industries, five potential participants occupying different roles in various industries were considered for participation in the study. The individuals were invited to participate in the study due to their experience in their respective fields, their background in the management of physical assets, and for the fact that they each held positions which involved the management of people.

Three of the five potential participants agreed to participate. All three experts occupy positions within the field of PAM in prominent companies in South Africa. A study by White (2011) also made use of a panel of three experts for content and face validation and as such three experts were considered sufficient for the validation of the proposed framework.

The companies affiliated with this study were Appletiser, Chevron, and Distell. Appletiser is a company which manufactures and markets non alcoholic bever-

ages. Currently the company is aligned with Coco-Cola as a distribution partner. The company is based in South Africa, however the Appletiser brand is marketed worldwide and exported to more than 20 different countries.

Chevron is a leading integrated energy company that is involved in various facets of the energy industry including exploration, production and transport of crude oil and natural gas. The company also manufactures and sells petrochemical products and refines, markets and distributes lubricants and fuels developed specifically for transportation. Chevron headquarters are based in San Ramon in the United States of America and the organization has subsidiaries worldwide including in South Africa.

Distell Group Limited, referred to as Distell, is a multinational brewing and beverage company which produces and markets spirits, fine wines, ciders and ready-to-drinks. The headquarters of the group are in Stellenbosch in South Africa. According to Distell (2015), the company employs approximately 5 300 people worldwide and achieves an annual turnover of R17.7 billion.

Participants included a maintenance manager with 15 years of experience in the field of maintenance management, a facilities manager with 15 years of managerial experience, and an engineering manager with seven years of experience in the position. The participants represented gas and oil and the beverage industries. This provided an opportunity to gain judgement of the proposed framework from different industries and job roles. Thus, it could be ascertained whether the proposed framework might be viable for multiple industries and at various levels of management.

4.2.2 Success criteria

In order to have a measure against which the proposed framework can be judged, criteria for success need to be defined. According to Lim and Mohamed (1999), criteria are the set of principles or conditions on which judgement regarding the success of a project or in this context, a framework, is made. Several success criteria were identified against which the proposed framework could be assessed and thus to guide the development of the framework. The success criteria defined by Beecham *et al.* (2005) were used as a basis from which the success criteria for the proposed framework were identified. The aim of the success criteria is thus to establish standards against which the outcomes of the face validation can be measured. "Success" is then determined if the framework should meet all the criteria.

The first success criterion is that of perceived usefulness. According to Davis (1989, p.320), "a system high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive use-performance relationship". Users of frameworks and models are motivated to use and apply them in industry primarily due to the function it provides for them. Secondary to this is the difficulty of using or implementing the framework or model (Davis, 1989). This means that a framework will not be adopted if the potential user does not foresee a favourable outcome from its use. Therefore, one of the most important success criteria is to ascertain whether the framework has potential to contribute value to an organization or potential user. In addition to this, as discussed in Section 3.1, the framework should be suitable for application and use in industrial environments. Therefore, establishing experts' opinions regarding the potential for the framework to be adopted and used in industry is considered critical to the validation of the proposed framework.

To be understandable is the second success criterion and refers to establishing if the framework is sufficiently clear and well defined such that it can be implemented in industry with no confusion. This criterion is also used to assess if the structure of the framework and the steps included therein are logical, unambiguous and functional.

Thirdly, the ease of use should be evaluated. Ease of use is defined by Davis (1989, p.321), as "the degree to which a person believes that using a particular system would be free of effort". Therefore, this criterion refers to identifying whether the framework is simple while still retaining meaning; usable; and requires little or no training to be used.

Flexibility is another success criterion against which the framework is measured. In order to ascertain if the framework meets this criterion, the structure of the framework should be established to be adaptable to different environments and organizations as a result of individual application needs.

Finally, the framework should be assessed as to whether it meets its objectives. Therefore, establishing whether this is true is the fifth success criterion. The objectives of the framework are summarized to include the fact that it should aid managers with a technical background in the understanding of the core elements of motivation in the workplace. The framework should also provide a structured guide to assess the extent to which motivational interventions are utilized by a manager with respect to a particular job role and is aimed in assisting managers in determining what interventions of motivation should be included or modified in

order to best enhance the employee motivation. In addition to this, the framework should contribute value to industry and the PAM environment.

4.2.3 Method of data collection

In order to learn the experts' opinions regarding the proposed framework, semi-structured in-depth interviews were conducted. According to Sturges and Hanrahan (2004), face-to-face interviewing is the method generally used by qualitative researchers when conducting semi-structured and in-depth interviews. The method of face-to-face interviewing was thus adopted for this study.

A semi-structured in-depth interview is defined by DiCicco-Bloom and Crabtree (2006) as "generally organized around a set of predetermined open-ended questions, with other questions emerging from the dialogue between interviewer and interviewee/s". Therefore, although predefined questions are asked in the interview, participants are able to ask questions and provide additional comments at any stage of the interview. DiCicco-Bloom and Crabtree (2006) indicates that this type of interview is generally only conducted once for an individual or group and typically requires between thirty minutes to several hours to complete. As reported by Adams *et al.* (2002), the data source for a qualitative research project may be exclusively semi-structured interviews; as was the case for this study. The semi-structured interview was chosen as the method for data collection as it best suited the nature and type of data required for analysis.

Beecham *et al.* (2005) demonstrates that ascertaining the participants' perceptions of the research project in addition to understanding how and why these perceptions are formed is the chief aim of a qualitative research interview. In order to do this, questions to ask the participants were thus defined. The design of the interview questions used to validate the proposed framework of this study was based primarily on those defined by Borenstein (1998) for face validation. These questions aimed to identify the participants' perspective of the structure of the framework and possible strengths and weaknesses. Supplemental questions were included in order to establish whether the proposed framework complied with the success criteria defined in Section 4.2.2.

In order to measure the structural aspects of the proposed framework, measurement scales were used. A four point scale as utilized by El Emam and Birk (2000) and Borenstein (1998) was used as shown in Figure 4.1. Thus, the ease of understanding and the impression of the step logic of the proposed solution were rated by categories of poor, fair, good and very good.

"How would you rate the ease of understanding of the framework?"	Poor ☐	Fair ☐	Good ☐	Very good ☐

Figure 4.1: Example of the 4-point scale used for the validation interview

Before the interviews took place, participants were sent the document shown in Appendix B. This document comprises of an overview of the context for the interview and indicates the purpose of the proposed framework. It also provides a basic description of the framework, with some detail presented on each of the steps. Following this, interview questions defined specifically to determine the participants' perspectives of specific elements of the proposed framework are shown. The interviews typically took an hour to complete.

The documentation provided to the participants was used as the interview guide. Thus, a similar approach to each interview was maintained. To begin the interview, the participants were introduced to the context and purpose of the proposed framework. Following this, each of the steps included in the framework were communicated. Once the proposed framework had been presented and discussed, structured questions were posed to the participant and the answers and comments were captured with notes written down as each question was answered.

In order to allow for further comments and suggestions regarding the proposed framework, participants were invited to ask questions or provide opinions and observations at any time during the interview. This provided the participants with the opportunity to pose ideas and supplementary feedback on the management policies and structures being utilized in their organization or self-adopted in their role as a manager.

4.3 Findings

This section presents the experts' responses to the interview questions in addition to other notes, comments and suggestions that were made by the experts during the interviews. The goals of the interviews were to ascertain if the participants would utilize the proposed framework or find it useful and value adding in industry. Findings from the interview data were analysed in order to measure the extent to which the experts' perception of the proposed framework comply with the success criteria.

Upon completion of the face-to-face interviews, the responses to the questions of the interviews and additional comments made during the interviews were analysed according to the five success criteria defined in Section 4.2.2. These are perceived usefulness, understandable, ease of use, flexibility and meeting objectives.

4.3.1 Perceived usefulness

The proposed framework was perceived to be applicable and potentially useful to industry due to its logical and systematic approach and structure. In addition to this, all three participants agreed that they would utilize the framework in their particular environments.

One particular comment indicated that the fact that the framework is able to provide managers with a predetermined list of motivational interventions to consider and assess is valuable. This contributes to the perceived usefulness of the framework as a tool for managers with little experience in the constructs of motivation and who do not have time to investigate these in their normal working schedule.

Another positive perception of the framework was that it was considered by two of the participants that the emphasis on the requirement for buy-in or managerial support from senior management was crucial to the success of implementing the framework. According to Participant Two, the framework "provides an abundance of value to industry provided there is buy-in from upper management". Therefore, the fact that eliciting support from senior management before implementation of the framework and ensuring that senior management is consulted and included in the progress of the framework implementation at various stages contributes to the perceived usefulness of the framework.

According to Participant Three, there exists potential to use the proposed framework as a performance indicator of the manager. This contributes to the perceived usefulness of the proposed framework as it is not deemed limiting with regard to its function.

Factors that should be addressed in order to increase the applicability and usefulness of the framework might were also indicated by the participants. These include the fact that the level at which the framework is pitched should be considered. It was suggested that the framework should first be presented and rolled out at a senior management level and then further down the organization as the framework is better understood and tailored to the specific context and organization. Furthermore, it was commented that manager buy-in is essential for the implementation of the framework to be successful. According to Participant Two, "it takes effort

and dedicated managers with leadership qualities...otherwise it won't be rolled out properly". This is due to the fact that in the event that a manager is not driven to want to implement the framework, it will be done poorly and will not be sustained beyond one or two iterations.

One particular concern regarding the usefulness of the proposed framework was the effort that would be required to implement such a framework and the ease with which it could be adopted. As Participant Three comments, "on paper the framework sounds excellent and is a tool that everybody would like to look at but the question is how easy and simplistic would it be to implement this?". A suggestion given by Participant Two to facilitate the implementation of the framework was to incentivize employees and managers to adopt the framework based on its successful implementation.

Although this may be a beneficial and convenient method of ensuring that managers and employees implement the framework effectively, however it was also observed that cross-functional support would be imperative for the adoption of the framework. This is due to the fact that in the event that one department decides to utilize the framework and the employees receive benefits or incentives as a result, it might clash with the objectives of other departments or create expectations of those benefits for employees from other departments. Therefore, the usefulness also relies on ensuring that support across the departments within the organization and not only senior management support is secured for the implementation of the framework.

Despite the concerns regarding the framework, all participants recognized the necessity of the use of such a framework to aid technically orientated managers to assess the level of use of motivational interventions in the workplace. Therefore, it is perceived that the proposed framework has potential to be useful in industry and as such there exists sufficient support to resolve with confidence that the success criterion of perceived usefulness was met.

4.3.2 Understandability

In order to assess if the proposed framework is perceived as understandable, participants were asked to rate the ease of understanding of the framework according to the 4-point scale shown in Figure 4.1. The responses were favourable with two answers of "very good" and one answer of "good". According to Participant One, who responded with "good", indicating that a score of "very good" limits the potential for improvement and as such would not give an answer of "very good". Therefore, it is understood that the participants found the framework to be easy

to understand.

However, in order to ensure that no confusion regarding how potential users understand the proposed framework, additional comments relating to the understandability of the framework were made. According to Participant One, the names of the first and second phases of the framework are confusing and potentially misleading. It was suggested that phase one should be called "Analyze" due to the fact that aspects of the working environment, the job role and the employee are evaluated and reviewed; no suggestion was provided regarding what phase two should be named.

As a result of this recommendation, the phase names were reconsidered. However, it was determined that no changes to the proposed framework were necessary as phase one named "Contextualize", involves reviewing and defining the context of the working environment of the manager and employee involved in the assessment. Therefore the name "Contextualize" was considered suitable for phase one. It was also decided that phase two would continue to be named "Analyze" as this phase refers to evaluating and resolving the MPEM which justifies the name.

Another consideration concerning how simple the framework is to understand is the possibility that some managers or employees may not understand the framework or the MPEM. This was explored by Participant Two who considered that in the event that a manager is unable to define one of the points or if one of the steps cannot be completed, options regarding where to look for further information should be provided. Participant Two also suggested that due to the possibility of misunderstanding of the framework, training may be required. A training manual giving full instructions on the correct use of the framework is recommended as a supporting document for the proposed framework.

An additional measure to assess the understandability of the proposed framework was to evaluate the perception of the step logic utilized in the framework according to the 4-point scale shown in Figure 4.1. Answers to the question were supportive with two answers of "very good" and one answer of "good". The framework was also recognized to be well defined, systematic and logical which contributes to a favourable conclusion that the step logic of the framework is perceived to be suitable. This supports the perception of understandability of the proposed framework due to the fact that the participants agreed with the step logic presented and no changes were recommended.

A recommendation was made regarding the format of the framework to consider a

cyclical configuration rather than a procedural, start to end arrangement. According to Participant Three, the preference in industry is to focus on a cyclical process which highlights the importance of the fact that the framework is considered to be interactive and ongoing. This would potentially enhance the understandability of the proposed framework as it ensures that the concept of the feedback loop is not disregarded, and emphasizes the importance of the proposed framework as a continuous process.

Therefore, the perceptions of the participants provide supporting confidence that the proposed solution meets the success criterion of understandability.

4.3.3 Ease of use

A particular factor that was considered was the ease of implementation in addition to how simple the framework itself is to use. Considerations including the fact that the matrix structure of the MPEM ties in with other models and frameworks utilized by engineers such as that for risk assessment. Technically orientated engineers are thus accustomed to the structure of the MPEM which enhances the perceived ease of use of the proposed framework.

It was recommended that a legend for the MPEM should be provided in which basic instructions are described. This was suggested "so people don't have to go back to the main document each time they require basic guidance of what to do for a particular step" (Participant Two).

Participant Three indicated that a 6-point scale in the MPEM would be preferable to the 5-point scale indicated in the MPEM of the proposed framework. Adjusting the scale to a 6-point scale may enhance the ease of use of the framework due to the fact that managers or employees may be more familiar with the 6-point scale. However, it is discussed in Section 3.2.4, that the scoring scale of the MPEM may be adjusted per the preference of the user. Therefore, the user may select a 6-point scale in order to increase the ease of use of the framework.

One specific consideration regarding the proposed framework was the potential difficulty for managers and employees to accurately assign weight values to the motivational interventions in the MPEM. This was due to the fact that individuals may be unsure as to which interventions of motivation are more or less important than others and as such standard weight values may be preferred. However, despite the concern that the application of weights to each of the motivational interventions may lessen the ease of use of the proposed framework, the importance of including the weight factor in the MPEM was affirmed by the participants. The reason for

this is that "we need to realize that people differ and this caters for differences in people and opinions" (Participant One). Therefore, it was decided that although standard weights that could be determined through extensive studies might advance the ease of use of the framework, the framework will remain such that the weight factor is determined by user perception and opinion.

A judgement of the proposed framework concerning the feedback loop was also discussed. It was proposed that more detail regarding the feedback loop should be provided in order to enhance the ease of use of the framework. This includes detailing the frequency that a manager would do the exercise, who would be the people involved, and how to ensure that it keeps being utilized undeterred by possible staff turnovers or changes in the organizational structure.

The perceptions of the expert panel with regard to the ease of use of the framework indicate that the proposed framework suitably meets the success criterion.

4.3.4 Flexibility

The key consideration regarding the flexibility of the proposed framework referred to the weight factor assigned in the MPEM. As discussed in Section 4.3.3, participants agreed that the inclusion of the weight factor was an important feature of the MPEM. This is because the weight factor allows for differences of opinions to be expressed and included in the evaluation to determine which interventions of motivation should be modified within the working environment. Therefore, this allows for flexibility regarding individual opinions to be incorporated into the framework which would have been absent if standard weight factors were assigned.

Another factor perceived to contribute to the flexibility of the proposed framework was the consideration of time between iterations of implementing the framework. According to Participant One, "managers should be aware that the review period of the framework might change between individuals". Therefore, the fact that the time between iterations of the framework was not predetermined or fixed accounts for the differing requirements of individuals and as such supports the flexibility criteria of the framework.

The fact that participants discussed in Section 4.2.1 agreed that they would implement the framework themselves indicated that the framework is applicable to various industries, job roles and professional categories. This therefore demonstrates that the framework is considered to be adaptable for application in different industries and according to the needs of the user.

According to the comments and opinions expressed by the participants, it was identified that the success criterion for the proposed framework to be flexible was met.

4.3.5 Meeting objectives

The first question of the interview was, "Considering the research methodology that was followed, what is your opinion on the potential of the proposed framework as a tool to evaluate the level of use of motivational interventions in the working environment?". Two of the three participants responded that the proposed framework has excellent potential to assess the extent to which motivational interventions are utilized in the context of the workplace. Thus, this supports the objective of the framework to provide a structured guide for managers to follow in order to assess the extent to which motivational interventions are utilized.

In terms of evaluating the strengths of the framework, words such as logical, systematic, methodical and well-defined were used to describe the framework. Participant One observed that the proposed framework has a "realistic and scientific approach that would suit the typical engineer mindset"; referring to engineers with a technical background. This supports the objective of the framework as a tool aimed at technically minded engineers.

Another objective of the framework was that it should be applicable for use in industry and would be useful to and utilized by managers in PAM environments. According to Participant Two, the framework has the potential to provide an abundance of value to industry. Participants also indicated that they would make use of such a framework in their role as a manager and Participant Three indicated the current use of a similar framework that does not focus primarily on motivation and motivational interventions. As a result of the participant perspectives regarding the potential of the framework to contribute value, it was established with confidence that the objective of the framework to provide value to industry and the PAM environment was affirmed.

The participant responses and perceptions engender confidence that the proposed framework achieved its objectives and as such the fifth success criterion discussed in Section 4.2.2 is supported.

4.3.6 Additional comments and notes

Additional comments and observations were made during the interviews that provided further considerations of the proposed framework. Despite the fact that

these observations do not directly contribute to the success criteria discussed in Section 4.2.2, they provide interesting and contributing points of discussion relating to the proposed framework.

One of the key observations made by the participants was that "'we are taught as engineers to be logical and yet managing people is not a scenario where one plus one equals two" (Participant One). Instead, different managers must not generalize and assume that although one approach may work for a particular employee, it may not be effective for another employee. Therefore, the importance of frameworks, such as that proposed in this study, to ensure differences of personality and perceptions between individuals are accounted for is highlighted.

The case that most individuals become involved in engineering for the technical aspects and are promoted from positions of technical orientation to managerial roles was also presented. The consideration, as discussed in Section 1.1.2, that many managers in the PAM environment originate from a technical background and, as a result, have limited training and experience regarding people management was thus accepted.

Another observation was that "getting people to do their jobs is the single most difficult factor that we struggle with everyday" (Participant Three). This provides support for the rationale of this study, discussed in Section 2.1.4, which was based on the consideration that people not performing the tasks required of them in the context of life cycle delivery leads to potential losses in asset performance and overall profit for the organization. It was also affirmed that the ability of an organization to unlock the potential of human capital contributes to strategic advantage in today's age of globalization. Thus, providing managers with a tool to facilitate an increase in employee task performance and capitalize on the potential derived from human capital is demonstrated to be a relevant and worthwhile endeavour.

As discussed in Section 4.3.1, the proposed framework has potential to be used as a means of measuring manager performance. One suggestion relating to this was to utilize peers and colleagues in the same or different departments to complete an MPEM on a manager in order to ascertain their perception of that manager's use of motivational interventions in the working environment (Participant Three). This was suggested due to the consideration that an employee may give inaccurate scores. A peer-to-peer assessment may then provide a closer representation of the level with which the manager makes use of motivational interventions in the management of his employees. Considerations such as the fact that this may be time consuming and practically difficult were acknowledged.

An additional suggestion regarding the proposed framework was to include a step which required physical sign-off by both the manager and the employee. This is to establish a gesture of commitment by the manger to implement the framework to the best of his abilities, make changes that will enhance the motivation of the employee and maintain the project for numerous iterations. In addition to this, the employee's signature pledges him to take the implementation of the framework seriously, provide constructive criticism and complete the MPEM to the best of his ability. Therefore, physical sign-off is suggested to contribute to employee and manager investment in the framework. This was considered to be a value adding contribution to the proposed framework and as such was included as a step in the initiation of the framework as shown in Figure 4.2.

4.4 Discussion

The aim of the framework is to assist managers in assessing their level of use of motivational interventions in the management of their employees. In order to establish the validity of the framework, it was subjected to expert review and judged according to the success criteria established in Section 4.2.2. Findings suggest that the proposed framework was perceived to be a value adding tool for managers of a technical orientation. Overall, attitudes and perceptions of the expert participants in this study show a general acceptance of the possibility of implementing the proposed framework in industry.

The process of validation of the framework revealed that despite some criticism pertaining to elements of the framework, it was determined that all of the success criteria for the framework were met. It was established that the proposed framework was perceived to be potentially useful in various environments and industries due to the fact that a manager is provided with the interventions of motivation established to enhance employee motivation. This means that the manager himself does not need to do the time consuming research to determine what motivational interventions should be incorporated in the management of employees. However, it was indicated that in order for the framework to be completely useful in industry, a motivated and willing manager would be required in order to ensure that the framework is correctly and effectively adopted.

Understandability of the framework was also endorsed by the participants with positive ratings regarding the ease of understanding the framework and the perception of the step logic. Considerations expressed concerning the understandability of the framework included the fact that training might be required for the users of the framework. A recommendation to use a cyclical process in the place of the linear

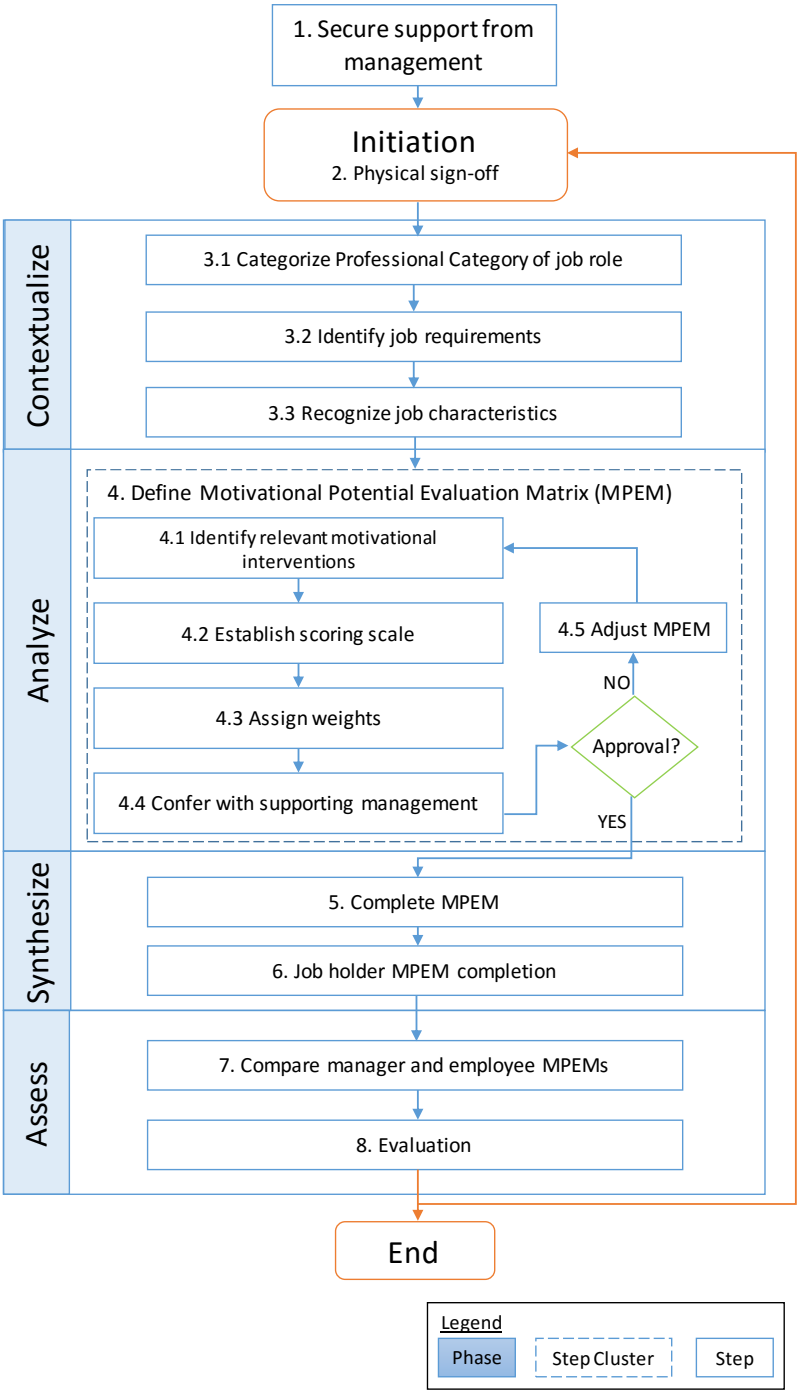


Figure 4.2: Improved proposed framework

process shown in Figure 3.1 was also given as this will affirm the fact that the process of assessing motivational interventions and the use thereof is continuous.

In terms of the success criterion of ease of use, no comments were made suggesting that the framework was not easy to use. A few recommendations alluding to possible difficulties associated with implementing and using the framework were made. These include that a legend should be provided for the MPEM which summarizes what to do in order to complete the MPEM. The reason for this was to eliminate the need for continuous referral to the main document should the user be unsure of what to do. Another key recommendation was that further detail pertaining to the specifics of the feedback loop should be provided. Details include the frequency with which the framework should be repeated, what people should be involved, and how the implementation of the framework should be sustained over time.

The success criterion of flexibility was established to be met due to the fact that the participants agreed that they would make use of the framework within their particular industries. Therefore, the proposed framework was deemed suitable to adapt to various industries and environments. In addition to this, the weight factor assigned to the motivational interventions allows for the MPEM to account for differences in preferences and requirements of individuals. Thus, the framework is not limiting in terms of its applicability to various people and personalities.

Lastly, judgement was made on whether the objectives of the framework were met. It was established that according to the participants, the framework has excellent potential to assess the extent to which motivational interventions are utilized in the workplace. Additionally, it was commented that the structure of the framework and the MPEM suits the typical mindset of an engineer with a technical background. Therefore, the success criterion of meeting objectives was deemed to be met.

The principle implication of the findings is that although it has not been established that the use of the model guarantees enhanced employee motivation, its use even in the present form can be expected to create awareness of factors that contribute to enhanced motivation. This increased awareness will allow a manager to employ a more considered approach to people management and possibly improve his understanding of the differences in employee opinion and requirements.

In addition to affirming supporting confidence that the success criteria of the proposed framework were met, supplementary comments and thoughts relevant to

the proposed framework were noted. Included therein is the recommendation to incorporate a physical sign-off by both the manager and the employee in order to induce investment in the implementation of the framework. Peer-to-peer evaluation was also suggested as a means of measuring the performance of the manager with regard to the perceptions of his colleagues. This was considered a possibility as employee assessments of the manager may be inaccurate.

Therefore, the findings of this study support the framework structure and its applicability to industry. Shared participant views engender confidence in the ability for the proposed solution to aid managers in improving the use of motivational interventions in the management of their employees. However, the need for further evaluation of the framework in order to assess the ease with which it can be implemented and the potential for the framework to lead to an increased rate of tasks performed is acknowledged. Recommendations regarding further validity efforts are discussed in Chapter 6.

4.5 Chapter Summary

This chapter discusses the validation of the proposed framework via the method of face validation. The methodology followed for the validation is described. This includes a discussion of the expert panel interviewed for the validation, the success criteria against which the success of the framework is judged and the method of data collection. The findings obtained through semi-structured interviews are then documented and judgement regarding the success of the framework is presented.

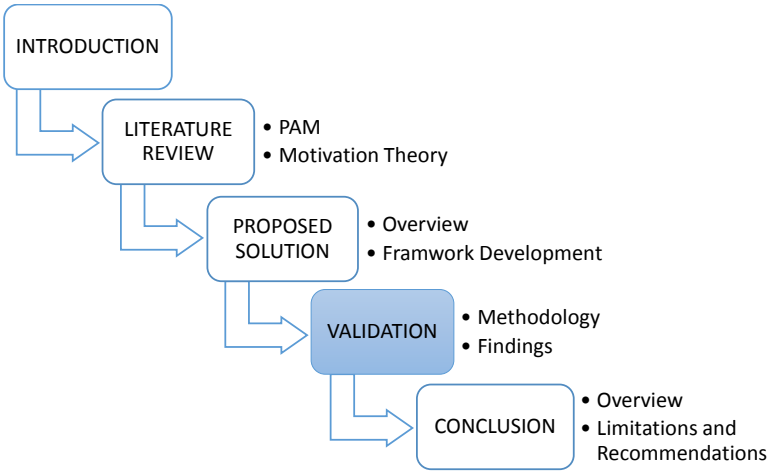
The critical findings of the validation are that the framework meets all the success criteria and that according to the perception of the expert review panel, the framework will contribute value to industry and the field of PAM. It was observed that the participants were generally satisfied that the framework follows a logical structure and is well-defined.

The research objective to validate the proposed framework by the method of face validation and subsequently draw conclusions regarding the validity of the framework, as discussed in Section 1.4, were achieved in this chapter. The following chapter describes the validation of the questions included in the MPEM shown in Table 3.2.

Chapter 5

Motivational Aspects Validation

The aim of this chapter is to establish the validity of the questions included in the MPEM proposed in Chapter 3. An overview of the approach utilized to validate the questions is discussed. Thereafter, the findings of the validation step are detailed.



5.1 Overview

Chapter 4 establishes that the proposed framework was determined to be valid according to an expert review panel. However, an important component of the proposed framework is the questions related to the motivational interventions included in the MPEM shown in Table 3.2. Therefore, another important consideration for the validation of the proposed framework is to ascertain the validity

of these questions and the translation from motivational theory. The aim of this chapter is thus to assess the validity of the translation, and in some cases simplification, of the motivational theories discussed in Section 2.2.2 to the questions in the MPEM.

As with the proposed framework validation discussed in Chapter 4, the method of face validation was used to establish the validity of the questions in the MPEM.

5.2 Methodology

As discussed in Chapter 4, face validation can be considered a result of obtaining the views of an expert or group of experts with regard to a particular topic or construct. This method of validation thus "assures that the processes and structures are reasonable for a human expert" (Klügl, 2008, p.40).

Face validation techniques are not limited to face-to-face interviews. It is shown by Sturges and Hanrahan (2004) that although qualitative researchers typically rely on face-to-face interviews to gather data through semi-structured interviews, telephonic interviews are a suitable method of data acquisition. The study conducted by Sturges and Hanrahan (2004) compared the quantity, nature and depth of responses given during both face-to-face interviews and telephonic interviews. It was subsequently concluded that the "mode of interview did not influence the data to any significant degree" (Sturges and Hanrahan, 2004, p.113).

However, there exists the argument that telephonic interview presents challenges as the researcher cannot be aware of visual clues such as facial expressions and body language (Opdenakker, 2006; Miller, 1995). According to Sturges and Hanrahan (2004) this does not detract from the validity of the data collection method as the researcher is still privy to vocal clues such as hesitations, hurried answers and sighs which can indicate to the researcher the need to ask further questions in order to obtain the data. Therefore, the method of a semi-structured, telephonic interview as a means of validating the questions included in the MPEM of the proposed framework was considered suitable.

The methodology followed to validate the questions included in the MPEM of the proposed framework was thus similar to that of the framework validation discussed in Chapter 4 with the exception that a telephonic interview would be conducted instead of a face-to-face interview.

The subject matter expert consulted for the validation of the translation of the

motivational theories discussed in Section 2.2.2 was an industrial psychologist with extensive experience in both industry and academic fields.

Due to the vast experience in the field of industrial psychology of the expert consulted for the validation, only one expert opinion was considered necessary to determine the validity of the MPEM questions.

Similarly, to the method of data collection discussed in Section 4.2.3, the subject matter expert was sent the document shown in Appendix A in order to provide the expert with the opportunity to review the content before the interview.

5.3 Findings

This section presents the responses, notes and suggestions made by the subject matter expert during a semi-structured, telephonic interview. Note that the method of data capture was similar to that of the proposed framework validation as notes were written down as each question was answered. The captured data is presented in Interview Four in Appendix C.

The goal of the interview was thus to determine if the subject matter expert considered the questions included in the MPEM to be an accurate translation of the motivational theories discussed in Section 2.2.2 and suitable to be applied in the working environment. Other points of consideration included the ease of understanding of the questions and the suitability of the explanatory text discussed in Section 3.2.4.1. The responses to the interview questions were analysed in order to ascertain the validity of the questions included in the MPEM.

The key comment made by the subject matter expert was that "I believe that the questions align with the motivational theories" and that they were considered "acceptable". This indicates support for the accurate translation of the motivational theories.

On the other hand, although the subject matter expert believed that the questions were simple enough to understand, they were also considered to be too limiting in focus – from an industrial psychology perspective. This is not considered to detract from the validity of the questions include in the MPEM due to the fact that the aim of the proposed solution was to provide line managers with previously limited exposure to HRM practices with an introduction to motivational constructs. In order to do this, some simplifications were made and general themes of the motivational theories were utilized in order to ensure that the framework did not

become overly complex to use in industry.

Another important recommendation made by the subject matter expert was to change the phrase "motivational aspects" to "motivational interventions". This was considered to be a valuable change to the proposed framework and as such changes were made in Chapter 3, 4 and 5 to accommodate this change.

With reference to the explanatory text of each of the motivational interventions discussed in Section 3.2.4.1, the text was considered "fine so long as a comprehensive review of the theories is provided in the literature review of the thesis". Not having read Chapter 2, the subject matter expert was unaware that each of the motivational theories from which the motivational interventions had been derived were reviewed in detail. After being made aware of this however, the expert agreed that in that case the explanatory text was sufficient.

An additional observation made by the subject matter expert was that "I see this as a mix of old and new theories where in my opinion and from the view of an Industrial Psychologist I think the focus should rather have been on the newer theories and considerations". Despite this opinion however, the subject matter expert expressed that the "questions deal with key themes of the motivational theories and there is nothing wrong with those themes". Therefore, even though older motivation theories have been included for consideration in this study, accurate translation of those theories to motivational interventions is supported.

5.4 Chapter Summary

This chapter discusses the validation of the questions relating to the motivational interventions included in the MPEM using the method of face validation. The methodology followed for the validation was described. The findings obtained through a semi-structured, telephonic interview are then documented and judgement regarding the validity of the questions included in the MPEM is presented.

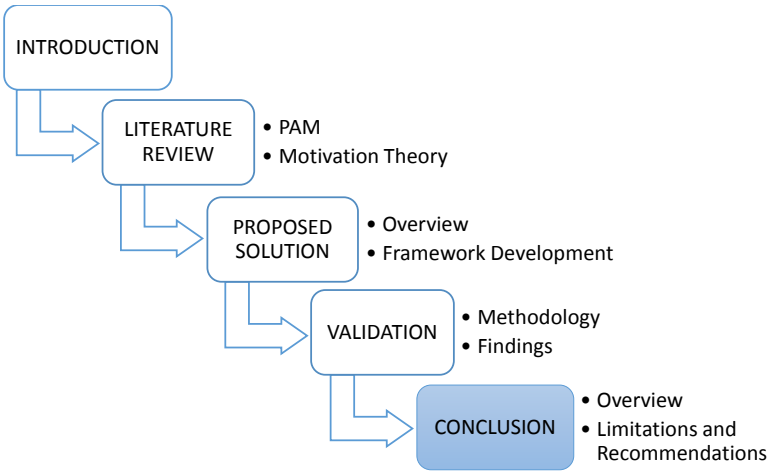
The critical findings of this validation step include the fact that the subject matter expert was satisfied that the questions included in the MPEM are suitable and that there exists adequate alignment with the motivational theories. It was also the opinion of the subject matter expert that the questions might be too limiting in focus and that the questions should have been focused on newer, contemporary theories of motivation as opposed to the mix of old and new theories that was considered. Despite this, the findings provide support for the validity of the translation of motivational theory into motivational intervention questions.

Thus, all aspects of the proposed framework are considered valid and the research objective discussed in Section 1.4 to validate the proposed framework were achieved. The following and final chapter of this study discusses limitations and future recommendations for the proposed solution.

Chapter 6

Conclusion

This chapter serves to conclude the study with the provision of an overview of the study. Limitations of the study are subsequently reviewed and recommendations for future research and development of the framework are discussed. Concluding remarks are presented in the final section of this chapter.



6.1 Overview

The study was set out to explore the concept of enhancing employee motivation in the workplace as a means of increasing the level of performance of tasks and activities required within a job role. The study consists of five chapters including

an introduction, literature review, proposed solution, validation and conclusion. This section aims to provide a brief overview of the content of the study.

Chapter 1 provides an introduction for the study and the outline of the study was broadly defined. The chapter establishes the context and research domain for the thesis and the problem that was identified. It was recognized that PAM strategies and plans are failing as a result of tasks not being performed or being executed poorly. A lack of motivation was established as a factor that contributed to this problem. In addition to this, it was identified that line managers have become increasingly responsible for HRM despite limited training and understanding regarding HRM techniques and practices. In order to address this, the purpose of this study was to investigate motivational interventions that have been determined to enhance motivation and develop a tool to assist managers of a technical orientation in motivating employees. Delimitations, research objectives and methodology of the study are also defined in Chapter 1.

The literature review presented in Chapter 2, established the fundamentals of PAM and key activities therein. The importance of people in the PAM environment was discussed and it was identified that although many managers may be aware of motivational interventions, they do not employ them in the management of their employees. Subsequently, theories and influences relating to work motivation were investigated and critical interventions of motivation were derived. The fact that managers with primarily technical backgrounds are not making use of motivational interventions in the working environment provided the rationale for the development of a tool to assess the level with which motivational interventions are utilized in the working environment.

Therefore, the proposed framework was discussed in Chapter 3. The development of the proposed framework was discussed and each of the steps included in the framework was detailed. Validation of the proposed framework was done by the method of face validation and a panel of three experts in the field of PAM were interviewed in order to ascertain their perceptions of the framework. The validation of the proposed solution is presented in Chapter 4 and Chapter 5. The methodology of the validation process is discussed in addition to the findings from interviews with the experts in the fields of PAM and motivation.

The key findings of this study support the framework structure and its applicability to industry. Shared participant views engender confidence in the ability for the proposed solution to aid managers in improving the use of motivational interventions in the management of their employees.

6.2 Limitations

Although the study achieved its aims, limitations were exposed during the development and validation of the proposed framework.

1. The number of experts interviewed to review the proposed framework was limited to three participants. This small sample size was limiting as this restricted the feedback regarding recommendations and possible areas of improvement for the proposed framework;
2. The validation of the framework was confined to the methodology of face validation due to the time constraints. The use of the framework requires changes to be made within the working environment and the results of those changes may only be seen after an extended period of time. Although validation by expert review is widely utilized by researchers, the fact that field testing of the proposed framework was not done is considered limiting to the validation of the framework as the potential for the framework to lead to better performance of tasks could not be tested;
3. Users of the framework may try to "look good" in the analysis and thus provide false perceptions. This may be either from the perspective of the manager who may wish to distinguish his use of motivational interventions or the employee who may wish to not cause potential unrest if he scores the manager badly. Therefore, the proposed framework is limited by the truthfulness of user responses; and
4. The framework was designed to be adaptable to various environments, industries and users. Therefore, although the method of determining the weighting of the motivational interventions in the MPEM is a valid possibility, it is by no means the only method that can be used.

It is possible to address some of the limitations discussed through future studies. The following section therefore considers recommendations for future research.

6.3 Future Research Recommendations

Based on the limitations and findings of the study, it is recognized that there exists room for improvement of the proposed framework. Recommendations for future research are thus detailed.

1. The framework can be applied in industry in order to ascertain the difficulty of implementation and the potential for the framework to motivate employees to perform the tasks required of them;
2. A training manual can be developed as a supporting document for the framework;
3. Future research could investigate the acceptability percentile of the MPS i.e. what constitutes as a good or acceptable MPS versus an unacceptable MPS;
4. The framework structure could be changed from a procedural process to a cyclic process; and
5. The optimal frequency with which the framework should be applied and reiterated is worth investigating as it will provide managers with a defined procedure to follow.

These recommendations can be used to improve the validity and ease of use of the framework and its potential to contribute value to industry.

6.4 Concluding Remarks

This thesis proposes a framework to act as a guide to determine what interventions of motivation a manager should add, increase or maintain within a specific working environment in order to augment the potential of the working environment to motivate the employee. This will facilitate managers in establishing an environment with the highest capacity to motivate the employees. The proposed solution has the potential to improve current practices of people management by managers of technical orientation by providing a structured guideline for a manager to follow.

Therefore, the initial null hypothesis if this thesis is not rejected. It is possible to develop a framework to assist managers in improving current management practices in the PAM environment by quantifying the level of use of motivational science in the working environment and subsequently recommending steps for intervention. The proposed framework therefore contributes a guideline on improving people management in the PAM environment.

Therefore, the research objectives stated in Section 1.4 are achieved:

1. The points of contact between PAM and the motivation of people were established and understood;

2. Motivational interventions identified to be critical to enhancing motivation in the workplace were established;

3. A framework was developed which allows a user to quantify the use of the motivational interventions in the working environment; and

4. Confidence in the applicability and usefulness of the framework was determined through the method of face validation.

Appendices

Appendix A

Motivation Validation Questionnaire

Motivating Human Assets in Physical Asset Management

Emma Walker
September 2015

Introduction

Background

- B.Eng (Mechanical), Stellenbosch University
- M.Eng (Engineering Management), Stellenbosch University [2nd year]
- Member of the Asset Care Research Group of the University of Stellenbosch

Purpose of Interview: Validation of Master's thesis research

Important Considerations and Information

- This interview will be handled confidentially; the participants will not be identifiable in any way.

- Participation in this interview is voluntary. Participants are therefore able to withdraw at any time and are not required to answer any questions posed.
- Supervisors/coordinators for this study are:
  - Prof. PJ Vlok (University of Stellenbosch)
    Email address: pjvlok@sun.ac.za
  - Dr. Wyhan Jooste (University of Stellenbosch)
    Email address: wyhan@sun.ac.za
- Please feel free to ask any questions.

Context and Problem

It has been accepted in industry that the human factor is crucial to the successful management of physical assets. This is because it is understood that people "do" Physical Asset Management (PAM) i.e. that human input is required to operate and maintain machines and equipment. It is therefore appreciated that people and their knowledge, competence, motivation and teamwork have the most significant contribution to the outcome of PAM activities, plans and strategies.

Therefore, in addition to good maintenance and operation plans, PAM is reliant on the effective management of the people involved in PAM activities in order to ensure that physical assets contribute the most value to the organisation. Traditionally it has been the duty of the Human Resources (HR) department to ensure that the people within an organisation are effectively managed including aspects such as skill development, enhancing motivation and building teamwork. However, this position has shifted such that line managers are often required to take over Human Resource Management (HRM) practices and ensure that employees under their supervision are effectively managed. It has been identified that line managers, especially engineers, are often not HR-specialists and are rarely sufficiently trained in HRM techniques and practices. It has also been found that PAM guidelines do not provide sufficient information on improving people management in the PAM environment.

One of the greatest challenges that a manager faces in today's working environment is to get employees to perform the tasks and activities within the scope of their job role. As mentioned, performance of PAM activities by human assets is vital to successfully managing physical assets. However, no consensus has been reached in literature that specifies the cause for employees not executing the tasks required

of them. One of the reasons attributed to a poor level of task performance is a lack of motivation.

Thus, the literature study included a review of motivational theories and constructs specific to the working environment. Critical motivational aspects that have been established through these theories to lead to enhanced employee motivation were consequently derived.

Due to the fact that the job role of the line manager has expanded to include HRM, it is considered imperative to consider motivational aspects that the manager can influence i.e. the factors associated directly with the working environment of the employee. This excludes factors such as pay, discipline, and time off as these are reasoned to be set by other managers in an organisation and not a line manager.

Research has established that although many managers are aware of the motivational aspects, they do not utilise them in the working environment and the management of their employees. Thus, the potential enhancement of motivation as a result of the working environment is forfeit. In order to address this, the aim was to incorporate the derived critical motivational aspects into a framework to provide managers in the PAM environment with a tool to assess the level with which motivational aspects are utilised in the working environment.

The objective of this validation is not to introduce the complete framework but rather to ascertain whether the derivation of the critical motivational aspects is valid.

Motivational Aspects

Table A.1 indicates the critical motivational aspects and the motivational theories from which they were derived.

Table A.1: Critical Motivational Aspects

	Motivational Theory	**Motivational Aspect**
1	Goal-Setting theory	To what extent are specific and difficult goals defined?
2	Expectancy theory	To what extent is the perceived relationship between effort and reward facilitated?
3	Needs theories, Social-cognitive theory	What is the scope for skill development?
4	Expectancy theory	What is the condition of the role expectation awareness?
5	Socio-technical systems theory, Job characteristics theory	What is the degree of skill variety required?
6	Needs theories	To what extent are achievements recognized?
7	Needs theories	To what extent are tasks challenging?
8	Equity theory	To what extent is the treatment of employees fair between individuals?
9	Activation theory	What is the level of task variation?
10	Job characteristics theory	What is the level of understanding of job role contribution?
11	Job characteristics theory	To what extent is autonomy promoted?
12	Socio-technical systems theory, Job characteristics theory	What is the level of performance feedback within the job role?

Explanatory Text

1) Obtained from Goal-Setting Theory the first critical motivational aspect is the definition of specific and difficult goals. This refers to the need for goals and objectives to be established which provides the job holder with an aim and allows him to fulfil his need for achievement and accomplishment of difficult tasks

discussed in Maslow's Hierarchical Theory of Needs. The goals established to be met by an employee should align with the organizational goals in order to achieve the ultimate goal of success of the organization. The main consideration for this motivational aspect is that the goals need to be specific (clearly defined) and understood by the job holder and difficult so that a job holder is challenged to make use of his skills, expertise or heightened effort in order to achieve the goal. Therefore, to evaluate this motivational aspect, the user needs to establish the degree to which goals exist within the job role, the extent to which those goals have been defined and the difficulty of the goals with respect to the individual employee's skill level and experience.

2) Expectancy theory considers that people are motivated in the workplace when they perceive that the rewards gained from work performance are suitable or appropriate to the effort and performance input. In terms of translating this to something which a line manager has the capacity to influence, the extent to which the relationship between effort input and reward outcome is facilitated is measured. In order to do this, the user must consider the three key components of expectancy theory: valence, instrumentality and expectancy. Valence is the degree to which a reward is valued by the receiver, instrumentality is the expectation that the reward correlates to the level of performance expended and expectancy is the perceived likelihood that task performance will result in a reward or particular outcome. Therefore, to answer the question "To what extent is the perceived relationship between effort and reward facilitated?", the user must consider the degree with which a manager ensures that the rewards or outcomes of task performance are valued by the employee, that they will certainly be applied and are not empty promises and that they align (according to the perception of the employee) with the performance input.

3) The scope for skill development established as a critical motivational aspect from needs theories and Social Cognitive Theory, refers to the importance of ensuring that there exist opportunities within the job role from which a job holder can sustain and develop his skill set. Such opportunities include training and coaching or the chance to observe competent people perform particular tasks. It has been established that the development of employees' skills is fundamental to the success of an organization. Therefore, in order to evaluate this aspect of motivation, the availability of skill development opportunities within the job role must be identified.

4) Expectancy Theory establishes that an individuals' perception of their job expectations has an effect on the successful achievement of tasks. The perception of

expectation refers to the definition and clarification of the outcomes required of the job holder and as such the identification of the degree of duties and responsibilities included in the job role as is important. Thus, it is essential that the job holder is fully informed of exactly what tasks are expected to be performed in addition to being aware of work performance and quality requirements established through well defined goals. The user must consider the job holder's awareness of the expectations required of him within the scope of the job role in order to measure this motivational aspect.

5) Job Characteristics Theory prescribes a number of the motivational aspects considered to be critical to enhancing the motivation of a job holder. The first of these is that skill variety is required within a job role in order to increase the potential for the job holder to be motivated. Skill variety refers to the need to perform an assortment of tasks that ensure that various skills are used. This reduces the monotony of the work and the potential for poor performance of required tasks. An example of this is in the case that the job role requires an employee to sit in front of a computer for the duration of the workday. In order to provide the employee with the opportunity to use other skills this requirement should be adjusted to include other tasks, even seemingly insignificant ones.

Integrating skill variety into job roles that only require the completion of a few, related tasks may be difficult. In such a case the aspect may be eliminated from the motivational potential evaluation matrix. However, if skill development is incorporated into the job role, the job role may be adjusted such that the job holder is able to make use of the developed skills thereby introducing skill variety into the job role. In order to measure the prevalence of skill variety within a job role, the degree of skill variety required to complete the tasks included in the job role is considered.

6) Recognizing achievements is established in Motivation-Hygiene Theory to be a motivating factor. This refers to acknowledging and appreciating an employee in the event that the employee accomplishes an important goal or milestone. In order to measure this, the extent to which achievements are recognized by the manager is considered.

7) It is shown in Motivation-Hygiene Theory that incorporating challenging tasks meets a persons need for self-actualization and self-realization. Challenging tasks refer to tasks that may be difficult or complex for an individual to solve. The level of the challenge is dependant on the individual's skills and knowledge of the context of the task. Thus, the extent to which tasks are challenging according to

the employee's skill and experience level within the job role is measured.

8) Equity refers to how fairly an employee is treated. As discussed in Equity Theory, this is an important motivational consideration as people respond to their perceptions of fair treatment and as such employee performance may be enhanced or worsened per their perception of equity. Evaluating the condition of equity thus requires considerations of a manager's treatment of employees and the consistency with which he manages the employees.

9) Activation Theory establishes the case for the importance of variation in the work environment. Variation refers to the incorporation of diversity in order to alleviate monotonous and repetitive tasks and enhance employee motivation. Examples such as incorporating rest periods into the work schedule or playing music have been suggested as ways in which a manager can facilitate variation in the workplace. Therefore, this critical motivational aspect is evaluated by considering the level of variation in a work environment.

10) Task identity and task significance were presented by the Job Characteristics Theory to contribute to motivation in the workplace. A combination of these two factors translates to the motivational aspect of an understanding of work meaningfulness which refers to the importance for an individual to engage in activities that are regarded to be meaningful. Therefore, the motivational aspect of understanding of work meaningfulness is the extent to which a job holder is aware of the importance and contribution of the tasks that they perform within the job role. Evaluating this motivational aspect requires considering the level of understanding that a job holder maintains regarding the contribution of his job role and the activities therein.

11) The degree of autonomy within a job role is another motivational aspect proposed by the Job Characteristics Theory. Autonomy relates to the freedom provided to the job holder concerning the tasks within the job role and decisions pertaining to the execution of those tasks. This includes decisions regarding the order in which specific tasks are performed, the manner in which they will be achieved, or the time spent on each task. Therefore, to establish the prevalence of this motivational aspect within a job role, the user must assess the degree that a job holder is allowed to make decisions specific to the job process.

12) Feedback is the final aspect of motivation considered by Job Characteristics Theory to contribute to motivation in the workplace. The level of feedback refers to how often the performance of an individual is evaluated and importantly, how

often the individual is made aware of the results of the evaluation. The time periods between performance feedback is important as an individual cannot know that they need to increase performance if they are unaware of poor performance levels for an extended period of time. In addition to this, it is important to consider whether or not the details provided to the job holder during feedback is meaningful and will contribute to enhanced work performance. In order to determine the level of feedback within a job role, the opportunities available for the employee to receive feedback from the manager are assessed as well as the contents of the feedback. Feedback contents refers to what information and details the manager is communicating to the employee.

Validation

Please consider the following questions:

Questions:

1. In your opinion, do the questions included in Table A.1 adequately translate the motivational theories into measurable aspects of motivation to be applied in the workplace?

2. Do you consider the questions easy enough to understand without detracting from the complexity of the theories from which they are derived?

3. In your opinion, are the paragraphs in the explanatory text that follows the questions suitably clear?

4. Do you recommend any changes?

Appendix B

Framework Validation Questionnaire

Motivating Human Assets in Physical Asset Management

Emma Walker
August 2015

Introduction

Background

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- M.Eng (Engineering Management), Stellenbosch University [2nd year]
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One of the greatest challenges that a manager faces in today's working environment is to get employees to perform the tasks and activities within the scope of their job role. As mentioned, performance of PAM activities by human assets is vital to successfully managing physical assets. However, no consensus has been reached in literature that specifies the cause for employees not executing the tasks required of them. One of the reasons attributed to a poor level of task performance is a lack of motivation.

Thus, the literature study included a review of motivational theories and constructs specific to the working environment. Critical motivational aspects that have been empirically established to lead to enhanced employee motivation were consequently derived from these theories.

Due to the fact that the job role of the line manager has expanded to include HRM, it is considered imperative to consider motivational aspects that the manager can influence i.e. the factors associated directly with the working environment of the employee. This excludes factors such as pay, discipline, and time off as these are reasoned to be set by other managers in an organization and not a line manager.

Research has established that although many managers are aware of the motivational aspects, they do not utilise them in the working environment and the management of their employees. Thus, the potential enhancement of motivation due to the working environment is forfeited. In order to address this, a framework has been proposed with the aim of providing managers in the PAM environment with a tool to assess the level with which motivational aspects are utilised in the working environment.

The framework should act as a guide to determine what aspects of motivation a manager should add, increase or maintain within a specific working environment in order to augment the potential of the working environment to motivate the employee. This will facilitate managers in establishing an environment with the highest potential to motivate the employees.

Proposed Framework

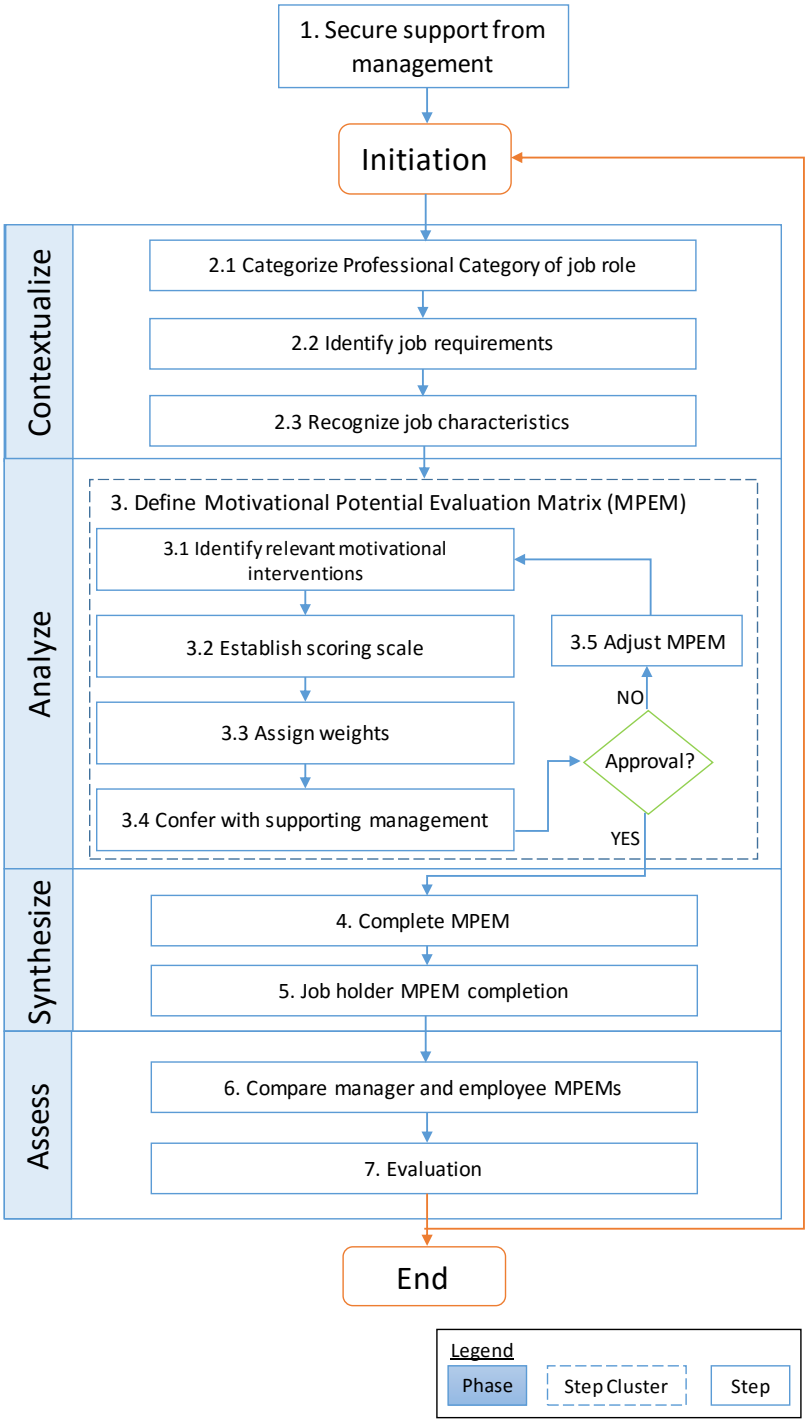

Figure B.1: Proposed framework

Framework Explanation

It has been established that support of senior management is crucial to the success of any endeavour within an organization. Therefore, Step 1 ensures that upper management is made aware of the need to establish an understanding of the features of the working environment that should be changed or adjusted in order to enhance the motivation of the employee.

Contextualise

The Contextualise phase is used to review the context of the working environment of the employee being assessed and the elements that might affect the motivational aspects incorporated in the working environment. This ensures that the user of the framework establishes a clear understanding of the working environment.

Thus, the second step of the proposed framework is to define the scope of work within the job role that is being analysed. This means that all activities for which the employee is responsible and accountable must be clearly identified. Step 2.1 involves categorising the professional category of the job role of the employee. This refers to identifying the level of the job role within the hierarchy of the organizational structure (such as artisan, lower management etc.).

Identifying the job requirements ensures that all the activities that the job holder partakes in are recognised by the manager conducting the analysis and establishes the range and degree of activities and responsibilities to which the framework will be applied.

Also considered are the job characteristics which include whether the job is technically or people orientated or both. Typical education and experience level of the job holder should be evaluated and a description of the purpose of the job should be established. An additional element is to determine if the job role is considered mundane or if application of advanced technical expertise is required in order to perform the activities included in the role.

Analyse

The core of the framework is the aspects of motivation deemed to be critical to enhancing employee motivation in the context of the working environment. The Analyse phase of the framework involves the definition of a Motivational Potential Evaluation Matrix (MPEM); developed in order to measure the level at which each of the motivational aspects exists within a specific working environment. The

aim of the MPEM is to establish the extent to which each motivational aspect contributes to the potential of the working environment to motivate the employee.

Definition of the MPEM involves Step 3.1: identifying the motivational aspects that are to be assessed within the specific working environment, Step 3.2: establishing a scoring scale in order to evaluate the level at which the motivational aspect is prevalent within the working environment, Step 3.3: assigning a weight value to each of the motivational aspects corresponding to their ranked importance, Step 3.4: conferring with supporting management regarding the suitability of the MPEM with regard to the working environment being assessed, and Step 3.5: adjusting the MPEM if deemed necessary by supporting management. A template of the MPEM is shown in Table B.1.

Table B.1: Motivational Potential Evaluation Matrix (MPEM)

	Score						
Motivational Aspect	**Very Poor**	**Poor**	**Fair**	**Good**	**Excellent**	**Weight**	**Final Score**
Motivational Aspect_1*	1	2	3	4	5		
Motivational Aspect_2	1	2	3	4	5		
Motivational Aspect_3	1	2	3	4	5		
MPS						**Sum of Final Scores**	

*Motivational aspects can include the extent to which specific and difficult goals are defined, the scope for skill development, the degree of skill variety required, the degree of autonomy, and the level of feedback.

Synthesise

Step 4 and Step 5 refer to the completion of the MPEM by the manager and employee respectively. This phase is used to ascertain the manager and the employee perceptions of the level of use of the motivational aspects with respect to the working environment. A Motivational Potential Score (MPS) is calculated for each of the manager and employee MPEMs. The MPS is simply used to evaluate the extent to which the motivational aspects within the working environment

are being employed and thus quantify the potential of a working environment to motivate the employee.

Assess

The Assess phase of the framework involves identifying the motivational aspects that should be addressed within the scope of the working environment. This requires the user to consider the MPEMs completed by both the manager and the job holder. Thus, the perceptions regarding the prevalence of the motivational aspects within the working environment are analysed from two perspectives, the manager and the employee.

Included in the Assess phase is to ensure that value is gained from implementing the framework. Therefore, the results of the analysis should be evaluated. This refers to assessing whether or not the changes made within the working environment have contributed to enhancing the motivation of the employee. This also ensures that the user of the framework remains updated with the consequences of the changes or modifications made as a result of the framework.

Step 7 also acts as a feedback loop in the framework. Thus, working environments and the use of motivational aspects therein should be continuously reviewed. This allows for further changes to be made to the working environment with the aim of creating an environment that has the maximum potential to motivate the job holder.

Validation

The problem addressed:
With regards to effective people management in Physical Asset Management (PAM), limited guidelines exist to assist technical managers to assess the extent to which motivational aspects are utilized in the working environment.

Questions:

1. Considering the research methodology that was followed, what is your opinion on the potential of the proposed framework as a tool to evaluate the level of use of motivational aspects in the working environment?

2. In your opinion, what are the strong points of the proposed framework and the methodology that was followed?

3. In your opinion, what are the weak points of the proposed framework and the methodology that was followed?

4. Please comment on the following structural aspects of the proposed framework:

   - How would you rate the ease of understanding of the framework?
     Poor □ Fair □ Good □ Very good □

   - What is your impression of the step logic of the framework?
     Poor □ Fair □ Good □ Very good □

5. In your opinion, what improvements can be made to the proposed framework?

6. What is your opinion regarding the structure of the MPEM?

7. What value do you think the proposed framework would add to industry and the PAM environment? Would you utilise the framework?

Appendix C

Interviews

C.1 Interview One

1. Considering the research methodology that was followed, what is your opinion on the potential of the proposed framework as a tool to evaluate the level of use of motivational aspects in the working environment?
   In my opinion the model still relies on people in order to operate. I think it should engage more with the applicable work force and take into account an awareness of their needs. You need to understand that you can't take the performance from a person without previously ensuring that they fully understand their role and responsibilities in their respective position. This framework makes it clear that one needs to give appropriate inputs in order to gain the desired improvements from the individual.

2. In your opinion, what are the strong points of the proposed framework and the methodology that was followed?
   The framework has a realistic and scientific approach that would suit the typical engineer mindset. It is a systematic, logical process with well defined outcomes from the matrix.

3. In your opinion, what are the weak points of the proposed framework and the methodology that was followed?
   The heading names of phases one and two are confusing. Consider naming the first phase analyse because you analyze the job role that is being considered. Also I think that the framework is too generic; the adaptability to apply the framework to each individual is a concern. Focuses on people development as a means to achieve production outputs. The framework should

rather be adjusted to take a growth view in which achieving production outputs is used as a means of developing people.

4. Please comment on the following structural aspects of the proposed framework:

   - How would you rate the ease of understanding of the framework?
     Poor ☐ Fair ☐ Good ☑ Very good ☐

   - What is your impression of the step logic of the framework?
     Poor ☐ Fair ☐ Good ☑ Very good ☐

5. In your opinion, what improvements can be made to the proposed framework?
   The physical sign–off is a gesture of commitment and one should see it as a process of continuous improvement, mutual inputs and agreement. I think that the framework must also establish a difference between what makes a technical manager such as an engineer and a good manager.

6. What is your opinion regarding the structure of the MPEM?
   Easy to understand; weight factor must be included; area to be scalable which caters for difference in people. "we need to realize that people differ and this caters for differences in people and opinions"

7. What value do you think the proposed framework would add to industry and the PAM environment? Would you utilise the framework?
   In today's age of globalisation, the human capital makes a difference therefore the ability to unlock that potential gives strategic advantage.

Additional comments made during the interview: Review period changes between individuals, therefore you should consider that the time before re–analyzing may vary from one employee to another; Analyze means and abilities (abilities such as training and feedback versus means such as tools and standards); Weights are important as we need to realize that people differ; Discussed the leadership and care and growth model; Conventional performance management - development discussions leading indicators rather than lagging; We are taught as engineers to be logical, Managing people is not one plus one equals two.

C.2 Interview Two

1. Considering the research methodology that was followed, what is your opinion on the potential of the proposed framework as a tool to evaluate the level of use of motivational aspects in the working environment?
   I think this framework has excellent potential; however it must take into consideration the level at which it is pitched. For instance it needs to be rolled out at a senior management level first, and subsequently requires a motivated manager in order to be implemented successfully.

2. In your opinion, what are the strong points of the proposed framework and the methodology that was followed?
   It is a good, well defined concept. I like that it is logical and can be implemented sequentially, i.e. step by step. I think the fact that it is methodical will allow it to be used in industry. I think that it is good that buy-in/managerial support is emphasised. It is a user friendly and workable document.

3. In your opinion, what are the weak points of the proposed framework and the methodology that was followed?
   The weakest part of the framework is that it takes effort and dedicated managers with leadership qualities. Without a manager who will buy into the framework, it won't be rolled out properly. So this framework hinges on whether the manager buys into the idea or not and if so that they give adequate feedback. The framework also doesn't consider the social background of the employee. Overall the framework looks fine on paper, but what happens if one of the points is not able to be defined. What would be the next step to follow to either define the step or move ahead, for example if I can't do a specific step there should be options which show where to look for further information. Users have to be trained as to how this will work, so I would consider providing a training manual with a detailed summary. Another weak point is that lead times aren't defined.

4. Please comment on the following structural aspects of the proposed framework:

   - How would you rate the ease of understanding of the framework?
     Poor ☐ Fair ☐ Good ☐ Very good ☑

   - What is your impression of the step logic of the framework?
     Poor ☐ Fair ☐ Good ☐ Very good ☑

5. In your opinion, what improvements can be made to the proposed framework?
   I would include the "what ifs" of the critical steps in the framework and also add that both the manager and the employee must be made aware of or understand the benefit of the framework in order for them to want to do it.

6. What is your opinion regarding the structure of the MPEM?
   In my opinion I would add a legend which will include a summary of what to do in each of the steps of the matrix so people don't have to go back to the main document each time they need basic guidance of what to do for a particular step.

7. What value do you think the proposed framework would add to industry and the PAM environment? Would you utilise the framework?
   I think your framework provides an abundance of value provided there is buy in from upper management and that the general workforce sees the benefit. This will give them incentive to continue with the framework and not let it fade out after the first time that its implemented. Yes, I would utilize the framework.

Additional comments made during the interview: Secure support from management - how to do this to be effective; What is the benefit–both manager and employee need to understand the benefit; The amount of money/cost to manage poor performers is large compared to what should be spent on motivating them to enhance their performance; Does the employee know the job and what is expected of him; Incentivize based on success.

C.3 Interview Three

1. Considering the research methodology that was followed, what is your opinion on the potential of the proposed framework as a tool to evaluate the level of use of motivational aspects in the working environment?
   When looking at the framework on paper, it sounds excellent and I think that it is a tool everybody would like to look at. The question that comes to mind is how easy and simplistic would it be to implement this? It is fairly straightforward and it has the ability to give the manager predetermined solutions as to what motivational aspects he needs to look at.

2. In your opinion, what are the strong points of the proposed framework and the methodology that was followed?

I like the fact that it addresses both the importance of the particular motivational aspect and the level of use. Another strength is that the framework gives a predetermined list of motivational aspects to look at. And it elicits support from supporting management which is important for any project.

3. In your opinion, what are the weak points of the proposed framework and the methodology that was followed?
   I think that more feedback should be provided for the feedback loop, such as what frequency would one do this exercise, who would be the people involved and how to ensure that it keeps going despite possible staff turnovers.

4. Please comment on the following structural aspects of the proposed framework:

   - How would you rate the ease of understanding of the framework?
     Poor ☐ Fair ☐ Good ☐ Very good ☑

   - What is your impression of the step logic of the framework?
     Poor ☐ Fair ☐ Good ☐ Very good ☑

5. In your opinion, what improvements can be made to the proposed framework?
   I think there is always room for improvement but less opportunity when you are already close to a workable solution. There is nothing wrong with the steps, the framework gives a singular start and end and industry likes to focus on a cycle; which you could consider for the feedback loop. The framework could be more cyclical in representation rather than procedural. When considering the practicality and feasibility I would prefer a score scale of 1 to 6, simple is better. The scoring of the manager vs the employee may be skewed, in that the employee might not give the right score which will result in inaccurate results. I would consider peer to peer evaluation; this may give a truer score but takes time and could be practically difficult.

6. What is your opinion regarding the structure of the MPEM?
   It ties in with other engineers who use matrices, such as for risk assessments when comparing probability and impact. I like that it gives proper weighted average and I have nothing to add.

7. What value do you think the proposed framework would add to industry and the PAM environment? Would you utilise the framework?
   For sure I would utilize the framework. I am already using something similar,

although it does not look at the motivational aspects. Remember, engineers are in engineering for the technical aspects. This framework has the potential to be used as a performance indicator of the manager.

Additional comments made during the interview: Ultimately everyone has some training, background, motivational aspect missing; Enthusiastic about the outcomes of the framework–getting people to do their jobs is the single most difficult factor that we struggle with everyday.

C.4 Interview Four

1. In your opinion, do the questions included in Table A.1 adequately translate the motivational theories into measurable aspects of motivation to be applied in the workplace?
   I believe that the questions align with the motivational theories. The questions deal with key themes of the motivational theories and there is nothing wrong with those themes. I therefore consider the questions to be acceptable.

2. Do you consider the questions easy enough to understand without detracting from the complexity of the theories from which they are derived?
   Yes, I do believe that the questions are simple enough to understand however, in my opinion they might be too limiting in focus.

3. In your opinion, are the paragraphs in the explanatory text that follows the questions suitably clear?
   I think that these are fine so long as a comprehensive review of the theories is provided in the literature review of the thesis.

4. Do you recommend any changes?
   I recommend to label the questions “motivational interventions” as opposed to “motivational aspects”.

Additional comments made during the interview: There is a distinction made in literature between older theories of motivation and newer, contemporary theories. The view is that the older theories do not contribute sufficient motivational value however, contemporary theories are more comprehensive and have a wider focus. I see this as a mix of old and new theories where in my opinion and from the view of an Industrial Psychologist I think the focus should rather have been on the newer theories and considerations.

Note: No detailed feedback was provided on each of the questions; instead it was made clear that in the expert's opinion the questions are suitable and that there exists adequate alignment with the motivational theories.

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