

**UNIVERSITY OF KWAZULU-NATAL**

**The Assessment of KPIs at the ArcelorMittal SA Steel, Vanderbijlpark**

**By**

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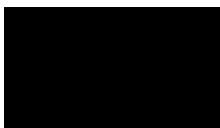
**2019**

## Declaration

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## **Abstract**

The concept of performance management is used by most of the organizations to ensure that either they are going on the right path or not. For managing the performance, the organizations are required to know about the performance indicators. This study aimed to investigate the factors that affect employees in meeting their KPIs at Arcelormittal SA steel, Vanderbijlpark. The research design employed in this study was survey research method. Since the complete enumeration survey method of sixty-one participants was chosen for this quantitative study, all sixty-one elements of the targeted population were regarded as participants. Hence the sampling techniques was a census. The researcher used a questionnaire as the primary data collection instrument. The study relied on primary data that was obtained from questionnaires that were distributed to the respondents. The data was analysed using SPSS version 22 and descriptive statistics. Frequency distribution table were used to summarise the data that was received from the respondents. From the findings, the study did establish that KPIs assist in implementing the strategic goals of a company; increases per capita efficiency; effectively motivates employees as well as promotes and enhances the performance levels of both the company and its employees. The study concludes that KPIs are the foundation of performance management system with the purpose of KPIs being to translate corporate strategy into internal activities and processes in order to unceasingly boost the core competitiveness of companies as well as to gain admittance to sustainable development. The study recommends that in order to measure the performance of companies and to apply benchmarking, one has to firstly establish appropriate KPIs as these KPIs are ever so vital in determining the all-inclusive success of the company. This is because KPIs are compilations of data measures that are utilized to gauge the performance of a company because KPIs play a major role in supplying information with regards to the performance of projects, tasks and companies.

## Table of Contents

Declaration.....	i
Acknowledgements.....	ii
Abstract.....	iii
List of Tables.....	vii
List of Acronyms.....	viii
<b>CHAPTER ONE: OVERVIEW AND BACKGROUND OF THE STUDY.....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Background and Motivation of the Study.....	2
1.3 Aim of the Study.....	3
1.7.1 Research Settings.....	5
1.7.2 Research Participants.....	5
1.7.3 Sampling Approach.....	6
1.7.4 Data Collection Methods.....	6
1.7.5 Data Analysis.....	6
1.7.6 Ethical Consideration.....	6
1.8 Structure of the Research.....	7
1.9 Chapter Summary.....	8
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>9</b>
2.1 Introduction.....	9
2.3 Definition of key Performance Indicators.....	13
2.4 Key Performance Indicators (KPI) and Critical Success Factors (KSF).....	14
2.5.1 Organisational-Environment Theory.....	16
2.5.2 Contingency Theory.....	16
2.5.3 Goal-setting Theory.....	16
2.5.4 Agency Theory.....	17
2.6 The KPIs Process (Derivation Methodology).....	17
2.6.2 Identify Potential Indicators.....	19
2.7 Role and Importance of Measuring Organizational Performances via KPIs.....	23
2.8 Factors that Affect KPIs.....	31
<b>CHAPTER THREE: RESEARCH METHODOLOGY.....</b>	<b>36</b>
3.1 Introduction.....	36
3.2 Population of the study.....	36
3.3 Sample size.....	36

3.4 The Research Design .....	36
3.5 Sampling Technique .....	37
3.6 Construction of the research instrument .....	38
3.7 Administration of the instrument .....	40
3.8 Pilot study .....	40
3.9 Reliability and Validity .....	41
3.9.1 Validity .....	41
3.9.2 Reliability .....	43
3.10 Data Analysis .....	45
3.12 Chapter Summary .....	47
4.1. Introduction.....	48
4.2. Response rate .....	48
4.3. Presentation of Demographic Data .....	48
4.4. Presentation and interpretation of research question One.....	51
Figure 4.6: Manager/Supervisor takes time to discuss KPI targets and actual achievements with the team.....	55
4.6 Presentation and interpretation of research questions Three.....	59
4.7 Chapter Summary .....	63
CHAPTER FIVE: DISCUSSION.....	64
5.1 Introduction.....	64
5.2 Discussions based on Objective One .....	64
5.4 Discussion based on Objective Three .....	69
5.5 Chapter Summary .....	71
CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS.....	72
6.1 Introduction.....	72
6.2 Conclusions.....	72
6.3 Implications of this Research.....	75
6.4 Limitations of the Study.....	77
6.4 Recommendations.....	78
6.5 Area/s for Further Research .....	80

## **List of Figures**

Figure 2.1 Performance Management model cycle

Fig. 2.2 The KPIs Process

Figure 3.1 Map for ArcelorMittal South Africa in Vanderbijlpark

Figure 4.1 Qualification

Figure 4.2 I am familiar with what I am measured on or KPI for my area of responsibility

Figure 4.3 Our KPIs are simple and easy to understand

Figure 4.4 I know KPIs unit of measure

Figure 4.5 I am trained and skilled to archive KPI set target

Figure 4.6 Management discuss KPI targets and actual achievements with the team

Figure 4.7 KPI I am measured on, are relevant to line of my work

Figure 4.8 Machines breakdowns causes our KPIs performance to be below par

Figure 4.9 Management help the team to determine the cause of the poor KPI performance

Figure 4.10 Management assist teams to determine corrective actions for poor performance

Figure 4.11 We are rewarded for improving KPI performance

Figure 4.12 KPIs set target are reasonable and achievable

Figure 4.13 Assessing KPIs improve organizational performance

Figure 4.14 Assessing KPIs improve employee retention and loyalty

Figure 4.15 Assessing KPIs Saves time and reduces conflicts, leading to improved productivity

Figure 4.16 Assessing KPIs help in overcoming the barriers to communication

Figure 4.17 Assessing KPIs draw clear accountabilities

Figure 4.18 Assessing KPIs ensures efficiency and consistency in performance

## **List of Tables**

Table 4.1 Frequency distribution table of respondents' Age group

Table 4.2 Frequency distribution table of respondents Race

Table 4.3 Frequency distribution table of respondents' length of service at AMSA

## **List of Acronyms**

AMSA	ArcelorMittal South Africa
AMCC	ArcelorMittal Coke and Chemicals
HRM	Human Resource Management
KPIs	Key Performance Indicators
PMS	Performance Management System
PM	Performance Management

# **CHAPTER ONE: OVERVIEW AND BACKGROUND OF THE STUDY**

## **1.1 Introduction**

In order to get and keep competitive advantage over other market players in the same industry the manufacturing organizations must produce the quality products at lower cost with rapidly increasing variety. The traditional KPIs used in the manufacturing sector usually focus on criteria relating to quality, time and cost. Further supplements added dimensions like delivery time, safety, and risk assessment (Schmidt, Thiede, Kornfeld and Herrmann, 2016:759). The KPIs that are used by a company have to be adjusted in tune with the company's structures and manufacturing situation in order for it to be effective as the successful application of KPIs hinge upon its continuous measurability (Schmidt et al., 2016:759). Furthermore, the accuracy of data along with its timeous availability is also vital to compute indicators regularly. In order to equate current versus target positions, each KPI has to be explicit with regards to its expressiveness with each KPI or collection of KPIs being allocated to a particular person or department that is accountable for reporting to senior management (Schmidt et al., 2016:759). Therefore, a comprehensive approach to categorize and to systematically develop KPIs is obligatory.

This study was undertaken using ArcelorMittal South Africa in Vanderbijlpark as its location and hence the organisation will derive the most direct benefit from the study. AMSA is in the infancy phase of the improvement journey, as performance improvement has only been implemented since 2016 after the engagement of private consultancy companies to turnaround the fortunes of the organisation (Bakker, Demerouti, & Lieke, 2016). However, the results are not commensurate with the efforts put into performance improvement. Therefore, it is important to ensure that the barriers are eliminated at an early stage through the implementation of sustainable systems. A better understanding of KPI will allow AMSA to focus significant effort to ensure success with performance improvement initiatives. The key performance indicators of a firm are also referred to as key success indicators within management cycles. These measures help both the management and the personnel to understand and attain the organizational goals. Key performance indicators have been used widely as measures of performance in modern organization to assess both the level of operational efficiency and productivity towards meeting the firm goals as well as the appraisal of the staff thus helping to motivate them leading to better productivity.

This chapter covers the background, research problem, research objectives, questions, motivation of the study, research methodology, research design, structure of the research and the chapter summary.

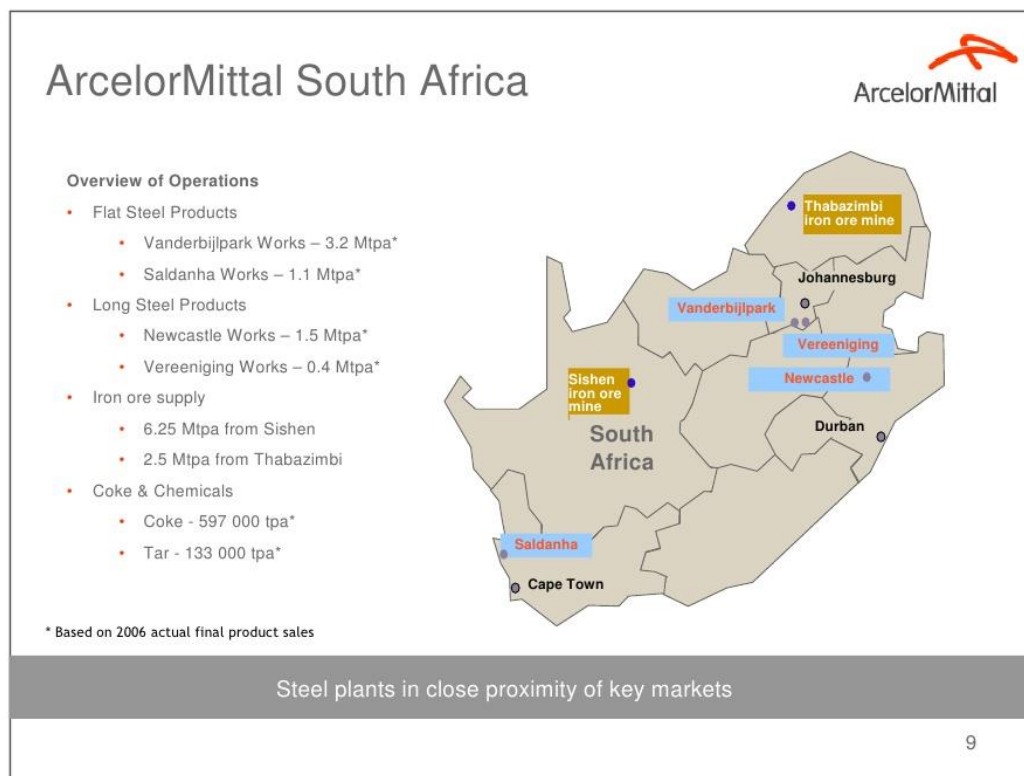
## **1.2 Background and Motivation of the Study**

Globalisation has shrunk the planet and thus transformed the organisational universe into a hub of greater competition. To keep up with the demands of increased competition, organisations have been targeting their simplest source of competitiveness; the employees. Performance management is a process which can significantly affect organisational success by having managers and employees work together in setting expectations, reviewing results and the rewards thereof (Mondy, Noe, & Premeaux, 2002). Performance management is the integrated process whereby managers work with employees in setting expectations, monitoring developmental goals, measuring performance, reviewing feedback and rewarding good performance in order to improve employee performance, with the ultimate goal of positively effecting organisational performance (Decramer, Christiaens & Vanderstraeten, 2007). Fletcher (2001) recognises three uses or forms of performance management as Performance management as a system for managing organisational performance; Performance management as a system for managing employee performance; and Performance management as a system for integrating the management of organisational and employee performance.

Performance management emanates primarily from the business field of organisational psychology. Unsurprisingly, much of the initial literature originates from the perspective of incessant management for the efficient meeting of budgetary goals (Brayfield & Crockett, 1955; Decramer, Christiaens & Vanderstraeten, 2007; Huselid, 1995). For many years this fairly psychometric heritage of performance management persisted and to an extent still persists. Four out of five South African employers choose to have a performance management system, almost all of them have a formal communication strategy pertaining to performance targets and goals, and 86% of them allow their employees to jointly set targets and objectives with the manager (O'Callghan, 2008). This trend is in synch with the rest of the world, as companies globally are aligning their human resource initiatives with the overall goals of the organisation in order to increase business success (O'Callghan, 2008).

Empirical studies have indicated that attaining set targets for KPIs fail due to the lack of understanding of the critical success factors required during implementation. Many companies experience temporary gains but few succeed in sustaining the initial benefits of keeping focus on KPIs (Vermaak, 2018). Balle (2015) stated that whilst KPIs initiatives are rich in information and theory there is poor sustainability at the shop floor and lack of employee involvement.

The study was conducted at ArcelorMittal South Africa in Vanderbijlpark. Vanderbijlpark Works is one of the world's largest inland steel mills and the largest supplier of flat steel products in sub-Saharan Africa. The ArcelorMittal South Africa in Vanderbijlpark is ISO 9002 and ISO 14001 accredited plant.



**Figure 1.1:** Map for ArcelorMittal South Africa in Vanderbijlpark (Stats SA, 2015)

### 1.3 Aim of the Study

The aim of the study was to assess the Key Performance Indicators at the ArcelorMittal South Africa ‘Coke and Chemicals’ business units in Vanderbijlpark for improved organisational performance.

### 1.4 Problem Statement

The performance of ArcelorMittal South Africa (AMSA) as a company has been on the decline. AMCC total commercial coke production continue to drop from 2016 production of 251 000 tonnes per annum, to 190 000 tonnes per annum in 2017, and 184 000 tonnes in 2018 (AMSA Financial Report, 2018). The sale of commercial coke reduced from 181 000 tonnes in 2017 to 158 000 tonnes in 2018 and tar reduced from 82 000 tonnes in 2017 to 81 000 tonnes 2018 (AMSA Financial Report, 2018). This had negative impact on the revenue of the company. The revenue dropped from R317 million in 2017 to R288 million in 2018. As the amount of commercial coke decreases at AMCC, this gives the competitor the opportunity to close the gap created by inability of the AMCC to reach and perform above its 2016 production levels.

The measurement of employee performance is an essential undertaking in the process of employee management. As such there is a need to establish if any, the effect that application of any selected performance measurement tool has on employee engagement. Lack of adequate literature supporting the selection of particular performance measurement tools makes it hard for manufacturing companies such as AMSA to enhance employee engagement by employing different tools. Hence this research plays a key role in assessing the influence of key performance indicators on organisational performance through employee engagement at AMSA. The consulting companies engaged by AMSA have recommended amongst others that the company need to start looking at how to measure and assign key performance indicators to the frontline employees. The observation is that the frontline employees' KPIs are documented and some on the monthly regular basis are communicated to the employees to just inform them whether they have managed to attain bonus or not. Are these available and documented KPIs well defined and articulated to the level that the frontline employees can comprehend and be able to develop a strategy to attain them?

## **1.5 Research objectives**

The research objectives of the study are to:

- Establish whether KPIs are well-articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark
- Ascertain the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark

- Assess the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark
- Recommend the strategies for attaining KPIs set targets at the ArcelorMittal South Africa in Vanderbijlpark

## **1.6 Research Questions**

The following are the research questions:

- To what extent are KPIs articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark?
- What are the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark?
- What is the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark?
- What recommendations can be made for the attainment of KPIs set targets at the ArcelorMittal South Africa in Vanderbijlpark?

## **1.7 Research Methodology Summary**

### **1.7.1 Research Settings**

ArcelorMittal Coke & Chemicals' core business is the production of commercial coke for the ferro-alloy industry from coke batteries located in Pretoria and Newcastle and production of tar located at the Vanderbijlpark. Accordingly, the research was conducted at the Vanderbijlpark company premises where the researcher is also based as an employee. Data was collected on Tuesdays as this is the time slot used for training of the personnel, hence availability of potential research participants.

### **1.7.2 Research Participants**

The participants were researcher's work colleagues. The main participants were front line personnel from AMCC Tar Plant. According to the company ranking, frontline employees will be any employees below G role position which comprises H, J and I levels and qualifications for these roles range from below matric to national diploma. The managers/supervisors were requested to give information such as KPI title, target, and unit of measure.

### **1.7.3 Sampling Approach**

AMCC Tar Plant currently has about sixty-one (61) frontline personnel at the Tar Plant. Since the targeted population was relatively small with a total of sixty-one employees, the research regarded the whole population as the sample size. Hence, census became the sampling approach for this research.

### **1.7.4 Data Collection Methods**

Out of the different types of data collection instruments that can be used when collecting information for research purposes, a questionnaire was used for this quantitative study, Cooper and Schindler (2014), “asserts that a questionnaire comprises of a list of research questions that the researcher use to ask the respondents designed to extract specific information based on the main research questions. The authors further highlight that questionnaires are used to collect appropriate data, make data comparable and amenable to analysis, minimize bias in formulating and asking questions, and to make questions engaging and varied. The questionnaires were preferred as suitable for this study because it reduces the variability of responses, less costly to administer and can be easily administered and analysed (Cooper and Schindler, 2014).

### **1.7.5 Data Analysis**

Data analysis entails a close examination of data collected in order to deduce sense out of patterns and behaviours (Creswell, 2016). The processing of data includes all operations undertaken from when a set of data is collected until it is ready to be analysed either manually or by a computer. Questionnaire responses were analysed using graphs and charts to present the data findings. The data was captured using MS Excel and later exported to SPSS version 20 (originally named Statistical Package for the Social Sciences and now called Statistical Product and Service Solutions) for analysis.

### **1.7.6 Ethical Consideration**

Sekaran and Bougie (2017) emphasized that the observance of ethics begins with the person instituting the research, and should do so in good faith, pay attention to the results and pursue not self-interest but organizational goal instead. The behaviour of the researchers who conduct the investigation should also reflect the ethical conduct. The ethical considerations during research include: informed consent; voluntary participation; no harm to participants; confidentiality; and anonymity. Accordingly, the research upheld anonymity, confidentiality and privacy of the participants by ensuring participants have given informed consent. Ethical

approval was sought from UKZN to ensure that the human dignity is upheld and no implications are leveled against participants. A gatekeeper's letter was obtained from AMSA as a permission to collect data. In respect of ensuring confidentiality and anonymity, use of real names was avoided during research data collection to ensure anonymity. In addition, findings of the study were reported aggregately in representation of a collective view of all the participants using acronyms to enhance anonymity. With regards to addressing voluntary participation as an ethical issue, consent should be sought in order to ensure unforced participation by research subjects (Sekaran & Bougie, 2017). Informed consent forms were drafted for each of the research participants to agree on before responding to the questionnaire.

## **1.8 Structure of the Research**

### **Chapter One: Overview of the Study**

The overview of the study presents the introduction of the study, the background, the research problem, research objectives and research questions. It presents an overview of all the chapters.

### **Chapter Two: Literature Review**

The literature review analyses literature and theories related to the KPIs. The nature of the KPIs, the definitions, factors that affect the improvement of KPIs and the strategies to improve KPIs from different knowledge sources are reviewed.

### **Chapter Three: Research Methodology**

Research methodology addresses the methodological approaches for the study. These details include research design, research instruments, sampling method, target population, sample size and data analysis.

### **Chapter Four: Results**

Analysis part of the study presents, examines and debate the research findings.

### **Chapter Five: Discussion**

Discusses the findings based on the empirical evidence presented in chapter four. The discussion is presented in relation to the research questions and objectives.

### **Chapter Six: Conclusion and Recommendation**

Is the conclusion of the study, summarising on whether the research problem was resolved or not. Implications of the study are explored, and practical recommendations that concerning the attainment of KPIs are made”. Recommendations for future studies are also made.

### **1.9 Chapter Summary**

This study is aimed at assessing the Key Performance Indicators at the ArcelorMittal South Africa in Vanderbijlpark for improved organisational performance. This assists AMSA in effectively using improvement tools to foster operational excellence. This chapter has presented an overview of the research project. The motivation for the study, focus area and the problem statement of the study have been explained. The research question and related research objectives were presented, outlining the research process. The next chapter will review various sources of literature related to performance improvement to gain an in-depth understanding of the concept and application. The next chapter will provide a critical review of literature that pertains to the KPIs.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The phenomenon performance measurement is used by the organizations in order to ensure that they are going in right direction, achieving targets in terms of organizational goals and objectives. The performance measures are used to evaluate and control the overall business operations. They are also used to measure and compare the performance of different organizations in the “industry, plants, departments, teams and individuals. Thus, the beginning of the performance measurement starts from the identification of performance indicators that allow for a detailed specification of process performance. This chapter deliberates on secondary literature regarding KPIs as well as their importance in assessing the organisational performance.

### **2.2 Performance Management**

Managing employee and organisational performance is often seen as important to the success of any organisation. Due to the importance of managing performance, performance management definitions have evolved over the last few decades in response to the changing work environment. In the 1990’s, for example, Rogers (1990, p.16) defined “performance management as an integrated set of planning and review procedures, which cascades down through the organisation to provide a link between each individual and the overall strategy of the organisation”, while Edis (1995) referred to performance management “as any integrated, systematic approach to improving organisational performance to achieve corporate strategic aims and promote its mission and values”. Both these researchers identified the importance of an integrated approach to managing performance, as opposed to a singular activity.

According to Edis (1995), performance management was a “means through which employees' performance could be improved by ensuring appropriate recognition and reward for their efforts”, and by “improving communication, learning and working arrangements as stipulated in the balanced scorecard model”. In addition to an integrated approach, Edis (1995) suggested aligning performance management with monetary and non-monetary remuneration. Armstrong and Baron (1998) saw performance management as a “strategic intent”, and suggested that in order for it to be effective, it needed to be “concerned with the broader issues facing the business, with the general direction in which it intended to go to achieve longer-term goals”. According to these authors, performance management must also be “concerned with development, as performance improvement is not achievable unless there

are effective processes of continuous development”. This view was earlier shared by Kaplan and Norton (1996a), who initially suggested that balanced scorecard be used as a performance measurement tool, but then saw its applicability as a strategic performance management tool.

In the 2000’s, Mondy, Noe and Premeaux (2002) saw performance management as an integrated process “where a manager will work with employees to determine expectations, measure and review results, and reward performance”. The aim of this, according to Mondy et al. (2002), was to improve the employee’s performance, which in turn, will ultimately and positively affect the organisation’s success. Although the definition of performance management among researchers differs slightly, the most consistent factor of all the definitions is the focus on an integrated system of managing performance.

In this study, the balanced scorecard is used as an integrated performance management system to improve employee performance, while simultaneously trying to determine the intrinsic motivational levels of employees. While there are many types of performance management systems available, organisations need to determine which of these is most suitable to their business environments. For this study, the organisation chose to use the BSC as a performance management system. The rationale behind the choice of the BSC was that the organisation felt that the BSC principles best aligned to the organisation’s business strategy. The business strategy placed an emphasis on increasing sales and minimising costs. The four pillars of the BSC aligned to the organisation’s KPI’s of sales growth (financial measures), customer service (customer measure), inventory loss, manageable expenses and stock integrity (internal business processes measures) and training and development (learning and growth measures).

Performance management as a system often includes features such as performance and development reviews, personal development plans, learning and development activities, coaching and mentoring, objectives and performance standards, competency measurements, reward and remuneration, team working, and 360 degree feedback (Conger, & Riggio, 2012; O’Callghan, 2008). The importance of performance management lies in the fact that the employer knows where the company stands in relation to its business objectives. For the employee, performance management ensures workplace performance transparency, provides a good method of documenting performance-related information, and can help facilitate

future career development needs and rewards (Conger, & Riggio, 2012; Decramer, Christiaens & Vanderstraeten, 2007; O'Callghan, 2008).

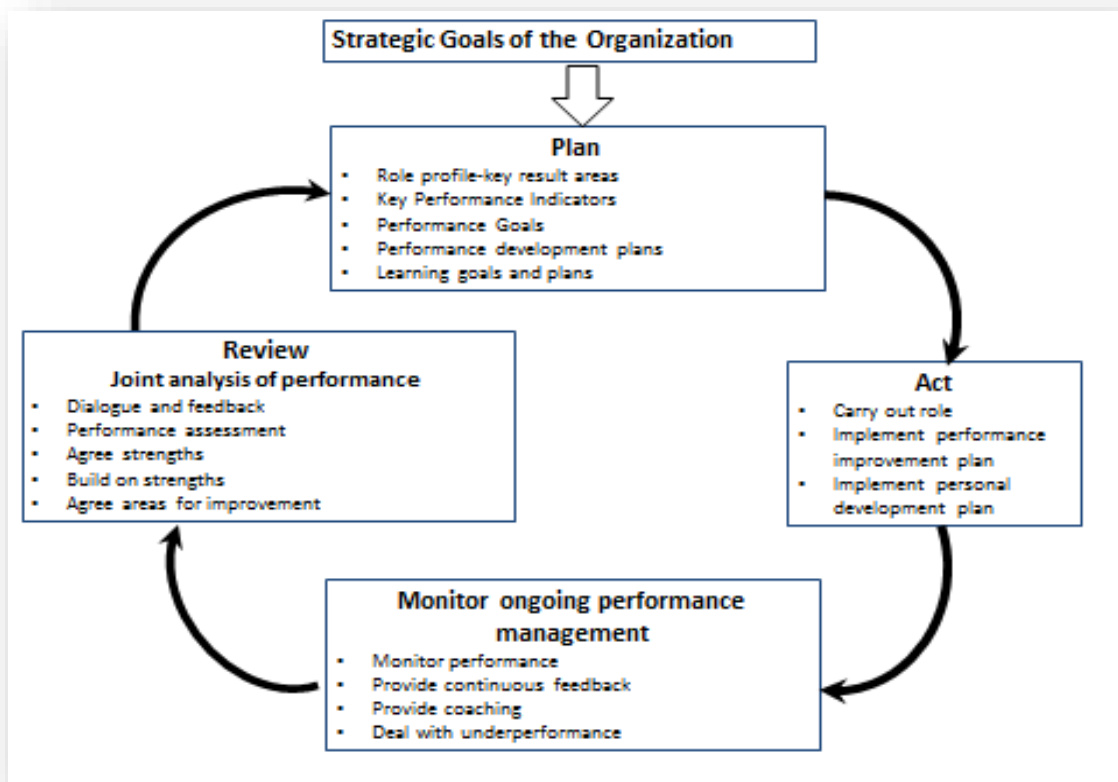
Atkinson (2016) highlighted both diversity and lack of consensus on the subject of performance management and its definition; the lack of consensus in defining performance management makes it difficult to identify the boundaries of what performance management encompasses and what it does not. However, through a series of engagements between various stakeholders of different sectors of business, it became clear that the performance-management definition must be linked to delivery of strategic objectives of an organisation, defined in simple and understandable language (Atkinson, 2016). Performance management is defined as a process by which organisations align their resources, systems and employees with strategic objectives and priorities (Lopez, 2018).

Lopez (2018) defined performance management as a process which significantly affects organisational success by having managers and employees work together to set expectations, reviewing results, and rewarding performance. Busi and Bititci (2016) defined performance management as the use of performance measurement information to effect positive change in organisational culture, systems and processes, by helping to set agreed-upon performance goals, allocating and prioritizing resources, informing managers either to confirm or change current policy, or programme directions to meet those goals, and sharing results of performance in pursuing those goals. Kang (2015) concurred with the definition of performance management as given by Lopez (2018). Busi and Bititci (2016) defined performance management as a continuous process of identifying, measuring and developing the performance of individuals and teams, and aligning performance with the strategic goals of the organisation. A comprehensive definition is provided by Lopez (2018), in that it encompasses the key elements of performance management, which includes the design and the use of performance measurement in making decisions, setting performance goals, allocating resources; and the use of performance-management systems in applying information arising from performance measurement systems. This definition clarifies the two processes, which are often confused with performance management as discipline and performance measurements (Busi and Bititci, 2016).

Brudan (2015) described performance measurement as a process dealing with the evaluation of performance results. It tracks past achievements for comparison; measures input and output; measures detection of deviations; it falls under the umbrella of performance

management. Brudan (2015) further described performance management as an overarching process dealing with evaluating performance results and ensuring that performance targets are constantly achieved; it includes strategic goalsetting, implementation, training, and performance measurement. It involves training and development, teamwork, management style, perceptions and attitudes, shared vision, employee involvement, incentives and rewards (Nyembezi, 2019).

Armstrong (2019) opionates that performance management model illustrated on Fig. 2.1, flows from the strategic goals of the organization to planning, act, monitor and review. It is a continuous cyclic process that needs to be followed. The focus will be specifically on selected few concepts under the performance agreement that have influence on the research. The emphasis will be on the concept namely: Role profile, Key performance indicators and performance goals.



**Figure 2.1:** Performance Management model cycle

Source: Armstrong (2019:17)

Armstrong (2019) described the development of a performance management cycle as one based on an organisation's strategic business needs. It must be in line with an organisation's strategic objectives; it must comprise a set of deliverables aimed at improving or reaching a certain efficiency level. The performance management should not be developed as a supplementary measure with which to address issues surrounding inefficiencies resulting from employee performance (Kayakutlu & Buyukozkan, 2015).

### **2.3 Definition of key Performance Indicators**

Zakaria (2015) define KPIs as a group of measures concentrating on those aspects of company performance that is critical for the current and future prosperity of the company. The general role of KPIs is to reflect the current state of the operations, to monitor and control operational efficiency, to drive continuous improvement activities, and to measure the effectiveness of operations decisions (Amrina & Yusof, 2016).

Lopez (2018), posits that performance indicators that include the reference point required for their evaluations are goal oriented. From these performance indicators it can be deduced if there is a necessity for additional measures or actions to be taken to ensure the attainment of the set target (Lopez, 2018). The future competitive position of the organisation may be influenced by the decision made by the decision maker from the information provided by KPI (Amrina & Yusof, 2016). Therefore, KPIs influence the possible outcome. As a result, it is imperative for KPI not to simply describe what has taken place (Amrina & Yusof, 2016).

KPIs are a group of metrics to indicate operation performance (Kang, 2015). They are vital elements of the direction toward a prosperous attainment of objectives and are important for evaluation and indication of the level of progress (Popa, 2015). Roaxana-iona (2016) defines KPIs as Key Performance Indicators, also known as KPI or Key Success Indicators (KSI), help an organization define and measure progress toward organizational goals. Roaxana-iona (2016) further indicates that KPIs could be non-financial and financial. Examples of none financial include throughput, emissions, new product launches, and total energy; financial includes earnings per share operating profit, cash flow and financial ratios. They should be aligned with company's vision and expose areas needing improvement (Murray, 2016). The most not uncommon mentioned indicators to measure manufacturing performance are cost, quality, flexibility and delivery (Amrina & Yusof, 2016).

The short term and middle terms of goals of KPIs especially in a manufacturing environment is to comply with safety standards and environmental regulations, to improve production

efficiencies, to enhance satisfaction and motivation of personnel, to attain quality assurance of technologies, technologies and products and to accomplish plan realisation and production scheduling (Kang, 2015). KPIs can provide support to managers by enabling them to easily, transparently and quickly have an overall picture of the state of the production process on all sections. If one of the sections does not perform as per predefined requirements, the manager is speedily updated to find the cause and take action and as a result avoiding or reduce the possible damage (Rakar, Zorzut and Jovan, 2014).

KPIs can be grouped into the leading indicator alias operational indicator which measure future events or monitor process inputs whereas the lagging indicator which monitor the output or events that have already taken place (Kang, 2015).

In setting up key performance indicators, the first step in the process is setting up of the standards which are used as a benchmark to compare the actual performance of employees. This step requires setting the performance criteria to judge the performance of employees as successful or unsuccessful of the degree (Paile, 2017). To be useful, these key standards should relate to the desired result of each job. The standards set should be clear, easily understandable and in measurable terms (Komati, 2015). In case the performance of the employee cannot be measured, great care should be taken to describe the standards and review them accordingly. Key performance indicators are pre-set measures that are widely applied in guiding the organization towards the pre-set goals (Paile, 2017).

KPIs are also referred to as key success indicators within management circles. KPI's are operationalized through the; sale indicators, service delivery channels and the number of customer complaints. A good KPI should be quantifiable, based on organizational goals and deeply rooted on the organizational culture. Several KPIs such as the continual, discrete and hard indicators can be used.

#### **2.4 Key Performance Indicators (KPI) and Critical Success Factors (KSF)**

The critical success factors (CSF) and Key Performance Indicators (KPI) are the useful tools applied to get a successful business. They collectively account for the business' control and growth. CSF is defined by Boynton and Zmud (2016), as the critical areas whose high performance or success is important, as they decide the success of an organization. These are actually the steps taken to succeed. KPIs on the other hand are defined as the tools to measure the performance of any organization they only indicate what the success rate or level is. Unless their difference is properly understood the purpose of these techniques remains

useless. So, it is important for the manager of a company to make himself understand the scope of both, their limitations, their differences, their coexistence and all other comparable things.

CSF can be defined as those particular areas or issues which are important to the success of an organization. To ensure the performance of an organization's special attention and concern should be given to these areas as they will decide the present and the future success of the organization. CSF is very important for accomplishment of goals and ambitions of an organization (Boynton & Zmud, 2016).

Parmenter (2015) defines KPIs as a collection of events or action that play an important role in the success of organizations of today and tomorrow. A KPI is a clear-cut instrument to quantify and qualify the tactical goals of an institute depending on its priorities. Indicators are actually the ways to judge or assess the performance or measure the success of a company, but they do not show how to improve or do not provide the ways to achieve success. They are as the name says 'indicators' which only indicate. A KPI is used to measure performance, but CSF helps find the areas which are to be improved so that the success is ensured.

A line cannot be drawn between the two as they are dependent on each other. After setting a vision and its strategies, the next step is to find critical success factors which are to decide what should be done to achieve the goal. After that the success rate is measured or performance is monitored which tell about how much the organisation is close or far from the goal. KPIs do not actually improve performance themselves, they just tell if the organisation has to improve or not or if the goal is achieved. Critical success factor on the other hand design strategies and guide on how to. CSF is a technique which is also used externally by the customers to judge how the company is proceeding but KPI is used internally by one's own organization which makes CSF common, general and sometimes universal.

## **2.5 Theories of Performance Management**

Performance management as a discipline consists of multidisciplinary segments informed by corresponding theories. There are various levels of performance management existing within an organisation. The corresponding theories on performance management levels are discussed below:

### **2.5.1 Organisational-Environment Theory**

The organisational-environment theory deals with the set of forces and conditions operating beyond organisational boundaries, however, affecting a manager's ability to acquire and utilise resources in an effective and efficient manner (Lakri & Dallery, 2016). The organisational-environment theory supports a systemic approach to organisational management at strategic performance-management level. This theory views an organisation as an open system, where input of resources from its external environment is obtained and converted to goods or services, releasing outputs to an external environment for customers to purchase. The theory focusses on performance management at the strategic level of an open system, from input stage of resources to output stage; it outlines a systemic approach to organisational management (Brudan, 2015).

### **2.5.2 Contingency Theory**

Another important milestone in management-science research was the discovery of the contingency theory. The contingency theory deals with performance management within an organisation at strategic level. According to the contingency theory, the characteristics of an external environment affect the performance of an organisation, owing to an effect on the organisation's ability to obtain resources (Belle, 2015). The theory therefore promotes managers' allowing an organisation's departments to organise and control their activities such that they obtain resources in the best possible and most efficient way, given the constraints of that particular environment in which they are operating (Lopez, 2018). The essence of the theory is that the more quickly the external environment of an organisation is changing, the greater the problems in obtaining resources, and the greater the need for managers to find ways of coordinating activities of people in different departments to respond effectively and efficiently to the external environmental changes (Lakri & Dallery, 2016). Hence, the contingency theory is linked to performance management.

### **2.5.3 Goal-setting Theory**

The goal-setting theory is one of the most important theories discovered within the management science fraternity focussing on the performance management discipline. The goal-setting theory is a motivational theory dealing with the important relationship between goals and performance of employees (Lopez, 2018). Research indicates that predictions of the most effective performance results are obtained when performance goals are clearly specified and challenging; and when they are used to evaluate performance, linked to feedback on results, creating commitment and acceptance (Lunenburg, 2011). This theory fits the subject

of performance management because it centres on influencing employee behaviour and performance in organisations and management practices. Performance management approaches such as performance appraisals, management by objectives, high-performance work practices, benchmarking, stretch targets, as well as systems thinking and strategic planning, include the development of specific goals. The goal-setting theory fits within all organisational performance-management levels, which are strategic/organisational, operational/functional/, team, and individual (Ikemefuna and Chidi, 2012).

#### **2.5.4 Agency Theory**

In an organisational context, the agency theory explains how best to organize relationships in which the principal (employer) determines the work that the agent (employee) undertakes (Brudan, 2015). The implications of performance management in an organisation are extremely important, because they are key drivers for organisational performance determining success. It is inevitable for individuals, departments/teams and an organisation as a whole to have conflicting objectives if the process of aligning objectives is not implemented and/or managed properly (Belle, 2015). Goal conflict within an organisation can motivate incompatible actions and this has the potential to hamper the achieving of goals, be they organisational, departmental or individual. Thus, alignment of goals with objectives at all levels within an organisation is important for maximising performance, which translates to organisational success (Chipp, 2017).

According to the agency theory, the main challenge that organisations are facing is that of balancing and harmonising the interests of the principal and the agent in order to achieve alignment in organisational objectives (Chipp, 2017). A possible solution to principal-agent misalignment of objectives is to increase the quality and quantity of information related to the behaviour of the agent; this may be achieved by increasing the level of management; physical surveillance; and the establishment of control mechanisms; however, surveillance may raise privacy and ethical issues. Another solution is to reward the agent based on outcomes, by using arrangements such as commissions, profit sharing, bonuses and other forms of incentives (Brudan, 2015).

#### **2.6 The KPIs Process (Derivation Methodology)**

The methodology followed to derive KPIs for production process known as 8 step iterative closed loop model is shown on Fig. 2.2 below.

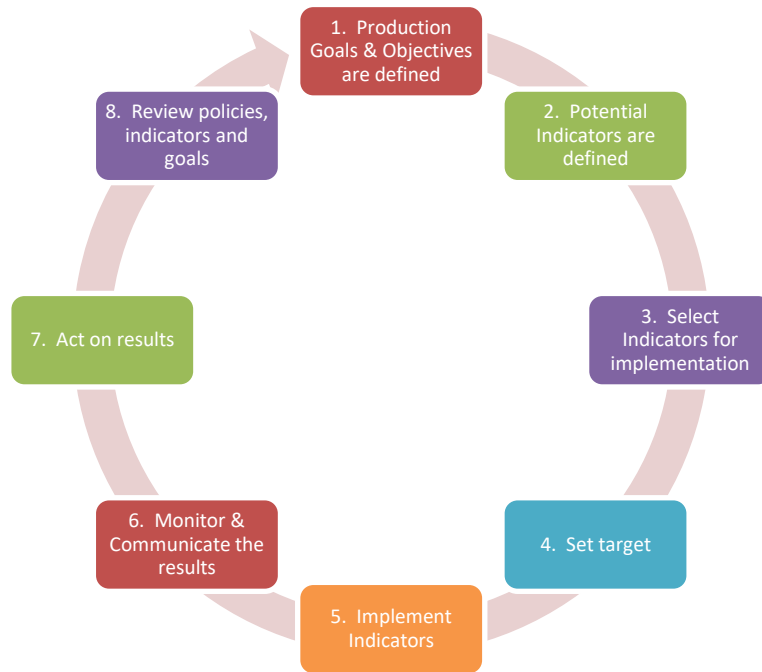


Fig. 2.2: The KPIs Process

Source: Rakar et al. (2014)

### 2.6.1 Production Goals and Objectives are defined

An organisation's mission may be reflected in definition of productions targets and objectives which takes place on this stage known as first stage. The defined production targets and objectives must focus on dealing with all core aspects of activities and motivates personnel's involvement in making decision (Rakar et al., 2014). The Performance Measure Data Definition Table, developed by each objective ownership team, documents the essential information comprising every performance measure on a scorecard. There is a critical step for transitioning from performance system development to implementation and use (Rakar et al., 2014).

Data definition is especially important if the organization plans to use a performance management solution to report performance information for decision making. Consistent and thorough data definition makes the implementation process much easier and faster and the decisions based on the collected data more reliable (Bakker et al., 2016). Even if the organization plans to manually collect, calculate and present the data, it is important to document the details of the measure so that the measure is consistently calculated and presented from reporting period to reporting period which will allow for meaningful performance analysis and conclusions. The data definition table is completed by an objective

ownership team and explicitly defines terms to ensure consistency across measures (Bakker et al., 2016).

### **2.6.2 Identify Potential Indicators**

With sustainability goals established, the next step is to search literature and websites for candidate KPIs. KPI developers can first analyse KPIs currently in use and identify gaps in the KPIs necessary for the defined sustainability goals. If gaps exist and no KPIs can be found in literature, new KPIs should be defined. Candidate KPIs should be expressed using the format in ISO 22400-1 for ease of communication among stakeholders (ISO, 2014). KPIs are often expressed in terms of associated metrics. Examples of metrics are energy consumption, water use, and material use. These metrics can either be measured directly (e.g. energy consumption measured with power meters) or estimated through physics-based equations (e.g. energy consumption estimated based on machine settings and material properties).

Manufacturers should determine additional metrics not currently measured but necessary to address KPI objectives. When a new metric is needed, a manufacturer should consider the measurement methods (such as sensors or human input), the measurement costs, and the time needed to measure. The identified indicators must be core indicators and reflect production efficiencies and targets. A KPI objective is a target of achievement to improve environmental sustainability of a manufacturing process. Individual KPI goals are obtained from organizational sustainability goals. KPI objectives represent activities to achieve identified KPI goals. Goals can be set as a normative standard for the organization or industry and should be applicable to all stakeholders.

### **2.6.3 Select Indicators for Implementation**

All the personnel should be involved in selection of indicators for implementation. The purpose of including all personnel is to ensure that KPI data availability, responsibility and motivation for implementation. Once candidate KPIs are identified, experts and stakeholders are enlisted to rank the KPIs based on their effectiveness of sustainability assessment. The criteria for this ranking are determined independently from the KPIs themselves. The list of potential criteria can be extensive (Martins, Mata, Costa, & Sikdar, 2007). Therefore, a systematic approach involving multiple stakeholders is used to identify a set of selection criteria. Stakeholders include line managers, supervisors, and shop floor workers who make their proposals for selection criteria. This information is then aggregated. A final set of

criteria is obtained after additional review by the stakeholders. Further, previous experience in similar situations can also be used to determine the number and type of criteria needed.

Typically, criteria are not of equal weight during KPI selection. As such, experts develop a value function for each criterion, as mentioned in the previous section. Value functions capture experts' assessments of the value of a criterion. Developing a value function starts with the definition of importance levels to be assigned to the criterion (Martins et al., 2007). The experts in this example consider this information to have some value so as to enable other actions. But stakeholders would have to assign the maximum importance level for the most value that the work group can take action. Each importance level has a description that shows emphasis of the criterion during KPI ranking and a corresponding value or "benefit". Numerical values associated with both the importance level and the experts' evaluation of the criteria's value are represented on a graph. The shapes of value functions can differ depending on subject matter experts' expression of variation of importance of a given criterion with increasing assigned emphasis. In the next step, stakeholders independently assign the levels of importance for all the criteria for each candidate KPI (Park & Kremer, 2017).

A value is obtained from the value function for each importance level assigned. An average is calculated for the values obtained from all stakeholders for each criterion for each KPI. The final value of the importance of a KPI depends on values obtained for all the criteria. Many algorithms exist for calculating this final value. One simplified method is to calculate the total sum of values obtained from all the criteria. Ranking of KPIs is based on the final aggregated value of a KPI relative to that of other candidate KPIs (Carlucci, 2010).

#### **2.6.4 Set Targets and Thresholds**

A Key Performance Indicator has limited value unless it can be compared to something. There may be some value as a record of change over time; however, unless it is known what sort of change is required, even this has little value. A KPI without a comparator can be used to help stabilise performance. For example, with a new process it is often the case actual values will vary wildly month on month until a process is bedded in. It may not be known what a valid variance should be but simply recording the values will eventually provide enough data to generate an upper limit and a lower limit. So eventually, even a KPI without a comparator will create values to be compared to. These limits will become thresholds (Christian et al., 2016).

Thresholds are frequently based on targets. This can be an area of contention in business performance management circles. Targets are often set using arbitrary methods or justified using unhelpful interpretations of data. However, targets can be helpful when starting the process of defining thresholds. The key point about any target is that it needs to be reasonable and achievable. It is important to complete this at the fourth stage as it guarantees commitment from the management and promotes accountability. The setting of goals and objectives should be seen as a continuous improvement process. This means that when KPI targets are attained, there should be a need to set new targets (Bakker et al., 2016).

### **2.6.5 Implement Indicators**

This step involves KPI implementation. At this stage, participation of middle management is a prerequisite as it includes obtaining data, computations, assessment and interpretation of the results. Different sustainability objectives often result in different KPIs. In order to compose different KPIs, they must be on the same scale of measurement (Carlucci, 2010). Secondly, the KPIs should be assigned relative importance based on their perceived contribution to the sustainability goal. These two activities are referred to as normalization and weighting respectively. There are different methods used for normalization. Typically, the more important the KPI, the more weight it is assigned. Weights are dimensionless values. KPI organization is a layered structure of KPI objectives, sub-goals, and sustainability goals. KPI objectives are at the bottom while sustainability goals are at the top. Sub-goals lie in between the sustainability goals and KPI objectives. The relationship between KPI objectives, sustainability sub-goals, and sustainability goals are expressed in the goal-objective structure. Using this structure, measurements based on KPIs can be properly aggregated to evaluate whether manufacturing processes meet the sustainability objective.

### **2.6.6 Monitor and Communicate Results**

Once there is a useful set of historical actual data in a performance management system then it will be possible to effectively interpret the results. There are two phases to this activity, first to create a set of dashboards and reports from the data and second to interpret the results as displayed. It is imperative to periodically communicate and assess results from the KPI implemented. This will encourage continuous improvement. It is vitally important to develop a system for regular assessment, interpretation and exhibition of results to personnel and any other interested stakeholders (Christian et al., 2016).

### **6.6.7 Act on Results**

Action must be taken on KPI results and corrective action must be taken for purpose of continuous improvement of the implemented KPI. Taking Action comes in two major forms. The first is to put in place a remedial activity when a problem occurs; the second is to create strategic initiatives to promote change. Putting in place a remedial activity or assigning an action is a relatively simple process and something that organisations do almost every day (Amrina & Yusof, 2016). The key here is to ensure that the activity or action is well thought through and not the result of a knee-jerk reaction due to an anomaly. Creating a Strategic Initiatives Creating and managing Strategic Initiatives is a complex process. Strategic Initiatives cause change. When a business is stagnant or failing, setting a strategy, building objectives, setting targets and KPIs will be to no avail unless activities are put in place to evoke change. Strategic Initiatives can cause significant organisational impact. They must be associated to one or more strategic objectives (Amrina & Yusof, 2016).

### **6.6.8 Review Indicators, policies, and targets**

KPIs, policies and KPIs' targets are reviewed and elimination of unnecessary KPIs and selection of new indicator are all done on this stage. New indicators are prepared for setting of goals and objectives on stage one. Carlucci (2010) noted that the selection of KPIs is necessary to assess the performance of a production management system. However, selecting a small set of KPIs from the large number of those available for a particular manufacturing process is often not straightforward. Secondly, selecting appropriate indicators to monitor the sustainability of processes and products is challenging due to the variety and complexity of those processes. Efforts towards indicator selection include a methodology for establishing and improving performance measures that focus on overall equipment effectiveness (Joung, Carrell, Sarkara & Feng, 2013).

Garetti and Taisch (2012) noted the need for a structured framework to support selection of a suitable set of indicators. To this end, a general KPI scheme for on-line process monitoring was developed in (Joung et al., 2013). Nevertheless, it does not provide a methodology to define new KPIs. In summary, major problems for developing KPIs are “inconsistent definitions of KPIs; a lack of an effective selection method for environmental KPIs for the manufacturing process; a lack of KPI effectiveness evaluation methods; and finally, a lack of a KPI set composition method”.

The KPI selection methodology presented in this study uses concepts of decision theory and multi criteria decision-making (MCDM) and is based on value-focused and value-function approaches. It includes both human judgment and quantitative methods. Dieter and Schmidt (2013) describe several steps for making choices to obtain the best outcome of a situation. The steps include establishing objectives, developing alternatives, evaluating alternatives against objectives, and choosing what holds the best promise for achieving the objectives. Evaluating alternatives is one of the most difficult steps because it requires overcoming, among others, making decisions under conflicting requirements, setting priorities, and establishing objectives. Each objective is a statement of what the decision maker wants to achieve in the decision context.

The criteria represent objectives that KPIs should satisfy as they are evaluated. MCDM methods include the weighted sum method, weighted product method, and analytic hierarchy process, elimination and choice translating reality, and technique for order preference by similarity (Dieter & Schmidt, 2013). Another common approach is for stakeholders to rank alternatives from the best to the worst depending on their preference. Collins et al. proposed a selection and improvement methodology for KPIs based on the weighted sum of values determined by value functions (Carlucci, 2010). This paper further explores the use of value functions for selection criteria and use it for ranking candidate KPIs for selection of a final KPI set.

## **2.7 Role and Importance of Measuring Organizational Performances via KPIs**

Having a standardised organisational system is a necessary base for defining KPIs. Such system of standardized activities allows adequate measuring of performances. Continual measurement is a base for continual improvements of organization performances as one of the most important management principles (Roaxana-iona, 2016). The author emphasises the fact that improving something comes along with the possibility of measuring it.

An effective organization knows that if they do not have enough information about process, product or service, they cannot control that part. There are large numbers of values measured during work of some organization. To stay competitive, organization should manage with employees, processes, planned activities, reductions times, relations with suppliers, and other parts of the business. System for effective measuring of performances is used to understand, adjust and improve business in all departments of the organization (Wachira, 2015).

Measuring performances of the organization means qualitative, and quantitative expression of some results by chosen indicators. Performance measurement enable to effective organizations to express their success by numbers. Selection of appropriate indicators that will be used for measurement and appraisal of the performances is a very important activity. Among all information that can be get it is necessary to choose some critical quantity that on the best way represent the whole business (Roaxana-iona, 2016).

Beside control function indicators of performances also have two next functions:

- Developing and guiding function – because they present a base for formulating and implementation of the strategy of the organization; and
- Motivation function – induce management to fulfil goals and motivate all stakeholders to realize those goals and on even higher level (Roaxana-iona, 2016).

Many authors have suggested many categories of indicators for different approaches of performance measurement. There are two main groups of indicators which are used to determine the organisational performance. One is called the financial or cost based measures of performance and the other is called nonfinancial or non-cost-based measures of performance. The costs/financial, quality, time, delivery reliability, flexibility are largely accepted indicators of organizational performance (Wachira, 2015). But several authors have defined other indicators as well on the basis of their case study researches. Bonner (2017) have found the customer satisfaction, quality, delivery reliability, employee factors, productivity, financial performance, safety and environment/social performance as the indicators of business performance used by many organizations.

Roaxana-iona (2016) has identified the customer's satisfaction, employees' satisfaction, environment/community, financial, internal process performance and learning and growth as performance measurement perspectives. Wachira (2015) has identified that the different organization uses different measures for their performance, like generally they measure performance of the organization by breaking up the overall business into processes. And the most organizations measure their performance by allocating the indicators to individual processes.

Leong, Snyder and Ward (2018) has identified that the performance measurement of an organization is a complex interrelation criterion between the effectiveness, efficiency, quality, productivity, quality of work life, innovation, and profitability. In order to be

successful, each organization has to determine performance indicators and, subsequently, performance measures and performance figures that are strategically relevant to its respective situation (Mapes and Szwejczewski 2017). Following are some of the perspectives or dimensions of overall business performance indicators which are found in literature.

- **Quality**

Quality is the key to success of every organization. Now a days the customers are demanding quality products and the organizations that are able to produce quality products at lower cost win the game. The quality is checked mainly at three levels input, output and throughput or process quality (Leong et al., 2018). Most of the organizations focus on quality because they have made promises to their customers about quality of their services and products (Leong et al., 2018). Mapes and Szwejczewski (2017) has discussed eight dimensions of quality which are: features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality. In between these dimensions, conformance has the empirical evidence with quality. Alfes (2015) has discussed customer satisfaction, input quality, output quality, cost quality and number of customer complaints as the measures of quality. Wachira (2015) have discussed machine reliability, reworks, quality system costs, customer satisfaction, returned goods, input and output quality, product reliability, and machine reliability as the quality measures. According to Alfes (2015) performance, features, reliability, conformance, technical durability, serviceability, aesthetics, perceived quality, humanity, and value are the measures of quality.

- **Flexibility**

Flexibility is defined as the ability of the organizations to perform multiple tasks at given level of resources like, labour, machine etc (Nyembezi, 2019). Gruman and Saks (2017) has discussed material quality, output quality, new product, modified products, deliverability, volume mix and resource mix are the most valid measures of flexibility. Komati (2015) have identified volume flexibility, mix flexibility, product modification flexibility, process modification flexibility and expansion flexibility as the measures of flexibility performance. Kang (2015) has identified perceived flexibility, flexibility relative to competitors, process flexibility relative to competitors, perceived relative product flexibility, plant response time to product mix changes, product cycle time, set-up time, time to replace tools, change tool, assemble or move fixture, percentage increase in average number of set-ups per day, perceived relative volume flexibility, ability to perform multiple tasks efficiently, percentage

programmable equipment, percentage of slack time for equipment, labour, percentage products using pull system, disruption caused by breakdowns and vendor lead time as the strategy related measures of flexibility performance of the manufacturing organizations.

- **Time**

Time is a very important determinant of the manufacturing performance of the organizations. The time-based manufacturing is an important concern for the manufacturing organizations in the world; in order to achieve competitive advantage over their competitors (Koufteros, Vonderembse & Doll, 2018). Koufteros et al. (2018) have identified the manufacturing lead time, delivery lead time, due date performance, frequency of delivery and rate of production introductions as the measures of time performance in their article. Mearns, Kathryn, Whitaker & Sean (2015) have identified time to market, distribution lead times, delivery reliability (to clients), supply lead times, supplier delivery reliability, manufacturing lead time, standard run time, actual run time, wait time, setup time, move time, inventory turnover, order carrying out time and mean (flexibility) as the measures of time indicator. Mearns et al. (2015) has used lead time, cycle time, time from customer's recognition of need to delivery, order processing time, response time, percentage on-time for rush jobs, paperwork throughput time, material throughput time, distance travelled, decision cycle time, time lost waiting for decisions, percentage first competitors to market, breakeven time, time from idea to market, average time between innovation, number of changes in projects and engineering time as the strategy related measures of time.

- **Safety**

In recent years there has been a realization that for the reliability of complex work systems in achieving organizational goals, safely depends on work structures as well as technical arrangements (Mearns et al., 2015). Koufteros et al. (2018) has identified that the level of risk and safety perceived, accident rate, level of employees' cooperation, safety attitude of managers and employees, level of employees' physical risk on work place and the level of safety information as the key measures of safety. In UK the leading measures of the safety performance are lost time on accident, and accident rate (Mearns et al., 2015).

- **Financial performance**

Historically financial measures are the best measures to evaluate the company's performance, such as the physical values of sales and profits or percentage return on equity and assets.

Because external groups of stockholders are strongly concerned with these sort of performance measures and they put pressure on companies to use financial measures for their internal performance measurement (Nyembezi, 2019). Many researchers and organizations use different measures for evaluating and measuring their financial performance. Here, we have adopted the financial measures suggested by Kang (2015) in his book the key performance indicators (KPIs). He suggested cost of goods sold / sales, scrap cost as percentage of total sales, A/c Receivable turnover, cash flows, days in inventory, days sales in receivables, net income, sales, number of profitable customers, return on equity, sales by product, sales growth rate, return on assets and return on capital employed as the measures of the financial performance of the organizations.

- **Cost**

The external stakeholders have more concern with the cost-based measures of the performance, so that is why the organizations use cost accounting system which include measures of efficiency and effectiveness, represent an effort to relate internal performance measures to external ones (Gruman & Saks, 2017). Leong et al. (2018) has identified the manufacturing cost, value added cost, selling price, running cost and services cost as the measures of the cost performance. Gruman and Saks (2017) has identified cost relative to competitors, perceived relative cost performance, manufacturing costs, capital productivity, labour productivity, machine productivity, total factor productivity, total product cost as a function of lead time, direct labour cost, indirect labour cost, percentage improvement in labour, relative labour cost, labour productivity, labour efficiency, material cost, inventory cost, scrap cost, repairing cost, cost of quality, design cost, relative R&D cost, distribution cost, overhead and transactions per product as strategy related measures of cost. Leong et al. (2018) have identified the material cost, labour cost, machinery energy cost, machinery material consumption cost, inventory cost, machine saturation, total productivity, working capital productivity, value added productivity and value-added productivity/employee costs as the measures of cost performance of the organizations.

- **Employees satisfaction**

The employees' satisfaction is the key to success for every organization. If the employees are satisfied, then there will be satisfied customers and overall organizational performance will boost up (Mapes and Szwejcowski, 2017). Parmenter (2015) was of the view that analysis of absenteeism, percentage of staff working flexible hours, turnover rate, new recruits which are

employee's referrals, employees' satisfaction per survey, employees' complaints resolution effectiveness, empowerment index and length of service of staff who has left are the measures to check the employees' satisfaction in any organization.

- **Learning and growth**

Learning and growth provides the organizations with competitive advantage over their competitors. It happened because the learning organizations keep training their employees with the new technological advancements (Leong et al., 2018). Parmenter (2015) mentioned in his book that the percentage of managers having IT literacy, percentage of employees having required education, employees terminated for performance this year, employees certified for skilled job function or position, investment for training, number of internal promotions, managers who have performance management training, number of new staff, times in training (days/year) and number of research paper generated are measures by which the organizations can check their performance in terms of learning and growth. The more the learning organizations involve in innovativeness the more they develop new product development projects (Leong et al., 2018).

- **Environment/Social performance**

The organizations owe something to the society in which they operate, and the realization of this liability is actually the social responsibility or we call this as corporate social responsibility. The socially responsible organizations actually take steps for the welfare of the society in which they operate (Gruman & Saks, 2017). Parmenter (2015) has mentioned in his book that the discharge from production into the environment, waste and scrap produced, dollar donated to community, percentage of local residence in total workforce, number of media coverage events, number of photos in papers, number of sponsorships undertaken by organizations, number of environment complaints received in a year, % age of current projects that are environment friendly and the environment safety awards are the true measures of the environment/social performance of the manufacturing organizations.

- **Customer satisfaction**

The higher customer satisfaction improves financial performance by increasing the loyalty of existing customers, reducing price elasticity, lowering marketing costs through positive word-of-mouth advertising, reducing transaction costs, and enhancing organization reputation (Leong et al., 2018). According to Parmenter (2015) stock outs, revenue gained from top

customers in a week, number of complaints, customer loyalty index, customer lost, new customers, number of customer referrals, market share in term of customers, on time delivery, product quality, number of quality service guarantee issued and order frequency are the measures of the customer satisfaction.

- **Delivery reliability**

Gruman and Saks (2017) has proposed the perceived relative reliability, reliability relative to competitors, percentage on-time delivery, due date adherence, percentage increase in portion of delivery promises met. Percentage of orders with incorrect amount, schedule attainment, average delay, percentage reduction in lead time per product line, percentage improvements in output, percentage reduction in purchasing lead time and percentage reduction in average service turnaround per warranty claim as the measures of the delivery reliability. There is little discrepancy between researchers about the measures of delivery reliability.

In summary, there are many indicators available in literature that can be applied for measuring the organization's processes performance. During the late twentieth century, most of the organizations focus more upon the efficiency, and lesser upon the effectiveness. Performance measurement serves to reduce cost rather than to improve the organization's profit related issues. In order to avoid misguiding management the organizations should focus on the selection of performance indicators which are mostly related to their strategy. The other thing which should be in the minds of managers during the selection of indicators is that they should link these selected indicators to their business vision, mission and objectives. This will result in strategic performance indicators that support senior management in indicating toward the desired strategic direction. Hence, the indicators are highly dynamic, and the selection of advantageously important performance indicators is related to the concept of critical success factors. In order to be successful, each organization has to determine performance indicators and performance measures that are strategically relevant to its particular situation (Leong et al., 2018).

- **Employee Engagement**

Vermaak (2018) elaborates that engaged employees cannot be expected to take a personal interest in organizational objectives unless an organization treats them as more than factors of production. With organizations increasingly forced to do more with less, tapping into the discretionary effort offered by engaged employees becomes all the more important for

business success. Employees committed to their organizations may not always have an in-depth commitment to their job. Satisfaction and commitment are related to performance, but engagement appears overall to be a better predictor of employee performance. Vermaak (2018) stated that over the years, organizations have employed three different measures in evaluating their employee engagement levels: as a description of conditions under which people work, as a behavioural outcome, and as a psychological orientation

Schmidt et al. (2016) in a study on the employee engagement and harmony in the Nigerian Civil service pooled 10 Ministries in the River State Civil Service. The researcher highlighted that employee engagement can only be achieved through enhanced collaboration by the management and the employees in designing the most consistent and amicable methods of employee performance measurement. The author further highlights that leadership collaboration and employee career enhancement would be a starting point for improving performance measurement and employee engagement respectively.

Schmidt et al. (2016) argues that employee engagement is promoted through the management striking a part of the psychological makeup of their staff. Through creation of a better working environment and promotion of better interaction systems the management can enhance employee engagement. Thus, it is the ability of the management to create good structures, culture and adequate performance measurements that will help to enhance the employee engagement. Mutunga (2019) through research on Factors that Contribute to the Level of Employee Engagement in the Telecommunication Industry in Kenya, found that most workers in Zain are disengaged, and the most contributing factors was dissatisfaction with pay and benefits, work life balance and lack of freedom of expression. However, the research failed to link level employee engagement to individual performance. In a study on performance appraisal systems in the Kenya Tea and Development Agency in Meru, the researcher notes that appraisal systems have a large impact on human resource systems and the entire organization strategies.

Concept of Performance Measurement and Employee Engagement Performance measurement contributes to strategy formulation and implementation by revealing the links between goals, strategy, lag and lead indicators and subsequently communicates and operationalizes strategic priorities (Schmidt et al., 2016). The role of performance measurement evolves from a simple component of the planning and control cycle to an independent process that assumes a monitoring function. Employee engagement

encompasses the commitment, passion, and positive attitude that are exhibited by employees towards their work. An engaged workforce is able to acquaint with the policies within the organization and their job description as well as relate well with their colleagues in a bid to enhance the productivity within the firm (Belle, 2015).

## **2.8 Factors that Affect KPIs**

### **2.8.1 The rule used to select KPIs**

According to Doran (2018), the following are rules for selecting the KPI: the KPIs must be aligned with the strategic aims of the business unit or organisation and the factors that influence attainment of strategic objectives must be measured using performance instrument called KPI, the KPIs must result in the organisation's success (the organisation must spend more energy of using KPIs that will lead to the success of the organisation), the KPIs must be quantifiable (KPI must be vividly clearly defined and measured; they must have a well-defined target), Organisations must give attention to fewer KPIs that are specific for the business (here is the issue of having good few KPIs that are relevant to the business with a good solid base), the KPIs must fit to all organisations' departments or business unit (all the KPIs must be related to each other from the highest level personnel to the frontline level personnel), KPIs must be easy to comprehend by all employees (the employees must be familiar with the KPIs and be able to influence the indicator in a positive way) and KPI must be controllable, that is, it must be verified if there are real actions that will influence the KPI in a positive way (Doran, 2018).

Doran (2018) suggest SMART criteria must be adhered to. SMART criteria indicate the selected KPI must be Specific, Measurable, Attainable, Relevant and Timely indicator.

### **2.8.2 The role of Meeting**

The role of meetings plays a significant role in enabling the organisational members to appreciate the importance of KPIs. The platform was used for discussion of KPIs and this assisted to articulate the discourses of KPIs within the organisation. It is vital to conduct meetings across and within the division in the organisation. This ensures that all team from different divisions are aware of the impact of their actions on the other departments' performance (Zakaria, 2015). The discussion of KPIs in the meetings promoted an open communication. As Popa (2015) indicate that KPIs are implemented as communication medium to inform stakeholders about improvement actions taken regularly.

### **2.8.3 Teamwork**

A team is a group of individuals working together to attain a common goal and their commitment to each other has impact on their performance (Lakri & Dallery, 2016). Managers must be part of the team and Zakaria (2015) indicate that managers were seen as part of the team because they were coaching the team members on KPIs.

### **2.9 Empirical Review on KPIs**

In another study by Chipp (2017) it was identified that for employees to be productive within a firm the main factors that the management should ensure the employees are not distracted in their work places, the ergonomics of the firm should be enhanced as well as access to technology. As such management needs to set up the firms' indicators through guidance by the factors that will ensure employee productivity as a measure of ensuring meeting up the expectations of management.

In a study by Krause and Arora (2016) on the usage of key performance indicators in the U.S, the firm highlights that performance indicators are a logical measure which is easy to implement straightforward and a necessary tool in measuring the quality and quantity of organizational goals efficiently within an organization. They further identify that a good performance indicator should be able to be measured adequately using the least amount of resources. In this regard they identify the main performance indicators for divisional staff should be the level of customer service and relationships improvement, the level of employee engagement and retention, the safety of the work environment and the improvement in the efficiency of the organization.

In a study on the influence of performance contracting on the performance of central government ministries, the researcher noted that the use of financial indicators was key to enhanced performance within the parastatals, further, the researcher noted that using customer service delivery indicators was widely used by supervisors to gauge the performance of the staff within ministries in day to day operations. Thus, from the findings the researcher concluded that to engage the employees into better performance, organizations can make use of financial and customer service delivery indicators (Krause & Arora, 2016).

Most organizations have mismatching connection between the measures they are using and the results they are expecting. Due to lack of comprehensive knowledge most organizations end up using the wrong measure in same measure as key performance indicators. Key

performance indicators should be a measure that explicitly guides the organization on what needs to be done in order to exponentially raise the performance of the firm. Key performance indicators are implicitly concerned with the most strategic aspects to the organization which are key to the present and the future of the organization (Parmenter, 2015). The key performance indicators of a firm are also referred to as key success indicators within management cycles. These measures help both the management and the personnel to understand and attain the organizational goals.

Key performance indicators have been used widely as measures of performance in modern organization to assess both the level of operational efficiency and productivity towards meeting the firm goals as well as the appraisal of the staff thus helping to motivate them leading to better productivity (Krause & Arora, 2016).

In setting up key performance indicators for their staff the management incorporates the operational efficiency of the firm to ensure that as employees work towards attaining the goals set up for them, they will ultimately ensure better organizational performance. Essential to setting up key performance indicators is the ability of the management frameworks to align the needs of the organization with the objectives of the key performance indicators (Parmenter, 2015). In order to determining the applicable KPIs for measuring achievement of an organization, it is necessary to do an analysis of the vision statement, mission statement, and objectives of the organization.

Performance measurement also helps the organization to be consistent in making a decision with the intention to ensure the operational activities are linked with the organization's vision and mission. The measurement of market share, customer demand, and customer satisfaction can be essential elements of an organization to understand its current position and make necessary improvements to achieve its target. However, the process of discovering the right measurement is very complex.

Bonner (2017) have mentioned that metrics is good if the actions and decisions which improve the metrics, also improve the firm's desired long-term outcomes. A good key performance measurement needs to be quantifiable in a sense that is agreed between the management and employee to ensure accordance to it and its alignment to the organizational goals. Secondly a good KPI should be based in accordance with the organizational goals to ensure that its attainability is based upon the resources and capabilities of the firm. Further, a

good KPI should be deeply rooted on the organizational culture, to avoid numerous changes which may not be adaptable by the personnel within a considerable time.

However, as the organization edges closer to its goals the indicator maybe changed as a way of engaging the employees to the work more (Bonner, 2017). Dominguez, Reis and Macário (2015) posit that continual indicators are used for factors and quantities of quality, productivity, schedule, effort and cost that can be measured on an infinitely divisible scale. The continual quantities can thereafter be ranked in terms of weight, time and money. Their measurement is carried out repeatedly over specified periods. Discrete indicators are used to measure characteristics having the nature of the description. For example, artificially determined evaluating scales use indicators of excellent, satisfactory, and unsatisfactory.

These indicators are repeatedly observed within a specified period. Hard indicators are objectively measurable indicators observing firm's objectives, development or its activities, and they are generally focused directly on the customer (Domingues, et al., 2015).

Hard indicators are mostly used to measure competitiveness because they are easily measurable, are available without additional costs, and they can mostly be expressed in terms of money. Hard indicators determine desired borders or limits with which a real value is being compared and evaluated. Soft indicators serve to the assessment of aspects that logically influence business performance but where the effects are distant in time and place from the cause. For example, staff turnover. They are usually not transferred and expressed in terms of money (Roaxana-iona, 2016).

## **2.10 Chapter Summary**

This chapter is on literature review of Key Performance Indicators (KPIs). The definitions of the KPIs are given and in short, they are wholly defined as a group of metrics to indicate operation performance. They are affected by factors such as the rules and method of implementing them and the organisational culture. The rules and method of implementing KPIs emphasis on KPIs being comprehended in all employees' levels, easy to understand and data used to update the KPI must be available and relevant to the KPI. The organisational culture focuses on the way the employees do things. Organisational culture traits include adaptability, involvement, consistency and mission, have influence on organisational performance. The role of meeting and teamwork is emphasised and indicate how through

meetings that discuss the KPIs encourage open communication, and how teamwork is vital to attaining company goals. The next chapter addresses the research methodology.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The previous chapter presented literature related to the study taking into account the objectives of the study as developed in chapter one. In this chapter the overall research design is presented. Specifically, the chapter presents the “research philosophy, the research methodology, the research strategy and the research population. The chapter also presents the sampling methods, the research instruments, the pilot study, and administration of the research instrument, data analysis and validity and reliability of the research instruments and the study, and ethical considerations.

### **3.2 Population of the study**

The target population is the entire aggregation of respondents that meet the designated set of criteria (Kish, 2018). The target population in this study constituted sixty-one (61) employees of ArcelorMittal South Africa in Vanderbijlpark. These comprised all shop floor employees (artisans and operators)

### **3.3 Sample size**

Since the complete enumeration survey method of sixty-one participants was chosen for this quantitative study, all sixty-one elements of the targeted population were regarded as participants. A census can provide detailed information on all or most elements in the population, thereby enabling totals for rare population groups or small geographic areas. The sample population in this study constituted all sixty-one (61) lower level employees of ArcelorMittal South Africa in Vanderbijlpark. These comprised all shop floor employees (artisans and operators)

### **3.4 The Research Design**

Research design is the blueprint for the collection, measurement and analysis of data (Cooper & Schindler, 2014). The research adopted a cross-sectional survey design. Survey is any procedure involving systematic collection of data from a population or sample using some form or through direct solicitation for example face-to-face interviews, telephone interviews or mail questionnaires (Kim, 2016).

Survey aims at documenting existing conditions in a population. Kish (2018) suggests six primary purposes of a survey. Surveys aims at calculation of diverse statistics, characterization of diverse statistics, collection of multiple variables, multi-subject surveys,

continuation of survey operations and master frames. All these are focused towards describing the population as accurately as possible.

This research design is applicable to this study since the researcher aims at using a sample to assess the Key Performance Indicators at the ArcelorMittal South Africa 'Coke and Chemicals' business units in Vanderbijlpark for improved organisational performance. The research collected primary data using administered questionnaire. This study therefore fits the description of a survey.

### **3.5 Sampling Technique**

According Kim (2016), sampling is defined as the subset of the population selected to represent the entire group, in all its characteristics. Sampling, as explained by Sekaran and Bougie (2017), is the process in which the fraction of the population, is selected to represent the characteristics of the larger group. This method is used where it is not possible to consider all members or observations, as the population size is very large. As inferences are based on the sampling observations, the selection of the appropriate representative sample is of utmost importance. So, the sample selected should indicate the entire universe and not exhibit a particular section. On the basis of the data collected from the representative samples, the conclusion is drawn from the whole population.

Sekaran and Bougie (2017) explained that it would be impractical and impossible to collect data from an entire population. Cooper and Schindler (2014) added to this by stating that performing research on a population would not be feasible in terms of monetary and time costs. Sekaran and Bougie (2017) explained that sampling reduces the numbers involved in the collection of data and this in turn decreases fatigue and errors whilst increasing reliability. Sampling allows research to continue without having to bear exorbitant costs in terms of time, money and efficiency.

Probability and nonprobability are the broader forms of sampling, with probability commonly applied in quantitative researches and non-probability in qualitative approaches. However, there are instances where these sampling methods can be applicable either way (Wegner, 2015).

### **3.5.1 Probability Sampling**

Since this study is of quantitative nature, probability sampling was utilised. Probability sampling is known as the gold standard for creating a representative sample (Cooper & Schindler, 2014). Sekaran and Bougie (2017) define this type of sampling as a sampling design that allows equal chance of every element in the population to be selected as a sample subject. According to Bryman and Bell (2015), probability sampling has five types of sampling methods, namely simple random sampling, stratified random, systematic, cluster and multi-stage random sampling.

Since the target population was relatively small to the tune of sixty-one participants, a census was opted for over any other sampling method. The census is a systematic method that collects and records the data about the members of the population. The census method alternately known as a complete enumeration survey method, where in each and every item in the universe is selected for the data collection. Whenever the entire population is studied to collect the detailed data about every unit, then the census method is applied (Bryman & Bell, 2015)

### **3.6 Construction of the research instrument**

There are different types of data collection instruments that can be used when collecting information for research purposes. For this quantitative study, a questionnaire was used. Cooper and Schindler (2014) asserted that a questionnaire comprises of a list of research questions that the researcher use to ask the respondents designed to extract specific information based on the main research questions. Kim (2016), further highlight that questionnaires are used to collect appropriate data, make data comparable and amenable to analysis, minimize bias in formulating and asking questions, and to make questions engaging and varied.

The one selected for this research is the self-completed questionnaire. Self-administered questionnaires were chosen because they were cost-effective, effective in protect confidentially and was completed at the respondent's convenience (Tuckman & Harper, 2015).

The design of the questionnaire has impact on the response rate, reliability and validity of the data collected and can be maximised by following proper design steps (Saunders, Lewis and Thornhill, 2016). Tuckman and Harper (2015), list steps in developing a questionnaire for a

prosperous study as follows: identify the leading hypotheses about the source of the problem and the information needed to test the hypotheses, identify the information needed for the logistics of the study and to examine confounding factors, write the questions to collect this information, organize the questions into questionnaire format, test the questionnaire, revise the questionnaire, and train interviewers to administer the questionnaire.

Tuckman and Harper (2015), indicate from their studies that the following steps are vital: appropriately operationalize the key concept for the target population, choose a clear response format, generate items and confirm final items using face or content validity, sufficiently pilot the questionnaire using item-analysis, demonstrate reliability and validity and finalize the scale and train the administrator. To attain maxim response rate from the survey and accurate relevant information, the designing of the question must be completed accurately (Tuckman & Harper, 2015).

Accordingly, the research made use the structured questionnaires. Each question contained a set of answers that the respondents selected the perceived response. This allows the respondents to make a quick decision (Tuckman & Harper, 2015).

The questions were arranged in the order of categories of the objectives of the study as shown below:

Dimension	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
Demographics of Respondents					
KPIs articulation effectiveness					
Factors affecting KPIs achievements					
Importance of KPIs					
Recommendations					

The survey instrument made use of Likert type of questions. Likert scale is a psychometric response scale for obtaining the participant’s interval of agreeing with a set of statements (Cooper & Schindler, 2014). Likert scales were preferred in this research because they are easy to interpret since they are non-comparative scaling technique and only measure a trait in

nature (Saunders et al., 2016). Respondents were asked to indicate their rating level of agreement with a given statement by way of an ordinal scale.

### **3.7 Administration of the instrument**

The questionnaires were self-administered by the respondents. This was done because most of the correspondences is adequately literate. All the questionnaires were hand delivered to the respondents. This method was preferred because it is assumed that the respondents would be able to complete the questionnaire without assistance. The approach also reduced the costs of the data collection exercise (Dross, 2015). When delivering the questionnaires, the study explained to ascertain whether the respondents would be able to complete the questionnaires without complications. The research ensured that questionnaires were self-administered during data collection to establish rapport and motivate respondents (Meier, Lagemann, Morlock & Rathmann, 2016). This helped with obtaining a high response rate.

The research was carried out through several designed questionnaires to collect the data from the relevant respondents. Respondents were asked to answer the questionnaires and appointments were made to collect the questionnaires within three weeks. Constant encouragement and follow up were done until some questionnaires were completed. Every survey hopes for conscientious responses, but there is no way to know if the respondent has really thought the question through before answering (Creswell, 2016). At times, answers are chosen before fully reading the question or the potential answers. Sometimes respondents skip through questions, or split-second choices may be made, affecting the validity of data (Alvesson & Sandberg 2017). This drawback was dealt with by making the survey short and questions simple to get the most accurate responses.

### **3.8 Pilot study**

Dross (2015), postulates that a pilot study is a mini-research study conducted before the intended actual larger scale study. In other words, pilot studies are a preview assimilation of the actual research undertaking. The reasons for this exercise include assessing whether there are any foreseeable logistical problems that need to be addressed before it gets too late (Bryman & Bell, 2015). Ten respondents were used to conduct a pre-test of the questionnaire for avoidable inconveniences on the actual survey.

With the help of the pilot study which produced good rapport with most respondents, the sequence of the structured questions was changed (Tuckman & Harper, 2015). After a pre-

test to determine the suitability of the questionnaire, the questions were improved in terms of question content, wording, sequence, form and layout, question difficulty and instructions. The wording of questions was made simpler and plain for understandability by respondents. A few questions that confused the respondents were rephrased to clarify the meaning and to avoid bias. The main purpose of the pilot study was to assess if the instructions were clear and the language and terminology understandable. Furthermore, from the pilot study it could be ascertained whether all areas of focus were considered, and completion time for the questionnaires could be estimated (Bryman & Bell, 2015).

### **3.9 Reliability and Validity**

To address data quality control issues in the instrument used, the study used reliability and validity of instruments since the research is for a quantitative discourse.

#### **3.9.1 Validity**

Alvesson and Sandberg (2017), defines validity as accuracy of representation of features of the phenomena that it is intended to describe, explain or theorize. Any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings (Aydelotte et al., 2015). In the case of this study, validity looked at the extent to which the questionnaire was able to measure research objectives. There are three types of validity in quantitative research:

- **Face and content validity**

The judgement that an instrument is measuring what it is supposed to is primarily based upon the logical link between the questions and the objectives of the study. Hence, one of the main advantages of this type of validity is that it is easy to apply (Dross, 2015). Each question or item on the research instrument must have a logical link with an objective. Establishment of this link is called face validity. It is equally important that the items and questions cover the full range of the issue or attitude being measured. Assessment of the items of an instrument in this respect is called content validity. In addition, the coverage of the issue or attitude should be balanced; that is, each aspect should have similar and adequate representation in the questions or items (Bryman & Bell, 2015). Content validity is also judged based on the extent to which statements or questions represent the issue they are supposed to measure, as judged by the researcher and experts in the field;

- **Concurrent and predictive validity**

In situations where a scale is developed as an indicator of some observable criterion, the scale's validity can be investigated by seeing how good an indicator it is (Aydelotte et al., 2015). If an instrument to determine the suitability of applicants for a profession is developed, the instrument's validity might be determined by comparing it with another assessment or with a future observation of how well these applicants have done in the job. If both assessments are similar, the instrument used to make the assessment at the time of selection is assumed to have higher validity.

These types of comparisons establish two types of validity: predictive validity and concurrent validity (Kim, 2016). Predictive validity is judged by the degree to which an instrument can forecast an outcome. Concurrent validity is judged by how well an instrument compares with a second assessment concurrently done. It is usually possible to express predictive validity in terms of the correlation coefficient between the predicted status and the criterion. Such a coefficient is called a validity coefficient (Aydelotte et al., 2015); and

- **Construct validity**

Construct validity is a more sophisticated technique for establishing the validity of an instrument (Tuckman & Harper, 2015). It is based upon statistical procedures. Construct validity is determined by ascertaining the contribution of each construct to the total variance observed in a phenomenon. One of the main disadvantages of construct validity is the need to know about the required statistical procedures.

Content validity was conducted to ensure validity in this research. Content validity is defined as a test that measures if every single element of the construct is represented. Subject-matter experts were provided with access to the questionnaire and asked to provide feedback on how well each question measured and interrogated the construct in question, respectively” (Creswell, 2016). Feedback was analysed and used to inform decisions about the effectiveness of each question.

For this study validity was tested using content validity and construct validity. Content validity was achieved through constructive feedback that was received from both the research supervisor and those that participated in the pilot test study (Aydelotte et al., 2015). Also, ten respondents were given hard copies of the questionnaires to answer, to test their

comprehension. A few questions that confused them were rephrased to clarify the meaning and to avoid bias. The main purpose of the pilot study was to assess if the instructions were clear and the language and terminology understandable (Creswell, 2016). Furthermore, from the pilot study it could be ascertained whether all areas of focus were considered, and completion time for the questionnaires could be estimated (Bryman & Bell, 2015).

### **3.9.2 Reliability**

According to Sekaran and Bougie (2017) reliability is defined as “a test that ensures that measuring instrument produces stable and consistent results. In other words, reliability is an agreement between two efforts to measure the same thing with the same methods. Therefore, reliability is the degree of accuracy or precision in the measurements made by a research instrument (Meier et al., 2016). The lower the degree of ‘error’ in an instrument, the higher the reliability. The following are some of the types of reliability:

- **Test/retest**

This is a commonly used method for establishing the reliability of a research tool. In the test/retest (repeatability test) an instrument is administered once, and then again, under the same or similar conditions (Saunders et al., 2016). The ratio between the test and retest scores is an indication of the reliability of the instrument – the greater the value of the ratio, the higher the reliability of the instrument. The main advantage of the test/retest procedure is that it permits the instrument to be compared with itself, thus avoiding the sort of problems that could arise with the use of another instrument (Alvesson & Sandberg, 2017).

The main disadvantage of this method is that a respondent may recall the responses that s/he gave in the first round, which in turn may affect the reliability of the instrument (Bryman & Bell, 2015). Where an instrument is reactive in nature (when an instrument educates the respondent with respect to what the researcher is trying to find out) this method will not provide an accurate assessment of its reliability. One of the ways of overcoming this problem is to increase the time span between the two tests, but this may affect reliability for other reasons, such as the maturation of respondents and the impossibility of achieving conditions like those under which the questionnaire was first administered (Aydelotte et al., 2015);

- **Parallel forms of the same test**

In this procedure two instruments that are intended to measure the same phenomenon are constructed. The two instruments are then administered to two similar populations (Wegner, 2015). The results obtained from one test are compared with those obtained from the other. If they are similar, the instrument is assumed reliable. The main advantage of this procedure is that there is no suffering from the problem of recall found in the test/retest procedure. Also, a time lapse between the two tests is not required (Dross, 2015). The disadvantage is that there is need to construct two instruments instead of one. Moreover, it is extremely difficult to construct two instruments that are comparable in their measurement of a phenomenon; and

- **The split-half technique**

This technique is designed to correlate half of the items with the other half and is appropriate for instruments that are designed to measure attitudes towards an issue or phenomenon (Kim, 2016). The questions or statements are divided in half in such a way that any two questions or statements intended to measure the same aspect fall into different halves. The scores obtained by administering the two halves are correlated (Aydelotte et al., 2015).

Reliability is calculated by using the product moment correlation (a statistical procedure) between scores obtained from the two halves. The product moment correlation is calculated based on only half the instrument, it needs to be corrected to assess reliability for the whole (Kim, 2016). To ensure reliability the research carried out the pre-test of questionnaire on ten participants randomly selected from the target population. This assisted in testing the reliability of the questionnaire before study commenced.

A phenomenon can be adequately measured when it can also be consistently measured. The reliability measures the consistency of results yielded by a measuring instrument, when the entity measured has not changed (Kim, 2016). Instruments designed to measure psychological characteristics tend to be even less reliable than those designed to measure physical phenomena. Cronbach's alpha is a reliability coefficient that indicates how well items in a set are positively correlated with one another. According to Sekaran and Bougie (2017) reliabilities less than 0.6 are considered poor, those above 0.7 are acceptable and above 0.8 are considered good. For the purposes of this study, the Cronbach's Alpha for the for the research instrument was calculated and it proved the questionnaire acceptably reliable.

This means that the internal consistency reliability of the measures used in this study is marginally acceptable.

To ensure the reliability of the study, the researcher used Cronbach's Alpha (coefficient) statistics to ensure that all variables contained in the questionnaire are reliable. This study used Cronbach's Alpha to find the level of reliability for the information in the questionnaire, given that the average correlation of variables found in a test was standardised. A pilot study was used to assess how consistent the results are or if there was a need to increase the sample. The reliability results for this study were 0.946. According to Kothari (2008), a Cronbach's Alpha of 0.7 to 0.8 is acceptable reliability.

<b>Dimension</b>	<b>No of Items</b>	<b>Cronbach's Coefficient Alpha</b>
Demographics of Respondents	5	0.912
KPIs articulation effectiveness	7	0.790
Factors affecting KPIs achievements	7	0.737
Importance of KPIs	7	0.870
<b>Total</b>	<b>26</b>	<b>0.946</b>

### **3.10 Data Analysis**

Data analysis entails a close examination of data collected to deduce sense out of patterns and behaviours (Creswell, 2016). Quantitative data analysis is a systematic approach to investigations during which numerical data is collected and/or the researcher transforms what is collected or observed into numerical data. It often describes a situation or event, answering the 'what' and 'how many' questions you may have about something (Sekaran & Bougie, 2017). This is research which involves measuring or counting attributes (quantities). A quantitative approach is often concerned with finding evidence to either support or contradict an idea or hypothesis one might have (Meier et al., 2016).

The collected data was first been analysed and cleaned for completeness and consistency. Comparisons were made to the theories discussed in literature review in order to come up with credible conclusions. One the questionnaires were completed, the researcher and the supervisor cross-checked them for correctness and completeness. A statistician assisted in

precoding of the questionnaire during the drafting of the questionnaire. The questionnaires retrieved by the researcher were coded and captured on the Statistical Package for the Social Sciences (SPSS) version 24. Data were interpreted using both descriptive and inferential statistics. The descriptive statistics produced tendencies and locations. The inferential statistics made use of Principal Component Analysis (PCA), *T*-tests, Analysis of Variance (ANOVA) and Correlation analysis. Inferential statistics help to create the relationship between variables and come up with conclusions (Sekaran & Bougie, 2016). Descriptive statistics is described as the statistics that provide descriptive information about a set of data. Graphs and charts were used to present the data findings.

### **3.11 Ethical Considerations**

It is imperative that ethical issues are considered during the formulation of the research plan. The business ethics for research refer to a code of conduct or the expected social norms of behaviour when conducting a research (Sekaran & Bougie, 2017). The ethical conduct will apply to the organisation, and the members that sponsor the research, the researchers and the respondent who provide the data (Dross, 2015).

Sekaran and Bougie (2017) emphasized that the observance of ethics begins with the person instituting the research, and should do so in good faith, pay attention to the results and pursue not self-interest but organizational goal instead. The behaviour of the researchers who conduct the investigation should also reflect the ethical conduct (Dross, 2015). The author further states that ethical considerations during research include: informed consent; voluntary participation; no harm to participants; confidentiality; and anonymity.

- **Ensuring participants have given informed consent**

Bryman and Bell (2015), asserts that getting people to participate without knowing the reasons for the research can be regarded as deception. Since deceiving people is unethical, the participants were given adequate information about the study and their role in the study to make an informed decision about being a part of the study. The research upheld anonymity, confidentiality and privacy of the participants;

- **Ensuring no harm comes to participants**

Tuckman and Harper (2015), further states that it must be ensured that no harm is done to participants. The ethical approval for this study was obtained from the UKZN Ethics Research Committee and a gatekeeper's letter from General Manager of the business unit.

Ethical approval was sought to ensure that the human dignity is upheld and no implications are levelled against participants;

- **Ensuring confidentiality and anonymity**

Saunders et al. (2016), clarify that the clearest concern in guarding subjects' interests and well-being is the protection of their identity, especially in survey research. Confidentiality and anonymity were ensured by keeping the anonymous raw data accessible only by the researcher. Use of real names was avoided during research data collection to ensure anonymity. In addition, findings of the study were reported aggregately in representation of a collective view of all the participants using acronyms to enhance anonymity; and

- **Ensuring that permission is obtained (See appendix B-Consent form)**

Addressing voluntary participation as an ethical issue, Tuckman and Harper (2015), suggests that consent should be sought to ensure unforced participation by research subjects. Informed consent forms were drafted for each of the research participants to agree on before responding to the questionnaire.

### **3.12 Chapter Summary**

Research methodology and the adopted methods for the purpose of this research are outlined. The research was conducted at the AMSA Vanderbijlpark premises as the research site. The aim of the research is to identify the factors that affect employees to meet their KPIs as well as to understand if KPIs are well articulated to employees and to comprehend the strategies that can be employed by employees in meeting their KPIs target at AMSA. Quantitative research method was selected and survey method was used, specifically in a form of a questionnaire. The following chapter presents the presentations of results.

## CHAPTER FOUR: RESULTS

### 4.1. Introduction

The previous chapter presented the research design and methodology employed by the study. This chapter presents the results of the study as well as the discussion and interpretation of findings of the study. The chapter begins by reporting on the response rate and Cronbach Alpha values. Thereafter, the chapter presents the result on study objectives.

### 4.2. Response rate

According to Saunders et al. (2016), a response rate usually in percentage is the number of people who responded or answer the survey questionnaire's divided by the number of the people in the sample. A total of fifty-five (55) questionnaires were returned from the targeted sixty-one (61) respondents giving a response rate of 90.16%. Saunders et al. (2016), highlighted that a response rate above 40% is deemed satisfactory. Mindful of the fact that this study had 90.16% response rate, the research can be deemed to be a fair representation of the general population as argued by Saunders et al. (2016).

### 4.3. Presentation of Demographic Data

Demographic data entail respondents' information on age, race and length of years as an employee of AMSA and below is the analysis of each variable. The demographics of an area in terms of the size of the population, composition, racial groups, and movement of people influence organisational decisions and policies on performance improvement.

#### 4.3.1: Age

**Table 4.1: Frequency distribution table of respondents' Age group**

	Frequency	%
Between 21-30 years	25	45
Between 31-40 years	7	13
Between 41-50 years	16	29
Above 50 years	7	13
Total	55	100.0

According to Table 4.1 it shows that 45% of respondents are between ages 21-30 years, 17% are between ages 31-40, 29 % are between 41-50 years of age with 13% of those within age

group above 50 years of age. This reveals that the majority of the participants are people of 21-30 years, followed by ages 41-50”.

#### 4.3.2: Race

**Table 4.2: Frequency distribution table of respondents’ Race**

	<b>Frequency</b>	<b>%</b>
African	46	84
Coloured	1	2
Indian	0	0
White	8	14
Others	0	0
<b>Total</b>	<b>55</b>	<b>100</b>

Table 4.2 above shows “that 84 % of the respondents are African, 2 % coloureds and 14 % being whites. There were no respondents from Indians and those under the category of others. These results reveal that the majority of respondents are blacks compared to the non-black race. This could be generally because of the proportionate nature of the South African population and this is highly encouraged by the employment equity.

#### 4.3.3: Service Tenure

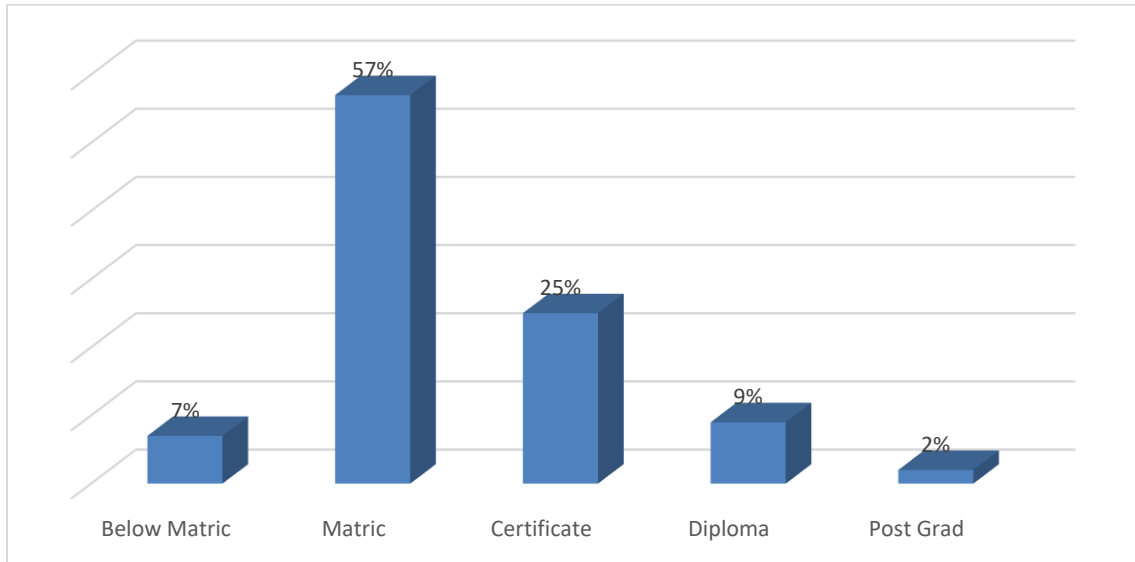
**Table 4.3: Frequency distribution table of respondents’ length of service at AMSA**

	<b>Frequency</b>	<b>%</b>
<b>1-5 years</b>	<b>21</b>	<b>38</b>
<b>6-10 years</b>	<b>9</b>	<b>16</b>
<b>11-20 years</b>	<b>8</b>	<b>15</b>
<b>20+ years</b>	<b>17</b>	<b>31</b>
<b>Total</b>	<b>55</b>	<b>100</b>

As shown in Table 4.3 above, this indicated that 38% of the respondents had five years of service at AMSA, 16% in the range between 6 – 10 years, 15% between 11-20 years’

experience and 31% with more than 20 years' experience at AMSA. This therefore means that 62% of the respondents have been with AMSA for at least years or more. This could be because of good benefits, acceptability and employee loyalty.

#### 4.3.4: Qualification



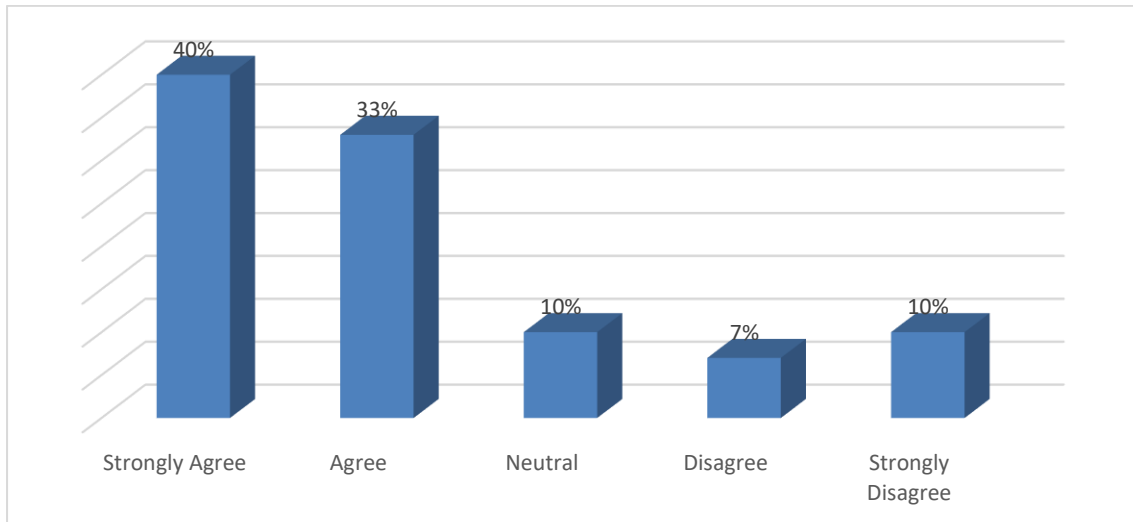
**Figure 4.1: Qualification**

Regarding qualifications, results shows that a total of 7 % of the respondents are below matric, followed by 57 % having obtained matric, 9 % obtained diploma and 2 % had a post graduate qualification. These results reveal that all the respondents have some form of education. However, the position of having the majority of respondents in the qualifications bracket of matric downwards could have been due to the fact that the main participants were front line personnel from AMCC Tar Plant. According to the company ranking, frontline employees will be any employees below G role position which comprises H, J and I levels and qualifications for these roles range from below matric to national diploma.

#### 4.4. Presentation and interpretation of research question One

The first objective of the study sought to establish whether KPIs are well-articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark. Five (5) questions were developed to address this objective.

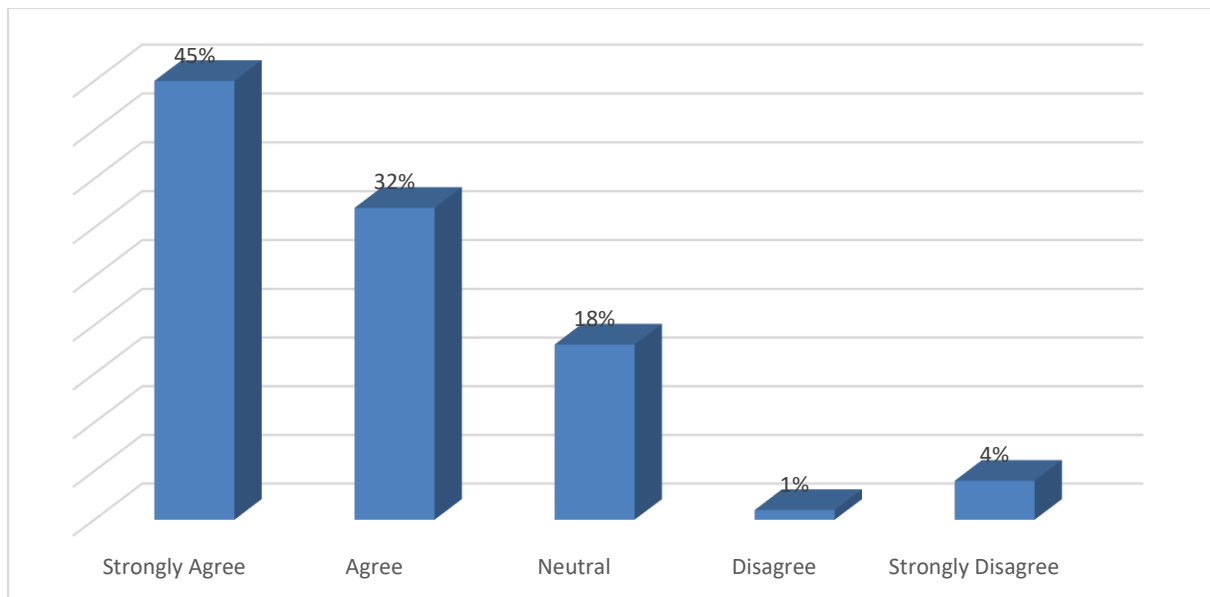
##### 4.4.1: I am familiar with what I am measured on or KPI for my area of responsibility or section



**Figure 4.2 I am familiar with what I am measured on or KPI for my area of responsibility or section**

Results from Figure 4.2 shows that a total of 33% of the respondents agreed and 40% of the participant strongly agree to the statement that they are familiar with what they are measured on their KPI's for their section. However, 10 % were neutral, 7 % disagreed while 10 % of the respondents strongly disagreed. These results show that the majority of employees at ArcelorMittal South Africa are aware of how their KPI's are measured in order to meet the company expectations.

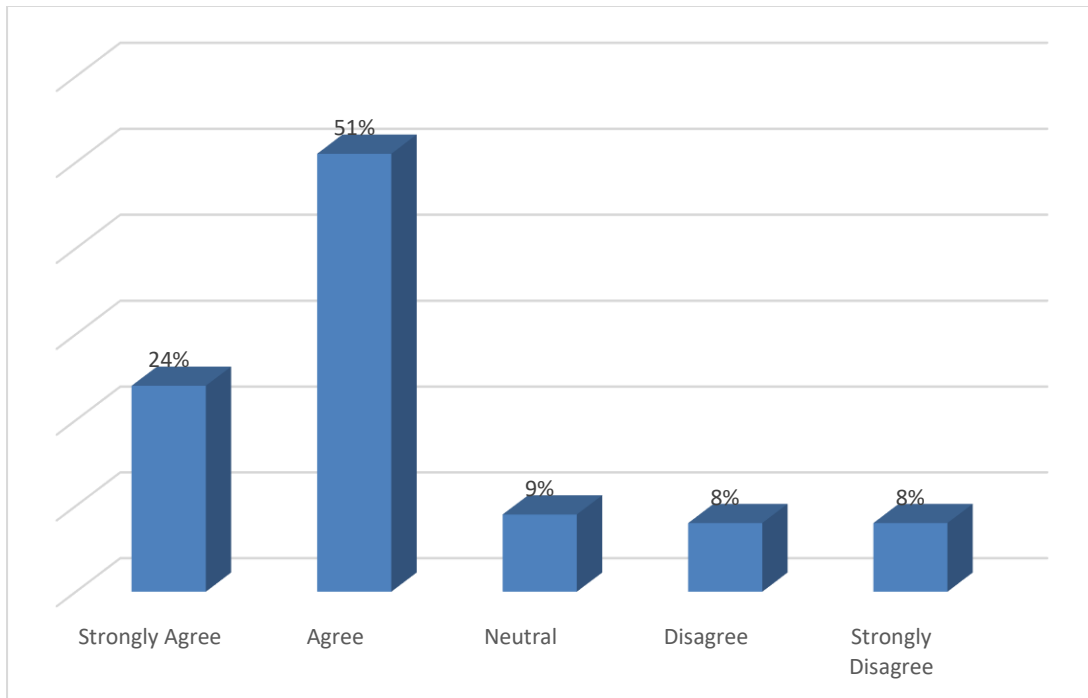
#### 4.4.2: Our KPIs are simple and easy to understand



**Figure 4.3** Our KPIs are simple and easy to understand

Employees at ArcelorMittal South Africa were asked if their KPI's are easy to understand. According to figure 4.3, results indicate that 45 % of the employees strongly agreed with 32 % who agree. While 18 % were neutral, 1 % disagreed and only 4 % strongly disagreed. Therefore, these results reveal that the KPI's are well articulated to the employees.

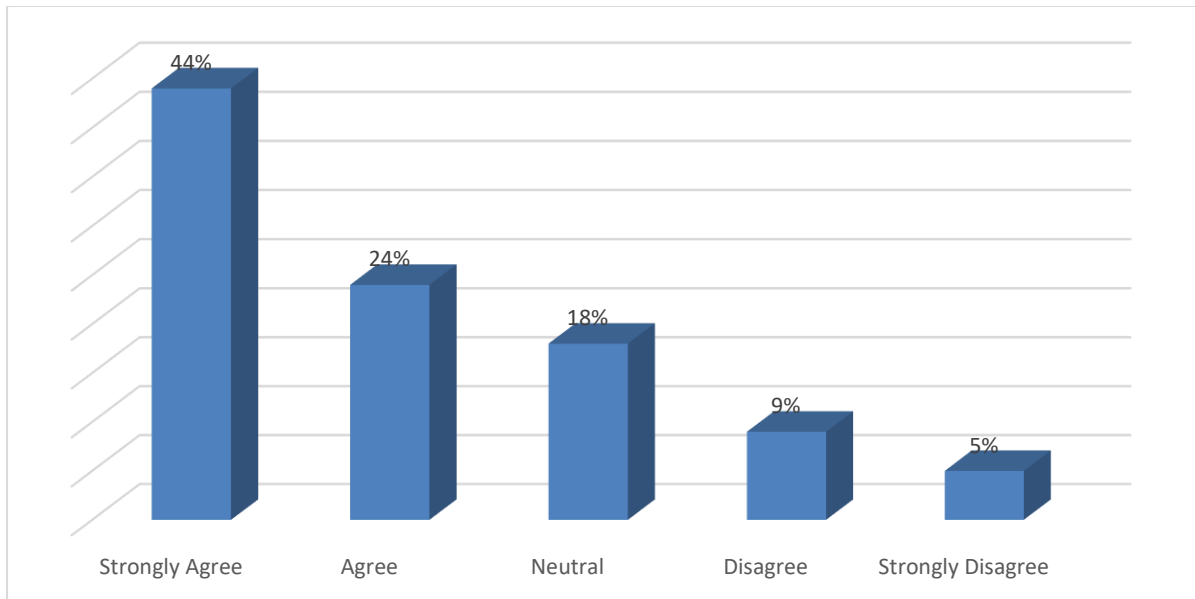
#### 4.4.3: I know KPIs unit of measure



**Figure 4.4: I know KPIs unit of measure**

As shown in figure 4.4 above. It shows that 24 % employees strongly agree to knowing their KPI's unit measures, 51 % agreed while 9 % were neutral. These results further reveal that 8 % disagreed and 8% also strongly disagreed. This reveals that employees are familiar with KPIs unit of measure.

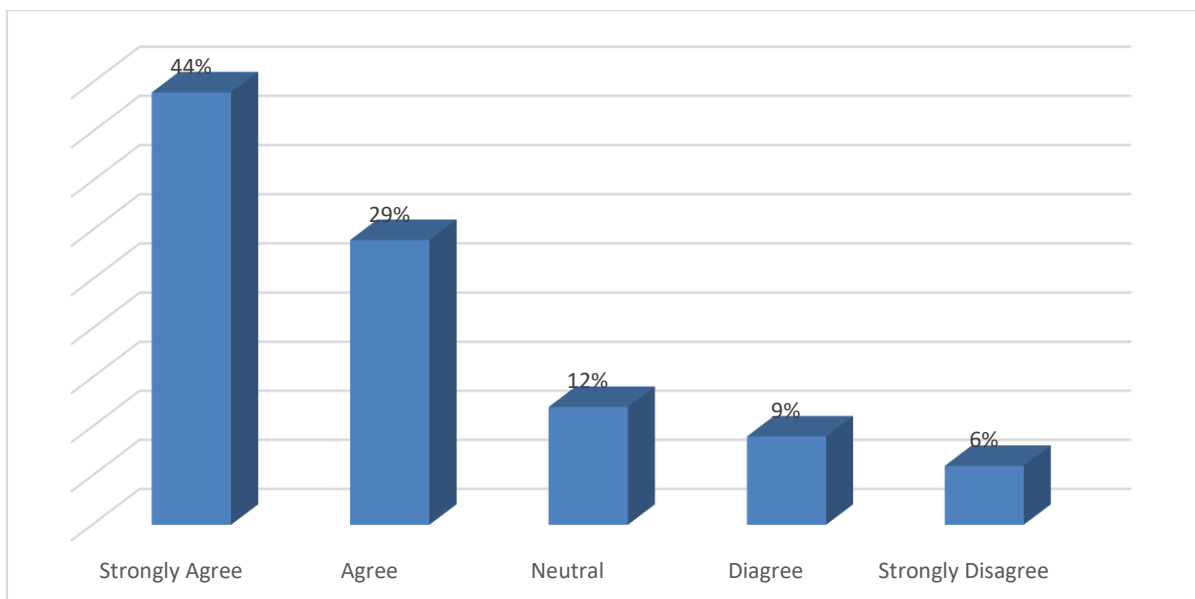
#### 4.4.4: I am trained and skilled to archive KPI set target



**Figure 4.5: I am trained and skilled to archive KPI set target**

Figure 4.5 above reveals that 44 % of respondents strongly agreed and 24 % agreed to have been trained and skilled to achieve their KPI set target. There were 18 % of respondents who were neutral, 9 % disagreed and only 5 % who strongly agree. These results reveal that majority of employees have received training to achieve their KPI set target.

#### 4.4.5: Manager/Supervisor takes time to discuss KPI targets and actual achievements with the team



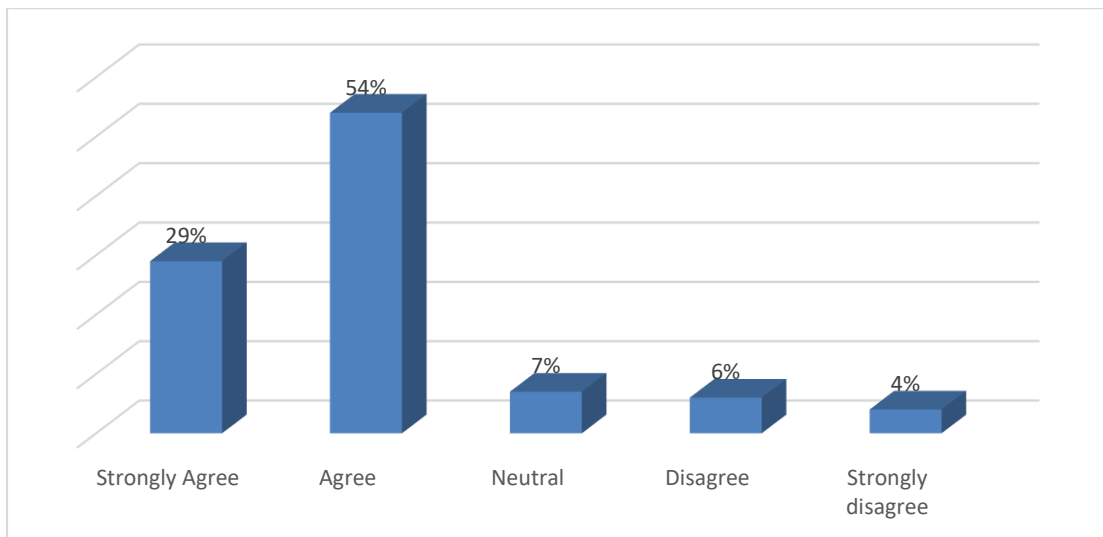
**Figure 4.6: Manager/Supervisor takes time to discuss KPI targets and actual achievements with the team**

According to figure 4.6, 44 % of respondents strongly agree and 29 % agreed to managers discussing KPI targets and achievements with the team. While 12 % remained neutral, 9 % disagreed and 6 % strongly disagreed. Therefore, it is evident that managers are taking their time to meet with employees for these discussions.

**4.5 Presentation and interpretation of research question Two**

The second objective of the study aimed to determine the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark. A total of six (6) question items were developed to address the objective.

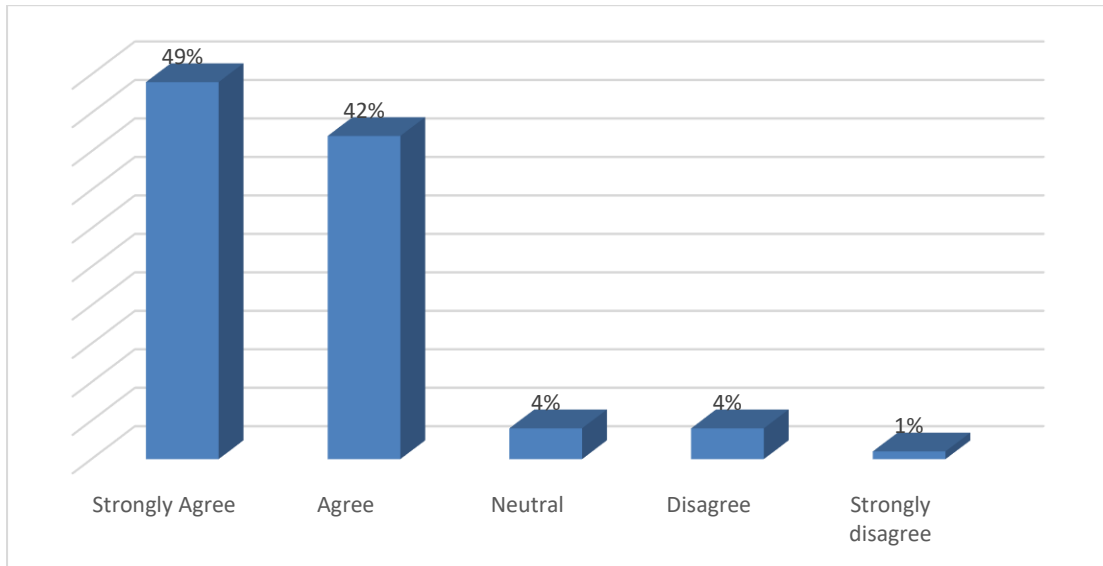
**4.5.1: KPI I am measured on, are relevant to line of my work**



**Figure 4.7: KPI I am measured on, are relevant to line of my work**

Figure 4.7 reveals that 4 % of respondents strongly disagreed to having KPIs relevant to their role and 6 % disagreed. A total of 7 % remained neutral, while 54 % agreed and 29 % strongly agreed. These results show that majority of employees at ArcelorMittal South Africa are measured on relevant KPIs.

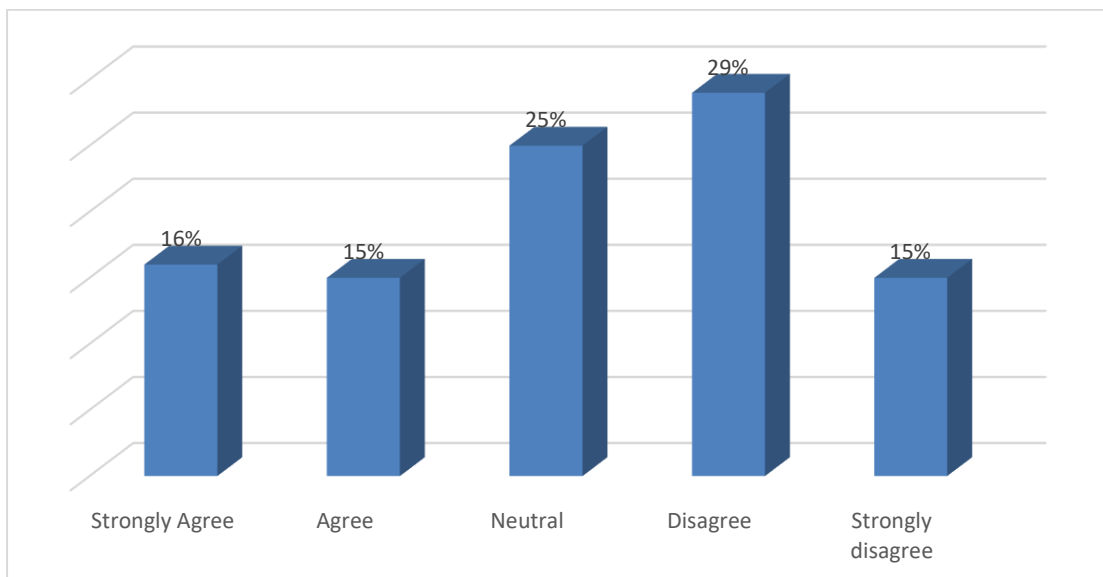
#### 4.5.2: Our machines breakdowns are high and this causes our KPIs performance to be below par



**Figure 4.8: Our machines breakdowns are high and this causes our KPIs performance to be below par**

According to figure 4.8 only 1 % of respondents disagreed, 4 % disagreed while 4 % were neutral. The results further show that 42 % agreed and 49 % strongly agreed. These results show that at least 91 % of respondents agreed to machine breakdown affecting their KPIs' performance to be below standard.

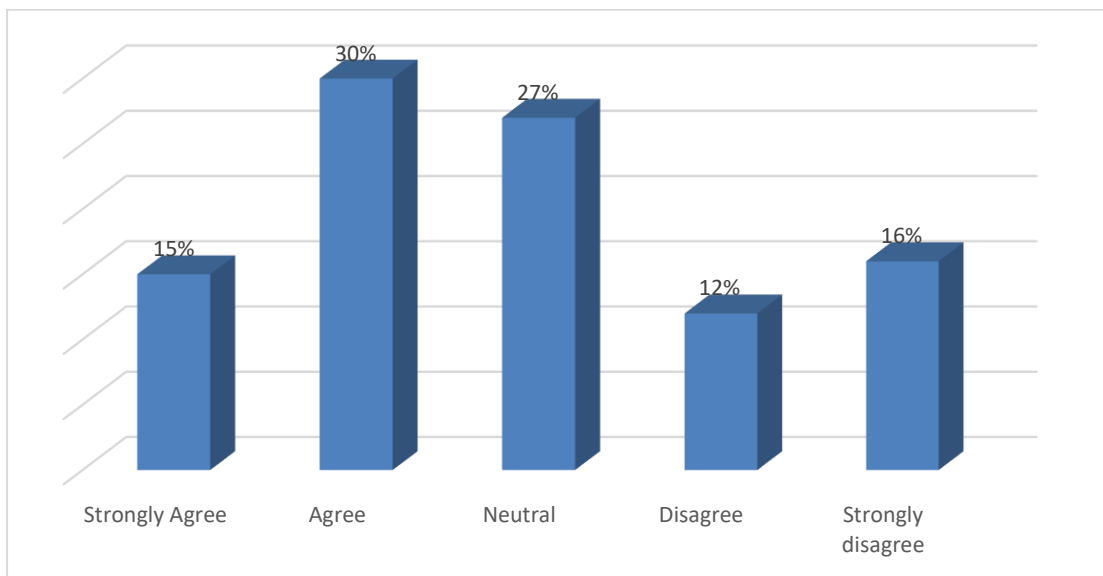
#### 4.5.3: Managers and/or engineers help the team to determine the cause of the poor KPI performance



**Figure 4.9: Managers and/or engineers help the team to determine the cause of the poor KPI performance**

Figure 4.9 reveals that 15 % strongly disagreed and 29 % disagreed to receiving help from managers regarding determining the cause of their poor KPI performance. There were 25 % employees who remained neutral while 15 % agreed and 16 % strongly agreed. The results indicate that managers and engineers do not assist personnel to determine the cause of the poor KPI performance.

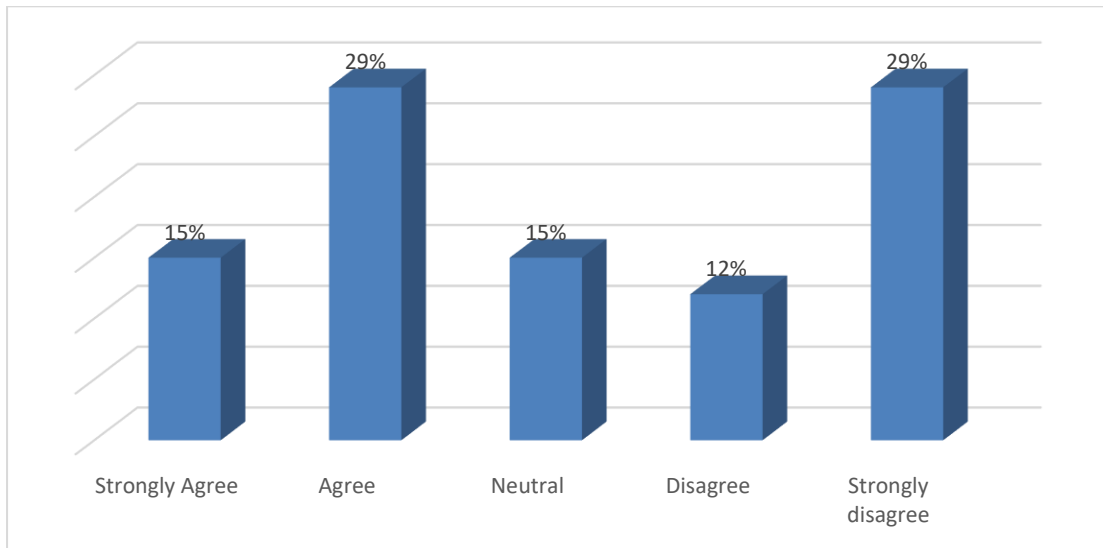
**4.5.4: Managers and/or engineers assist teams to determine corrective actions for poor performance**



**Figure 4.10: Managers and/or engineers assist teams to determine corrective actions for poor performance**

Figure 4.10 reveals that 16 % of respondents strongly disagreed, 12 % disagreed while 27 % remained neutral. There were 30 % of respondents who agreed and only 15 % who strongly agreed. This clearly implies that the managers do not assist their teams in improving their performances.

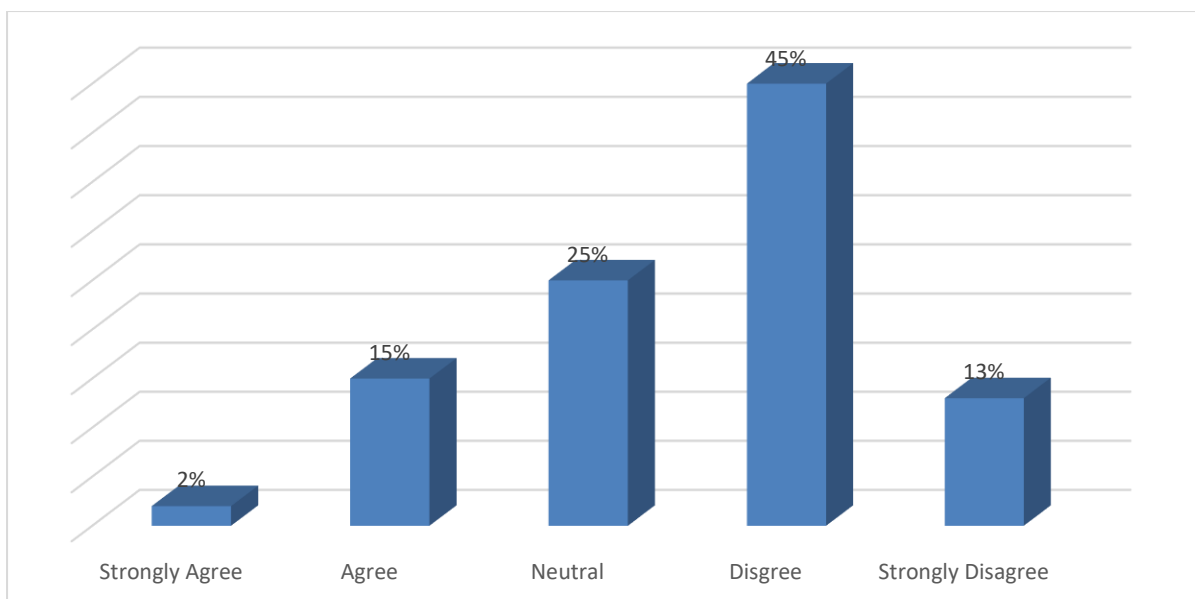
#### 4.5.5: We are rewarded for improving KPI performance



**Figure 4.11: We are rewarded for improving KPI performance**

Results show that 29 % strongly disagreed, 12 % disagreed and 15 % were neutral. Results further reveals that 29 % agreed while 15 % strongly agreed. Therefore, these results show that ArcelorMittal South Africa does not fully measure up in terms of rewarding its employees for improving KPI performance, hence there is need for revising the employee rewarding system for improvements in KPIs.

#### 4.5.6 KPIs set target are reasonable and achievable



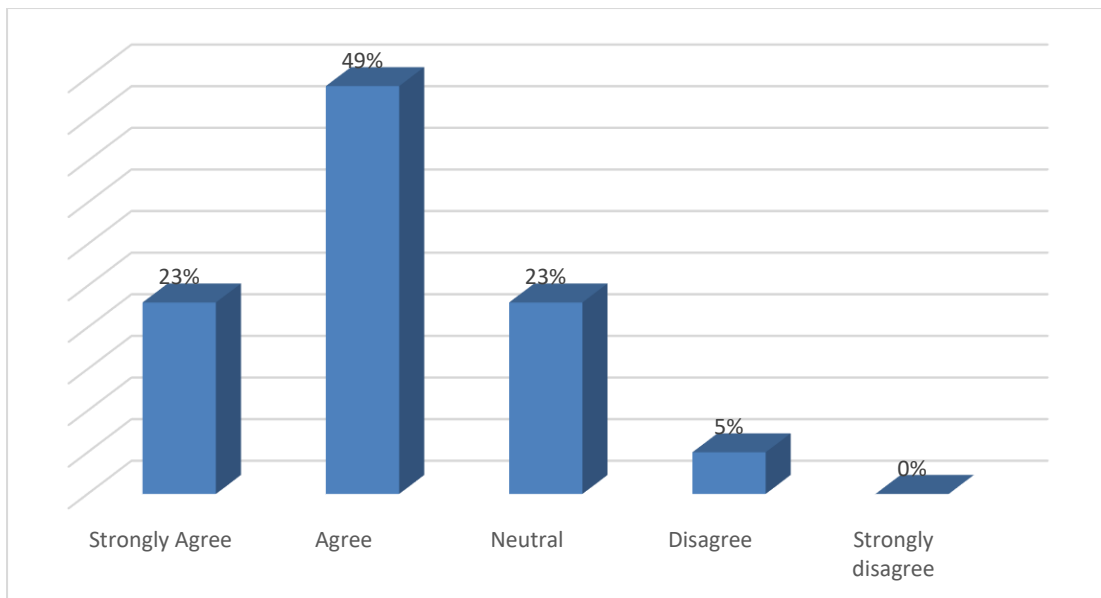
**Figure 4.12: KPIs set target are reasonable and achievable**

Employees were asked if KPI's set are reasonable and achievable and 13% strongly disagreed, 45% disagreed and 25% remained neutral. A total of 15% respondents agreed while only 2% strongly agreed. These results reveal that the company sets none reachable KPIs.

#### 4.6 Presentation and interpretation of research questions Three

This was the last objective of the study. The objective sought to assess the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark. A total of six (6) questions were developed to address this objective.

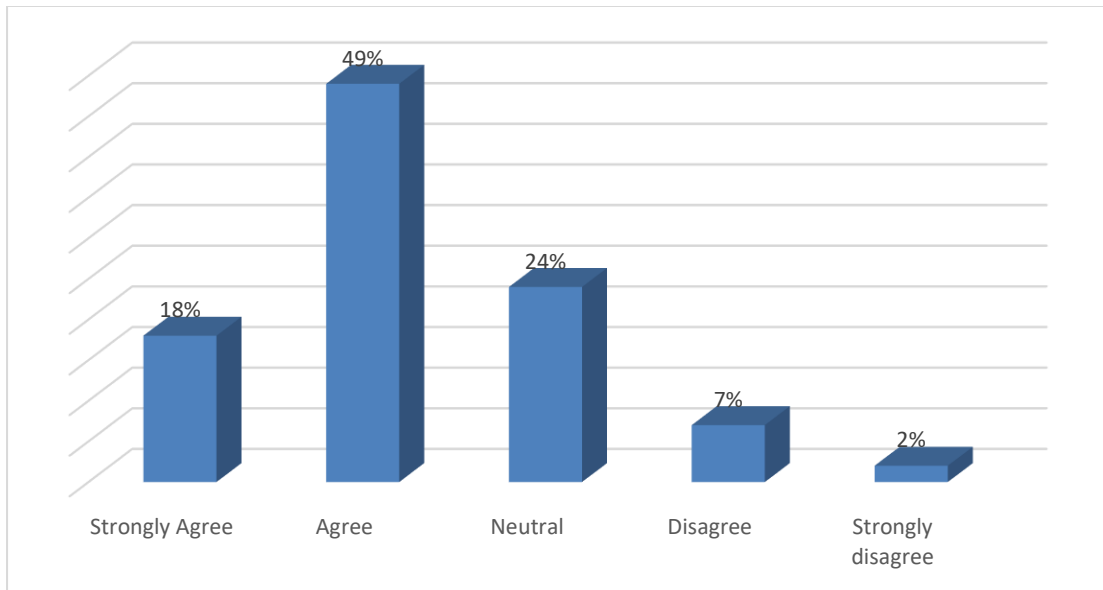
##### 4.6.1: Assessing KPIs improve organizational performance



**Figure 4.13: Assessing KPIs improve organizational performance**

Figure 4.13 reveals that 0 % strongly disagreed, only 5 % disagreed and 23 % were neutral. There were 49 % who agreed while 23 % strongly agreed. These results prove that KPI assessment is vital in improving organisational performance.

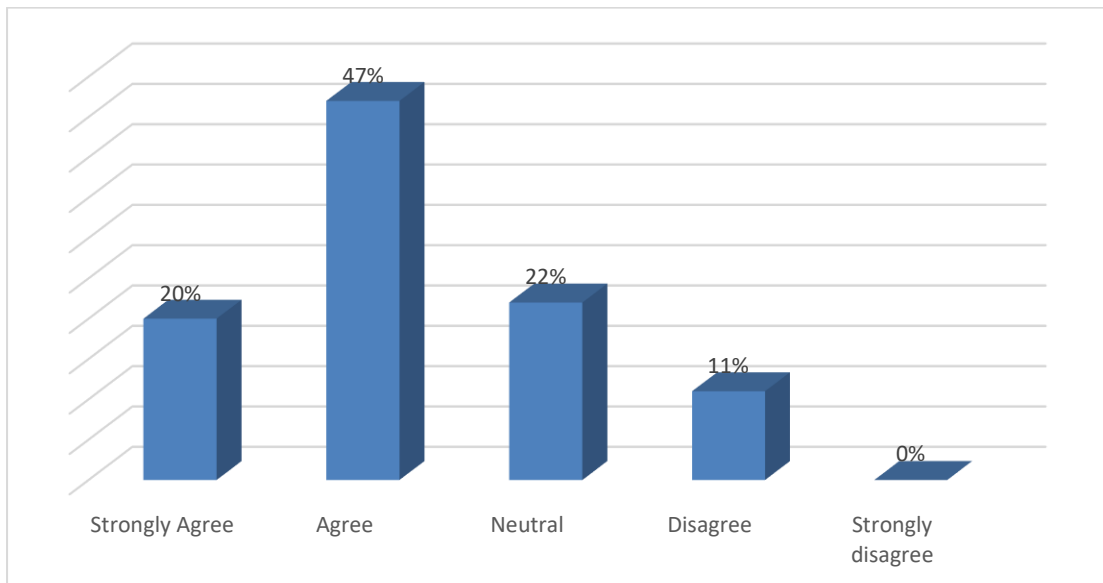
#### 4.6.2: Assessing KPIs improve employee retention and loyalty



**Figure 4.14: Assessing KPIs improve employee retention and loyalty**

Figure 4.14 results reveals that 2 % of respondents strongly disagreed, 7 % disagreed and 24 % were neutral. A high of 49 % agreed while 18 % strongly agreed. These results reveal that KPI assessments improves employee retention and loyalty.

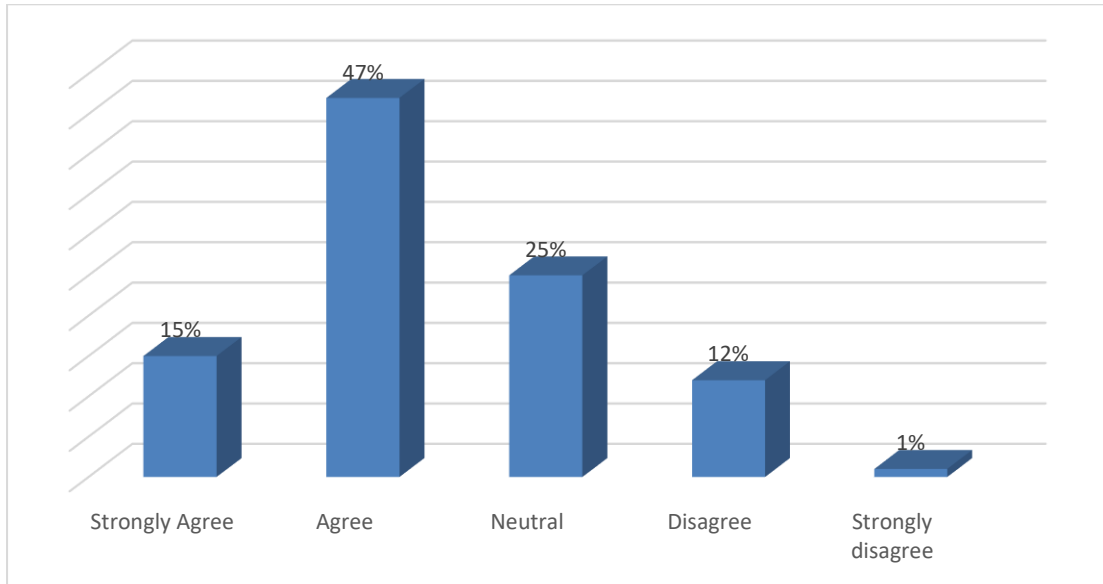
#### 4.6.3: Assessing KPIs Saves time and reduces conflicts, leading to improved productivity



**Figure 4.15: Assessing KPIs Saves time and reduces conflicts, leading to improved productivity**

Figure 4.15 above reveals that 0 % of respondents strongly disagreed, 11 % disagreed while 22 % were neutral. Results also show that a high of 47 % agreed and 20 % strongly agreed. Therefore, it is evident that KPI assessment is essential and leads to improved productivity.

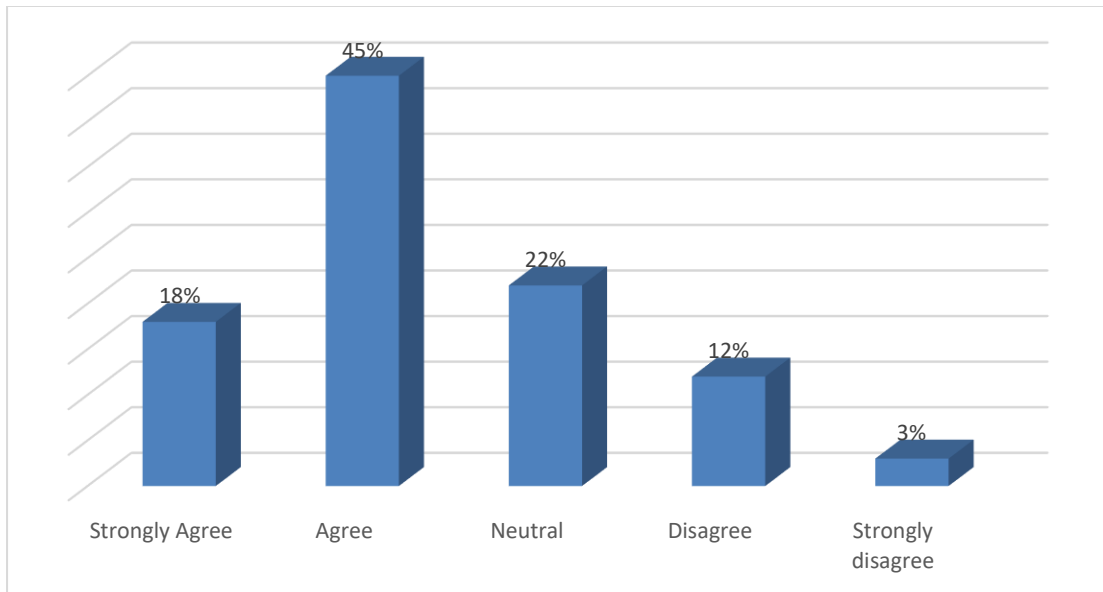
#### **4.6.4: Assessing KPIs help in overcoming the barriers to communication**



**Figure 4.16: Assessing KPIs help in overcoming the barriers to communication**

Respondents were asked if assessing KPI's helps in overcoming the barriers to communication. The results show that only 1 % strongly disagreed, 12 % disagreed while 25 % remained neutral. Furthermore, 47 % agreed while only 15 % strongly agreed to the question. This shows that KPI assessment has the ability in overcoming barriers to communication between employees and managers.

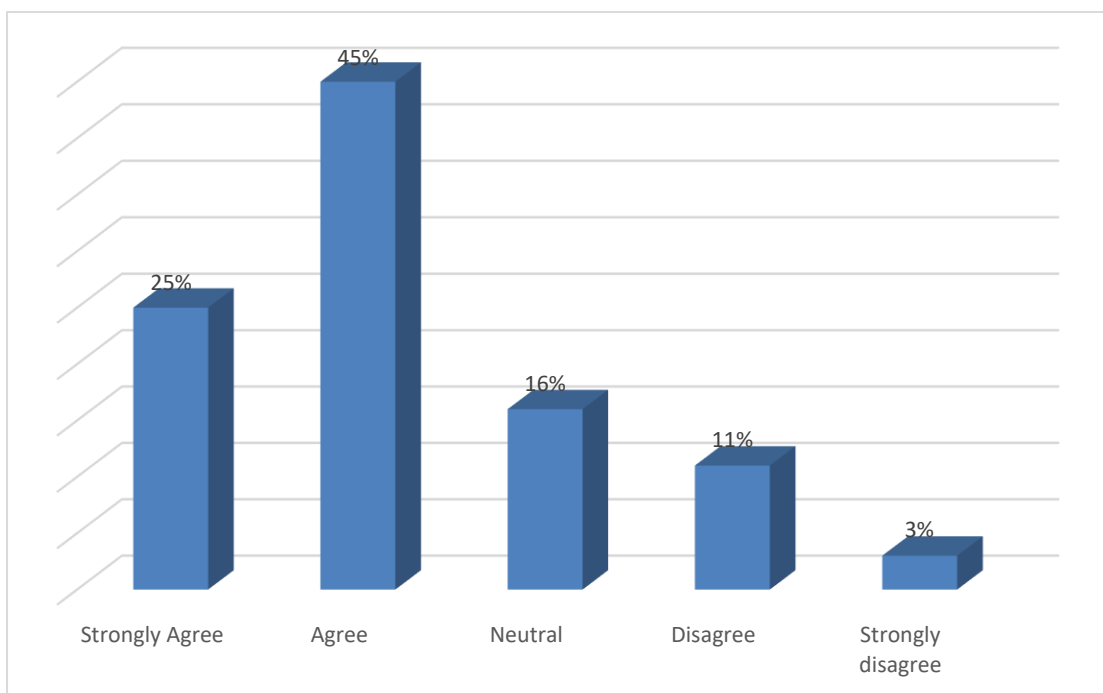
#### 4.6.5: Assessing KPIs draw clear accountabilities



**Figure 4.17: Assessing KPIs draw clear accountabilities**

Figure 4.17 reveals that 3 % strongly disagreed, 12 % disagreed while 22 % respondents were neutral. Results also show that a high of 45 % respondents agreed while 18 % strongly agreed. The results revealed that majority of respondents agreed that KPI's draws clear accountability.

#### 4.6.6: Assessing KPIs ensures efficiency and consistency in performance.



#### **Figure 4.18: Assessing KPIs ensures efficiency and consistency in performance**

Figure 4.18 above shows that 3 % respondents strongly disagreed, 11 % disagreed while only 16 % remained neutral. A total of 45 % respondents agreed and 25 % strongly agree. These results show a high number of respondents agreeing that KPI assessment ensures efficiency and consistency in performance.

#### **4.7 Chapter Summary**

The focus of the chapter was to present the results obtained from the study as explained in chapter three. The chapter successfully presented the results under the respective objectives. The chapter however, began by reporting on response rate and Cronbach alpha values, which were deemed acceptable for the study. The next chapter analyses and discusses the findings of the research, linking them to the literature that was reviewed in chapter two.

## **CHAPTER FIVE: DISCUSSION**

### **5.1 Introduction**

This chapter presents a discussion on findings presented in the data analysis chapter, in relation to the study's "objectives as well as the research questions and hypotheses formulated from the problem statement. A comprehensive discussion is also presented in accordance with the research objectives.

### **5.2 Discussions based on Objective One**

The first objective of the study sought to establish whether KPIs well-articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark. Five (5) questions were developed to address this objective.

#### **5.2.1 Familiarity with what measurement is on or KPI for area of responsibility or section**

As presented in Figure 4.2 the results show that the majority of employees at ArcelorMittal South Africa are aware of how their KPI's are measured in order to meet the company expectations. This practice of having employees aware of how their KPI's are measured in order to meet the company expectations is supported by Zakaria (2015), who states that having employees aware of how their KPI's are measured in order to meet the company expectations has been proven to improve organisational performance. The role of communicating expectations plays a significant role in enabling the organisational members to appreciate the importance of KPIs. The platform was used for discussion of KPIs and this assisted to articulate the discourses of KPIs within the organisation. It is vital to conduct meetings across and within the departments in the organisation. This ensures that all team from different divisions are aware of the impact of their actions on the other organisational performance (Zakaria, 2015).

#### **5.2.2 Easiness and understandability of KPIs**

Regarding the understandability of KPI to ArcelorMittal South Africa employees the results reveal that the KPI's are well articulated to the employees as confirmed by 77% in figure 4.3 of chapter four. Alluding to this outcome, empirical studies have indicated that attaining set targets for KPIs fail due to the lack of understanding of the critical success factors required during implementation. Many companies experience temporary gains but few succeed in

sustaining the initial benefits of keeping focus on KPIs (Vermaak, 2018). Balle (2015) stated that whilst KPIs initiatives are rich in information and theory there is poor sustainability at the shop floor and lack of employee involvement.

### **5.2.3 Knowledge of KPIs unit of measure**

Paile (2017) supports the idea of employees knowing their KPI's unit measures by stating that in setting up key performance indicators, the first step in the process is setting up of the standards which are used as a benchmark to compare the actual performance of employees. This step requires setting the performance criteria to judge the performance of employees as successful or unsuccessful of the degree. To be useful, these key standards should relate to the desired result of each job. The standards set should be clear, easily understandable and in measurable terms (Komati, 2015). In case the performance of the employee cannot be measured, great care should be taken to describe the standards and review them accordingly. Key performance indicators are pre-set measures that are widely applied in guiding the organization towards the pre-set goals (Paile, 2017).

### **5.2.4 Training and skills on archiving KPI set target**

It is vital for all employees to be offered ongoing training in their specific areas for efficiency and continuous improvement. The majority of respondents agreed to having been trained in support to achieving their set KPIs. This outcome is in tandem with the view of Kayakutlu and Buyukozkan (2015), who posits that performance management is not complete without involving the development of the individual's expertise in meeting performance requirements. Development focusses on improving both current expertise, and allowing new skills or knowledge to be gained, particularly where there is potential. It is important for managers to identify training and development opportunities at this stage, providing the coaching and support needed (Kayakutlu & Buyukozkan, 2015).

### **5.2.5 Manager/Supervisor takes time to discuss KPI targets and actual achievements with the team**

Managers discuss KPI targets and achievements with the team. Therefore, it is evident that managers are taking their time to meet with employees for these discussions. Mutunga (2019), in contrary to the outcome of this research, bemoaned that in South Africa, employee engagement has been loosely implemented. This can be attributed to the lack of standard performance measurement tool locally. This has led to disengagement among members of staff within firms. Lack of employee engagement affects the entire firm's performance

through increasing turnover, lack of innovation and commitment to the work. This affects the implementation of management and human resource decisions due to the lack of commitment among personnel (Wachira, 2015). Performance measurement is an ideal management function of assessing the level of employees work output (Bakker et al., 2016). Good performance measurement tools promote high work engagement (Christian et al., 2016). Lack of effective performance measurement will lead to work disengagement.

The discussion of KPIs in the meetings promotes an open communication. KPIs are implemented as communication medium to inform stakeholders about improvement actions taken regularly. It is imperative to periodically communicate and assess results from the KPI implemented (Popa, 2015). This will encourage continuous improvement if stakeholders concerned understand the processes and requirements of the job to be done. It is vitally important to develop a system for regular assessment, interpretation and exhibition of results to personnel and any other interested stakeholders.

### **5.3 Discussions based on Objective Two**

The second objective of the study aimed to determine the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark. A total of six (6) question items were developed to address the objective.

#### **5.3.1 KPI I am measured on, are relevant to line of my work**

According to Parmenter (2015), most organizations have mismatching connection between the measures they are using and the results they are expecting. Due to lack of comprehensive knowledge most organizations end up using the wrong measure in same measure as key performance indicators. Key performance indicators should be a measure that explicitly guides the organization on what needs to be done in order to exponentially raise the performance of the firm. Key performance indicators are implicitly concerned with the most strategic aspects to the organizational which are key to the present and the future of the organization.

#### **5.3.2 Machine breakdowns are high and this causes our KPIs performance to be below par**

The focus of the question was to establish whether machines breakdowns are high and as well as whether this could be the causes of KPIs performance to be below par. These results show

that at least 91 % of respondents agreed to machine breakdown affecting their KPI's. This is in line with the study by Chipp (2017), who identified that for employees to be productive within a firm the main factors that the management should ensure the employees are not distracted in their work places, the ergonomics of the firm should be enhanced as well as access to technology. As such management needs to set up the firms' indicators through guidance by the factors that will ensure employee productivity as a measure of ensuring meeting up the expectations of management.

### **5.3.3 Managers and/or engineers help the team to determine the cause of the poor KPI performance**

The results reveal that shows a weak involvement of management regarding determining the cause of poor KPI performance. The above results show that managers need to improve on communication with the employees. Atkinson (2016) highlighted that feedback and communication are imperative in every business operation. This results to good teamwork and efficiency. The lack of consensus in defining performance management makes it difficult to identify the boundaries of what performance management encompasses and what it does not. However, through a series of engagements between various stakeholders of different sectors of business, it became clear that the performance-management definition must be linked to delivery of strategic objectives of an organisation, defined in simple and understandable language (Atkinson, 2016). Performance management should be a process by which organisations align their resources, systems and employees with strategic objectives and priorities (Lopez, 2018).

### **5.3.4 Managers and/or engineers assist teams to determine corrective actions for poor performance**

The findings imply that the managers do assist their teams in improving their performances. In respect of management assisting teams to determine corrective actions for poor performance, KPIs must be related to each other from the highest-level personnel to the frontline level personnel (Doran, 2018). This can be achieved by having management define the KPI meaning to all concerned stakeholders. KPIs must be easy to comprehend by all employees (the employees must be familiar with the KPIs and be able to influence the indicator in a positive way) and KPI must be controllable so that these KPIs must be verified if there are real actions that will influence the KPI in a positive way (Doran, 2018).

Brudan (2015), agrees with the idea of management-employee engagement by highlighting the discussion of KPI targets and actual achievements with the team performance management as an overarching process dealing with evaluating performance results and ensuring that performance targets are constantly achieved. This is achievable by strategic goalsetting, implementation, training, and performance measurement. It involves training and development, team work, management style, perceptions and attitudes, shared vision, employee involvement, incentives and rewards (Nyembezi, 2019).

### **5.3.5 Rewards for improving KPI performance**

Motivation is imperative for the success of employee's performance. This may be in a form of feedback and incentives and it keeps employees motivated. Therefore, these results show that ArcelorMittal South Africa does not adequately reward their employees. Lopez (2018) emphasised the importance of rewarding performance as this significantly affects organisational success by having managers and employees work together to set expectations, reviewing results, and rewarding performance. Reward management equates pay and other benefits to the overall objectives of a company and also of its employees. In relation to good management, it is an important factor as without it an organisation can be faced with a workforce that is unsatisfied, thus leading to a lack of motivation in completing assigned task and in ultimately achieving the organisations goals. As employees are one of the main assets of a company, the objective of reward management is to recognise the value that employees create for their employer.

Reward management is concerned with the strategies, policies and processes required to ensure that the value of people and the contribution they make to achieving organisational, departmental and team goals is recognised and rewarded (Armstrong 2015). It is about the design, implementation and maintenance of reward systems (interrelated reward processes, practices and procedures) that aim to satisfy the needs of both the organization and its stakeholders and to operate fairly, equitable and consistently (Armstrong 2015).

### **5.3.6 KPIs set target are reasonable and achievable**

Employees were asked if KPIs set are reasonable and achievable and the majority (56%) of respondents agreed. These results reveal that the company does not set attainable KPIs. Key performance indicators have been used widely as measures of performance in modern organization to assess both the level of operational efficiency and productivity towards

meeting the firm goals as well as the appraisal of the staff thus helping to motivate them leading to better productivity (Krause & Arora, 2016). Consequently, employees get demotivated to commit themselves KPIs targets that are not attainable.

#### **5.4 Discussion based on Objective Three**

This was the last objective of the study. The objective sought to assess the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark.

##### **5.4.1 Assessing KPIs improve organizational performance**

These results prove that KPI assessment is vital in improving organisational performance. In order to get and keep competitive advantage over other market players in the same industry the manufacturing organizations must produce the quality products at lower cost with rapidly increasing variety. These are the few among many valuable objectives of the organizations. In order to get confirmations regarding the fulfilling of their objectives and goals organisations have to keep check over their performance (Popa, 2015). In order to achieve these purpose organizations must have to use the performance management systems. Simply the performance management is done by the organisations in order to confirm that either they are going in right direction or not. For measuring, managing and comparing the performance the organizations are required to know about the performance indicators.

##### **5.4.2 Assessing KPIs improve employee retention and loyalty**

Brudan (2015), is in support of the fact that KPIs improve employee retention and loyalty, especially if employees are offered ongoing training in their specific areas for efficiency and continuous improvement. The author described performance management as an overarching process dealing with evaluating performance results and ensuring that performance targets are constantly achieved; it includes strategic goalsetting, implementation, training, and performance measurement. It involves training and development, team work, management style, perceptions and attitudes, shared vision, employee involvement, incentives and rewards (Nyembezi, 2019). Planning a performance management system includes identification of performance requirements in terms of targets, actions, and behaviour. It must address the alignment of issues, such as weighing skills or job expertise of an individual against job requirement, so that training and development is addressed at the outset (Kayakutlu & Buyukozkan, 2015).

### **5.4.3 Assessing KPIs Saves time and reduces conflicts, leading to improved productivity**

KPIs Save time and reduces conflicts, leading to improved productivity. Therefore, it is evident that KPI assessment is essential and leads to improved productivity. According to Boynton and Zmud (2016), performance metrics are a powerful tool of organizational change by avoiding time wastage and unnecessary disharmony of purpose. The adage ‘What gets measured, gets done’, is true. Companies that define objectives, establish goals, measure progress, reward achievement, and display the results for all to see can turbo-charge productivity and gracefully move an organization in a new direction.

Executives use performance metrics to define and communicate strategic objectives tailored to every individual and role in the organization (Lopez, 2018). Managers use them to identify underperforming individuals or teams and guide them back on track. Employees use performance metrics to focus on what is important and help them achieve goals defined in their personal performance plans. However, performance metrics are a double-edged sword. The wrong metrics can have unintended consequences: they can wreak havoc on organizational processes, demoralize employees, and undermine productivity and service levels. If the metrics do not accurately translate the company’s strategy and goals into concrete actions that employees can take on a daily basis, the organization will flounder (Lopez, 2018).

Krause and Arora (2016) further highlight that key performance indicators are a critical ingredient of performance management, a discipline that aligns performance with strategy. Performance management harnesses information technology to monitor the execution of business strategy and help organizations achieve their goals. Performance management is a four-step virtuous cycle that involves creating strategy and plans, monitoring the execution of those plans, and adjusting activity and objectives to achieve strategic goals. This four-step wheel revolves around integrated data and metrics, which provide a measurement framework to gauge the effectiveness of strategic and management processes. Hence, assessing KPIs Saves time and reduces conflicts, leading to improved productivity

### **5.4.4 Assessing KPIs help in overcoming the barriers to communication**

Bonner (2017) agrees with this assertion by indicating that performance assessments of KPIs occur at pre-determined periods and provide the opportunity to review and rate the employees’ performance. Issues, areas of improvement, and areas of success are highlighted

during these meetings. The manager and the employee revise what needs to be done, how it needs to be done (by placing a standard against it), whether it was achieved, and whether more was done than required of the employee. Depending on how the employees achieved their KPIs, their rewards are communicated accordingly.

#### **5.4.5 Assessing KPIs draw clear accountabilities**

The KPI system helps employees become fully aware of their role and deliverables, therefore it creates a form of accountability. According to Nyembezi (2019), KPIs tie accountability down to a team, for example directors can call a manager who will then take the required action. Targets have to be realistic so that managers feel enthusiastic about endeavouring to achieve them. Targets have to be reciprocally agreed upon between the company's executives and the manager answerable for hitting the target. When creating effective targets, senior management must reach a balance between setting the bar high enough to inspire greater performance, and at the same time being careful not to prompt risky behaviour by leaving loopholes where managers can play the system.

#### **5.4.6 Assessing KPIs ensures efficiency and consistency in performance**

In support of the assertion that assessing KPIs ensures efficiency and consistency in performance, Krause and Arora (2016) posit that KPIs assist in implementing the strategic goals of a company; increases per capita efficiency; effectively motivates employees as well as promotes and enhances the performance levels of both the company and its employees. Krause and Arora (2016) further state that KPIs have been used widely as measures of performance in modern organization to assess both the level of operational efficiency and productivity towards meeting the firm goals as well as the appraisal of the staff thus helping to motivate them leading to better productivity”.

### **5.5 Chapter Summary**

The findings of this study were comprehensively discussed in this chapter, in light of the research questions and objectives namely “Demographics of Respondents; KPIs articulation effectiveness; Factors affecting KPIs achievements as well as the “importance of KPIs”. The following chapter presents a summary of the findings in relation to the quantitative data, as well as recommendations and a conclusion. The limitations of this study, suggestions for further studies and the study's contribution to knowledge are also addressed in the final chapter.

## **CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Introduction**

This chapter concludes and make recommendations on the assessment of the Key Performance Indicators at the ArcelorMittal South Africa “Coke and Chemicals’ business units in Vanderbijlpark for improved organisational performance. It provides evidence to support conclusions and recommendations for improved organisational performance by ArcelorMittal South Africa in Vanderbijlpark, South Africa. This chapter also highlighted limitations that surfaced during the study and also provided recommendations to solve the research problem.

### **6.2 Conclusions**

The first objective of the study sought to establish whether KPIs well-articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark. It is concluded that KPIs are well articulated to employees as confirmed by majority of employees who indicated familiarity with what KPI measurement for area of worker responsibility or section; easiness and understandability of KPIs; knowledge of KPIs unit of measure; training and skills on archiving KPI set target; as well as management taking time to discuss KPI targets and actual achievements with the team.

The second objective of the study aimed to determine the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark. The variables used to investigate on this objective revolved around relevance of KPI to line of worker’s routine duties; frequency of machine breakdowns and their impact on KPIs performance; management involvement in helping the team to determine the cause of the poor KPI performance; management input in assisting team members to determine corrective actions for poor performance; the rewarding system for improving KPI performance; and finally the reasonability and achievability KPIs set target.

Accordingly, this research concludes that there is need for revision of both reward system and employee-management inclusiveness at ArcelorMittal South Africa ‘Coke and Chemicals’ business units in Vanderbijlpark for improved organisational performance. In order to measure the performance of companies and to apply benchmarking, one has to firstly establish appropriate KPIs as these KPIs are ever so vital in determining the all-inclusive

success of the company. This is because KPIs are compilations of data measures that are utilized to gauge the performance of a company because KPIs play a major role in supplying information with regards to the performance of projects, tasks and companies.

Consequently, each company makes a performance definition in accordance with its own objectives, strategies and specific KPIs are selected based on this (Nyembezi, 2019). However, the practice of managers only selecting and making use of only one KPI for assessing performance is regarded as a huge mistake since there is no one KPI that can aptly specify manufacturing performance (Nyembezi, 2019). Managers have to determine which set of KPIs to adopt and then measure the performance of their operations accordingly.

There are various types of KPIs, however, it is important to select only those KPIs that account for the extensiveness and which indicate the health of a company. For instance, when a doctor examines a new patient, that doctor will undertake a succession of measurements, such as height and weight, blood pressure, and from these, conclude the patient's health. KPIs are comparable or similar to these medical measurements - they are exceptionally effective indicators which determine the health and maturity of a company.

Regarding KPIs in general, distinctiveness is made between absolute and relative numbers. Absolute numbers are not dependent on other indicators - they involve distinct numbers, sum, difference as well as averages and only by comparing them with other KPIs they acquire importance (Meier et al., 2016). On the contrary, relative numbers connect information, such as, indicators, ratios that can be broken down into quotas, index as well as reference numbers (Meier et al., 2016). Quotas are the ratios of a KPI in relation to the whole whereas reference numbers are the ratio of equal indicators with dissimilar content and lastly index numbers compare time series.

Most of the literature regarding KPIs gives more attention to financial KPIs than compared to non-financial (Meier et al., 2016). Significant non-financial KPIs are quality, immaterial assets, time and productivity. Nonetheless, only when both financial and non-financial KPIs are considered is it possible for companies to acquire information about business issues.

Targets have to be realistic so that managers feel enthusiastic about endeavouring to achieve them. Targets have to be reciprocally agreed upon between the company's executives and the manager answerable for hitting the target. When creating effective targets, senior management must reach a balance between setting the bar high enough to inspire greater

performance, and at the same time being careful not to prompt risky behaviour by leaving loopholes where managers can play the system.

Finally, the third objective sought to assess the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark, study concludes that KPIs generally embody quantitative information, which exemplify processes and structures within companies. Nowadays, KPIs are indispensable for controlling and planning purposes as they consolidate information, create transparency and in that way support management's decision-making (Meier et al., 2016).

The study also concludes that carrying out KPI appraisals is of paramount importance as it

**i) Help to implement corporate strategy**

As stated earlier, a company's objectives are derived from the company's corporate strategy. KPIs translate the company's corporate strategy into operational tasks that are assigned to teams to achieve.

**ii) Help companies co-ordinate departments**

By elucidating specific KPIs, it puts all departments of the company into both divisions of labour and co-operation, to proficiently ensure the realization of the company's strategic goals. 3. Enhance the company's ability to forecast Suitable KPIs permit managers to forecast future performance. Financial KPIs can assist companies to assess their current state and provides an important foundation for the company to amend management decisions.

**iii) Improve the skill levels of managers**

KPIs empower managers to understand corporate strategic goals, so as to take better actions in their areas of jurisdiction. KPIs allow for target evaluation, analysis and improvement, which help to enhance the knowledge and skill levels of managers.

**iv) Decomposition of the company's strategic goals**

The company's strategic goals are long-term, guiding and is rich in contents. Therefore, KPIS are the real drivers behind a company attaining their goals; they are the real manifestation of the company's strategy for each job position and performance requirements for that position.

The points presented above illustrate exactly how important KPI appraisal is. For example, KPI appraisal assists with implementing the corporate and strategic plans of a company and simultaneously breaks down the strategic goals of a company into workable objectives for the

different departments within the company. Regarding the different departments that constitute the company, KPIs help to co-ordinate their activities so as to achieve similar objectives.

This research further concludes that for a company wanting to gauge the performance of their manufacturing/production functions, it is rather easy to come up with appropriate financial KPIs like the measure of overall cost incurred for functions. However, defining KPIs is not so straightforward when applied to vaguer or more subjective areas of a business, such as employee development or customer satisfaction (Nyembezi, 2019). In these occurrences, more creativity is required, for example, a good KPI for assessing employee development within a company might be the amount of annual training days undertaken by each employee. To make selecting KPIs more methodical, companies have to be very cautious when developing them.

### **6.3 Implications of this Research**

The findings of this study contribute to the body of existing knowledge in the KPI field, as well as in the field of performance management and motivation. The results of the study indicate that the BSC as a performance management system positively influences employee performance. However, the study also reinforces the importance of aligning the KPI to the organisational strategy, as the increase in employee performance did not lead to an increase in organisational performance.

The impact of the KPI on motivation is also significant. Whilst the quantitative analysis showed no significant relations, the qualitative data suggested otherwise. The motivation of employees is very important to organisations and managers. Organisations are constantly looking for ways to improve their employees' performances. Talent management has become an essential strategy for HR department for attracting, retaining, developing and performance managing staff. Employee motivation forms an integral part of these strategies. According to Buchner (2007), managers will benefit from understanding how the leading theories in motivation align to performance management. However, according to Buchner (2007), organisational psychologists need to increase their focus on the motivational and developmental aspects of performance management. Buchner (2007) suggested that these professionals should try to understand the performance management system as it is, how it works, and how well the critical elements are supported.

The purpose of amassing data and calculating KPIs is to measure and gauge the performance of the company as well as to analyse the efficiency and effectiveness of measures that have been adopted to improve the planning and realization of processes within the company (Meir et al., 2016). Kayakutlu and Buyukozkan (2015) states that one of the purposes of KPIs is to reduce costs, while providing both the quality and the schedule to please customers is also considered to be a major objective of PM and KPI appraisal. PM leads to healthier communication, superior decision-making, higher enthusiasm for employees and greater transparency.

Contemporary managers understand that it is impossible to improve organisational performance without a comprehensive and accurate picture of the current situation – one that is provided by KPI appraisal (Koufteros et al., 2018). The goal of performance management is business process optimization by the means of monitoring and analysing KPIs. By evaluating and monitoring KPIs against predefined goals, companies can provide additional value to huge volumes of data collected over time as this type of analysis lets companies track their progress at different levels and to then take apt actions.

From the viewpoint of employees, the practice of using KPIs is a strategic decision and therefore, it is compulsory to understand and quantify the influence it has on business performance (Armstrong, 2019). Thus; the purpose of engaging in KPIs is rarely cost reduction alone, but, a mixture of service enhancements and proficient operations. That being said, KPIs cannot only consider the financial perspective in an isolated fashion. The main purpose underlying KPI appraisal is that companies are economic structures, and apart from for non-profit social organizations; their fundamental purpose is to realize higher profit and to continue their existence (Armstrong, 2019).

Krause and Arora (2016) states that there are seven reasons why PM and KPI appraisal is adopted in the management world: more fierce competition, detailed improvement ingenuities; national and international quality accolades, the power of IT; shifting organizational roles; fluctuating external demands placed upon companies and the fluctuating nature of work. Other reasons regarding the purpose of KPI appraisal and PM are: sharpen focus on strategy and results, measure what matters and improve performance, improve communication, align strategy with what HR can do and to put in priority projects (Komati, 2015).

As soon as KPIs and their particular targets have been established, it is imperative, over the following months, to monitor performance alongside the established KPIs. For this to occur, it is compulsory to have decent and carefully set target ranges for a company's strategic plan to be prosperous (Armstrong, 2019).

Meier et al. (2016) states that given the current economic climate of the world, KPIs are a significant tool to control companies, because they separate important information from unimportant, make difficult subject matters straightforward and produce transparency. Meier et al. (2016) stated that KPIs are also the foundation for scrutinizing and refining processes as well as benchmarking.

The goals of the company need to be reflected by the KPIs set out to measure the performance of the operations performed by the organisation. The four points mentioned in above state what KPIs are intended to achieve and justify why a company ought to gauge their performance via the utilization of KPI monitoring. The goal of KPIs is to help decision makers to better understand, plan, manage and control their performance (Komati, 2015). As such, KPIs represent the root source for evaluating business and project success since their purpose is to permit the measurement of performance within companies as well as the industry, and to initiate benchmarking exercises (Armstrong, 2019).

In addition to direct advantages, KPIs are utilised as a means of communication with stakeholders to educate them about constant improvement endeavours (Krause & Arora, 2016). PM is vital to the eventual success of intricate business systems such as manufacturing with KPIs being employed to gauge performance throughout the company. This is because KPIs are compilations of information that are used to quantify and assess performance and moreover, they specify a company's final mark in terms of both effectiveness and efficiency for a particular period. In the ever-changing and unpredictable business environment where companies are challenging each other, it is no simply no more acceptable to respond to problems after they occur, but to foresee future performance and then to logically and perceptively endorse suitable corrective actions (Krause & Arora, 2016).

#### **6.4 Limitations of the Study**

The outcome of this study is limited to the assessment of the Key Performance Indicators at the ArcelorMittal South Africa 'Coke and Chemicals' business units in Vanderbijlpark for improved organisational performance. The findings were based on the data collected at ArcelorMittal South Africa 'Coke and Chemicals' business units in Vanderbijlpark in South

Africa. Due to busy work schedules at the manufacturing plant, this study adopted a quantitative method, involving a self-administered questionnaire approach to data collection. A qualitative approach to data collection could be adopted by future researchers to solicit the opinions of participants.

#### **6.4 Recommendations**

Guided by the research objectives, research findings and conclusions above, it is recommended that;

Since, performance management is at the heart of continuous improvement as the primary objective of performance evaluation, it should be developed with the aim of assisting executives and senior managers in developing the direction and goals of the company (Bakker et al., 2016). However, all stockholders concerned should be included in the process to avoid discord in the implementation of the KPIs.

The next recommendation is that ArcelorMittal South Africa in Vanderbijlpark make use of benchmarking when evaluating and implementing the KPIs. Continuous improvement leads benchmarking which can be adopted by a company to evaluate and compare its performance against results with industry leaders for the sake of ascertaining its strengths and weaknesses in performance from the industry's best, and then using these lessons to define best practices which will lead to superior performances when implemented (Ali et al., 2013). As a general rule, benchmarking is the next step after continuous improvement to advance a company's effectiveness and efficiency with regards to its processes (Bakker et al., 2016).

Based on the findings presented by Figure 4.9, management has been exposed on weak involvement of management regarding determining the cause of poor KPI performance. It is therefore recommended that ArcelorMittal South Africa in Vanderbijlpark KPIs should improve on communication with the employees at all levels. These KPIs should make reference to key indicators for qualifying the effects of corporate strategy, which involves setting the key parameters of a company and analysing the company's strategic objectives into a tool of operational objectives (Bakker et al., 2016).

Also based on the conclusion that the employees indicated that they are not happy with the rewards they get, it is recommended that the ArcelorMittal South Africa in Vanderbijlpark revise its reward system in order to improve organisational performance. To 'reward' good performance and encourage continued performance companies usually establish programmes to recognise employees whether individually or in groups. These rewards are usually separate

from an employees' basic salary and can be either monetary in nature, or it can be in some other form, for example plaque, gift card or gift basket.

Furthermore, ArcelorMittal South Africa in Vanderbijlpark KPIs must be well aligned with the objectives of the organisation's core business. KPIs are the foundation of PMS with the purpose of KPIs being to translate corporate strategy into internal activities and processes in order to unceasingly boost the core competitiveness of companies as well as to gain admittance to sustainable development (Bakker et al., 2016). KPIs assist in implementing the strategic goals of a company; increases per capita efficiency; effectively motivates employees as well as promotes and enhances the performance levels of both the company and its employees.

The research further recommends ArcelorMittal South Africa in Vanderbijlpark and in the business sphere that KPIs must largely be quantitative information as they illustrate the processes and structures of a company and are quite imperative for planning and controlling activities and at the same time creating transparency and supporting management decision makers (Leong et al., 2018). The authors further state that many companies are using incorrect measures because only a few companies truly monitor their actual KPIs or know what KPIs really are.

Another recommendation by this study is that ArcelorMittal South Africa in Vanderbijlpark should simultaneously consider both financial and non-financial indicators. Different metrics and measurement systems are both utilised with PMS (Leong et al., 2018). In the most recent research regarding PMS, much emphasis is given to the creation of PMS which consider both financial and non-financial indicators together. KPIs are both financial and non – financial that assists companies in testifying how successful their business functions are. Essential conditions for a competent and effective system for PM formulation are standardized processes with KPIs having to be customer oriented in terms of both marketing and logistics terms.

It is also recommended that Performance Measurement Systems (PMS) are utilised as the choicest information systems in order to gather, display and communicate performance information to investors and shareholders (Leong et al., 2018). Predominantly, PMS are adopted to gauge the health of a company via appropriate indicators and perspectives and act as a gatherer and transporter of information. In order to enhance the competitiveness and

performance of business undertakings; the right information is required at the right time for the right stakeholder.

### **6.5 Area/s for Further Research**

The areas of future research will be provided below, these pertain to:

- It is suggested that further research is to be undertaken to include all manufacturing players in the manufacturing industry with regards to utilising KPI appraisal. Alternatively, a similar study could be conducted in a different industry (perhaps the motor or construction industry) to determine how diverse industries in South Africa are utilising KPI appraisal.
- Some of the manufacturing KPIs that were identified in the literature did not surface during the empirical field research. Similarly, there were KPIs and risks identified in the empirical field research that were not found in the literature. Therefore, it is recommended that further research is undertaken to make connections between the literature and empirical study in order to find common ground.
- The manufacturing process that was defined for ArcelorMittal South Africa in Vanderbijlpark, was based upon the answers received from the employees, and more specifically, those individuals responsible for implementing the KPIs within the company. Thus, a possible future research area exists whereby the manufacturing process can be explored using individuals responsible for setting up KPIs (top management) as well as different companies both within and outside of the steel and coke manufacturing industry.

### **6.6 Chapter Summary**

This chapter mainly presented findings and recommendations based on the gaps between theory (Chapter 2) and practice (Chapter 4). As illustrated in the various figures in Chapter 4, such gaps are largely in the areas of performance management and development, staff recognition and rewards, market related pay, employee consultation in decision making, continuous improvement and employee development.

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## **Appendix A: Letter to the Participants**

Date:

Greeting:

My name is Thato Gift Pato from University of Kwa-Zulu Natal, Graduate School of Business Science, e-mail address: 218068175@stu.ukzn.ac.za.

You are being invited to consider participating in a study that involves research on the assessment of the Key Performance (KPIs) at the steel industry. The primary aim of the study is to conduct the assessment of key performance indicators at the AMSA Steel subsidiary named ArcelorMittal Coke and Chemicals business unit. This will assist the organisation to be able to develop strategy to improve its performance. The study will involve 61 participants and will be conducted only in Vanderbijlpark works in Coke and Chemicals business unit.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee.

In the event of any problems or concerns/questions you may contact the researcher at 218068175@stu.ukzn.ac.za or the UKZN Humanities and Social Sciences Research Ethics Committee, contact details as follows:

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## Appendix B: Consent Letter

I \_\_\_\_\_(OPTIONAL) have been informed about the study entitled “The assessment of Key Performance Indicators at the ArcelorMittal South Africa in Vanderbijlpark by Thato Gift Pato.

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at [218068175@stu.ukzn.ac.za](mailto:218068175@stu.ukzn.ac.za) or phone on 083 379 2959.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

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Additional consent, where applicable

I hereby provide consent to:

Audio-record my interview / focus group discussion YES / NO

\_\_\_\_\_  
**Signature of Participant**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Signature of Witness**  
**(Where applicable)**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Signature of Translator**  
**(Where applicable)**

\_\_\_\_\_  
**Date**

## Appendix C: Final Questionnaire

Put an 'X' on the most appropriate answer

<b>Section A Biographical data</b>	
1. Age	
21-30	
31-40	
41-50	
50+	
2. What is your race?	
African	
Coloured	
Indian	
White	
Other	
3. How long you been operating	
1-5 years	
6-10 years	
11-20 years	
20+ years	
4. Indicate your highest level of education	
Below Matric	
Matric	
Certificate	
Diploma	
Post graduate Diploma	

Degree qualification

Above degree qualification

**Section B: Establish whether KPIs well-articulated to employees at the ArcelorMittal South Africa in Vanderbijlpark**

Please indicate the extent to which you agree with the following statements

	<b>Strongly Agree (5)</b>	<b>Agree (4)</b>	<b>Neutral (3)</b>	<b>Disagree (2)</b>	<b>Strongly Disagree (1)</b>
5. I am familiar with what I am measured on or KPI for my area of responsibility or section					
6. Our KPIs are simple and easy to understand					
7. I know KPIs unit of measure					
8. I am trained and skilled to archive KPI set target					
9. Manager/Supervisor takes time to discuss KPI targets and actual achievements with the team					

**Section C: To determine the factors that affect employees on meeting their KPIs at the ArcelorMittal South Africa in Vanderbijlpark**

Please indicate the extent to which you agree with the following statements

	<b>Strongly Agree (5)</b>	<b>Agree (4)</b>	<b>Neutral (3)</b>	<b>Disagree (2)</b>	<b>Strongly Disagree (1)</b>
10. KPI I am measured on, are relevant to line of my work					

11. Our machines breakdowns are high and this causes our KPIs performance to be below par					
12. Managers and/or engineers help the team to determine the cause of the poor KPI performance					
13. Managers and/or engineers assist teams to determine corrective actions for poor performance					
14. We are rewarded for improving KPI performance					
15. KPIs set target are reasonable and achievable					

**Section D: Assess the importance of KPIs in assessing the employee performance at the ArcelorMittal South Africa in Vanderbijlpark**

Please indicate the extent to which you agree with the following statements

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
16. Assessing KPIs improve organizational performance					
17. Assessing KPIs improve employee retention and loyalty					

18. Assessing KPIs Saves time and reduces conflicts, leading to improved productivity					
19. Assessing KPIs help in overcoming the barriers to communication					
20. Assessing KPIs draw clear accountabilities					
21. Assessing KPIs ensures efficiency and consistency in performance.					

## Appendix D: Gatekeeper's Letter

ArcelorMittal South Africa  
Coke & Chemicals



20 May 2019

Thabo G. Peto  
University of Kwa-Zulu Natal  
Durban-Westville  
3629  
e-mail: [218068175@ukzn.ac.za](mailto:218068175@ukzn.ac.za)

Dear Mr Peto,

We would like to inform you that you are welcome to conduct your MBA research project titled "The Assessment of Key Performance Indicators at the ArcelorMittal South Africa Coke and Chemicals Business Unit, based in Vanderbijlpark." We believe your research will be of great value to our organization.

As per our agreement, you will only conduct your research on our training days allocated on Tuesdays of the week. We understand that at the current moment you do not have a specific time and date on which you will be completing the research project, however, we would like to inform you that you will have to inform us 2 weeks before you start with your research.

We look forward to working with you.

Kind regards,

[Redacted Signature]  
General Manager

ArcelorMittal South Africa Limited T +27 (0) 18 939 6401  
Orbyr Boulevard F +27 (0) 18 939 9352  
Vanderbijlpark 1011 [www.arcormittal.com/southafrica](http://www.arcormittal.com/southafrica)  
PO Box 13202  
Vanderbijlpark 1991 Reg. No. 1999/001654/01  
South Africa

## Appendix E: Ethical Clearance



UNIVERSITY OF  
KWAZULU-NATAL  
INTUVESI  
YAKWAZULU-NATALI

14 August 2019

Mr Thato Gift Pato (2180681/5)  
Graduate School of Business & Leadership  
Westville Campus

Dear Mr Pato,

**Protocol reference number:** HSSREC/00000028/2019

**Project title:** The assessment of KPIs at ArcelorMittal SA Stee., Vanderbijlpark

### Full Approval – Expedited Application

This letter serves to notify you that your application received on 12 June 2019 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

**Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.**

This approval is valid for one year from 14 August 2019.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

Yours sincerely,



Professor Urmilla Bob  
University Dean of Research

/ms

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Humanities & Social Sciences Research Ethics Committee  
Dr Rosemary Sibanda (Chair)  
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building  
Postal Address: Private Bag X54004, Durban 4000  
Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

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