



Investigating the changing role of key performance indicators for technology and project management entities

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ABSTRACT

TITLE: Investigating the changing role of key performance indicators for technology and project management entities.

Key performance indicators (KPIs) at times, are vital tools because they allow entity management to understand the performance and health of the business, allowing them to make critical strategic execution adjustments to meet the entity's objectives. The main objective of this study was to investigate the changing role of key performance indicators and how they contribute to strategic competitive advantages for technology and project management organisations in South Africa. These two sectors were selected due to their more usage of KPIs and the significant economic impact on South African society. This is evidenced by higher proliferation in the adoption of KPIs and their reliance on technology by some sectors such as mining, financial services, tourism, hospitality, services, etc. Furthermore, the importance of effective project management also impacts the South African economy by reducing project inefficiencies in both the private and public sectors.

The study was done by means of questionnaire as a measuring instrument. The questionnaire was developed from a literature review and guidance from research objectives and contained questions and items relevant to the initial research problem. The questionnaire comprised of four-point Likert scale type questions. The non-probability sampling method was applied to identify 85 participants from technology and project management entities in South Africa.

Statistical analysis was performed by the Statistical Consulting Service of the North-West University using SPSS. The Cronbach's alpha coefficient was used to determine the reliability of the factors. The profile of the results was created using descriptive statistics (mean and standard deviation). The findings from the literature overview were compared to the themes discovered in the data analyses, and conclusions, and recommendations, were established.

The research findings suggest that most study participants affirmed using KPIs to measure their organisational performance. They also indicated that the role of KPIs has evolved from initially having a compliance and retrospective view to the current model of being embedded with predictive insight. Therefore, KPIs are now used to review past performance, formulate and implement organisational strategies which in turn create strategic competitive advantages. Significant alignments were noted and established between the perceptions of literature and

industry regarding the purpose, roles, goals and functions of KPIs. These alignments contributed significantly to understanding the changing role of KPIs in creating competitive strategies.

The main conclusion drawn from the study is that organisations should aspire to broaden the role of KPIs by having a narrow view of them as measurements tools and as tools for developing competitive strategies by corporates, especially in the current uncertain environment.

It was evident from the study that the role of KPIs has changed from being compliance-based to being tools for transformation and value creation. The study results also indicate that KPIs create strategic competitive advantages through the measurement of entities' performance, creating customer integrated views, enhancing employee engagements with the organisation, being tools for leading and managing entities, and enhancing the alignment of different functions and teams with the overall organisations.

KEY TERMS: Entity, key performance indicators, organisation, project management, stakeholders, strategic competitive advantage, technology.

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CHAPTER 1: PURPOSE, SCOPE AND OUTLINE OF THE STUDY

1.1 INTRODUCTION

The revolution of Key Performance Indicators (KPIs) in technology and project management continues to play a pivotal role in influencing the entity's strategic competitive advantages and growth (Kiron & Schrage, 2018b). Kerzner (2013:85), supported this by highlighting how project management KPIs have evolved from prior focus on cost and time to the current integrated model of incorporating factors such as quality of results, productivity, business value to be delivered, and team performance. KPIs are described as metrics that communicate if the entities or individuals perform well concerning their goals and objectives (Law, 2018). As used in this study, KPIs are measurement instruments that communicate if the entities are performing well concerning their goals and objectives. Shackleton (2007:19) asserted that for an entity to develop its business effectively towards its goals and objectives, it needs to understand the outcomes of its strategies. KPIs help to highlight the changing organisational position and provide the direction to achieve business goals and objectives. This study focuses only on how KPIs create strategic competitive advantage mainly for technology and project management entities. The KPIs are well recognised and utilised around the globe and have gained considerable prominence as they assist organisations in identifying how well they are meeting their targets concerning their objectives.

Every organisation has its purpose, values, objectives, goals and policies unique to its competitors. The strategy acts as a roadmap as it helps to guide entities to arrive at their desired destination (CIMA, 2015a). "A strategy is a course of action, including the specification of resources within a changing environment required to achieve a specific objective" (CIMA, 2015b).

However, strategic strength does not guarantee the survival of entities against uncertain macro-economic challenges. No claims can be made that the strategy is good if it cannot be monitored or evaluated by the meaningful performance measurement system (Shackleton, 2007:19). What defines an entity's strategy is its KPIs (Kiron & Schrage, 2019). Shackleton (2007:19) further indicated that for organisations to meet their strategic goals, their dependency on aligned contributions from each function becomes strategically important. Unless a more effective link between KPIs and business strategy is established, it implies that KPIs will continue to have a limited business value as previously used by legacy entities. The importance of KPIs is that they are linked to goals and objectives because output metrics are meaningless unless they are compared against goals and objectives (Shackleton, 2007:19).

1.2 BACKGROUND

Traditionally, KPIs have had a retrospective view of measuring past metrics such as costs, revenues, and profits but offered little insight on how an entity's future performance was likely to be impacted. The introduction of the balanced scorecard framework by Robert Kaplan and David Norton in 1992 revolutionised how businesses aligned KPIs to the organisation's broader vision (Kiron & Schrage, 2018b). According to Schrage (2019), this has been compounded by the emergence of digital processes, platforms, and predictive algorithms, which have transformed KPIs' strategic role and purpose. KPIs are becoming measurably, more competent, more dynamic, and more responsive to changes in the environment. This makes them more versatile and valuable for securing strategic competitive advantage. The evolving nature of the operating environment for technology and project management industries and the uncertainties these industries face imply that KPIs not only monitor these entities' success but also proactively drive it (Schrage, 2019).

Schrage (2019) stated that in current fast-evolving environments, digitally sophisticated organisations have changed the traditional KPI purpose and processes. These digitally sophisticated organisations do not see KPIs' primary role as analytical outputs for humans; they use them as inputs for machines in business optimisation. Management relies on KPIs to train, tune and optimise their machine learning models for business impact. Management functions of organising have been enhanced with KPIs, leading to better investment in data and decision making. KPIs are also playing a pivotal role in organising company resources and systems such as technology, people and processes around measurement metrics. KPIs are also shaping the strategy for top-tier transformers due to their input in the organisational alignment and strategy formulation.

Law (2018) added that the entity is guaranteed to make informed strategic decisions with KPIs' as they provide an accurate and objective understanding of the business with KPIs. Kiron and Schrage (2019) suggested that, entities' strategies are defined by the KPIs leaders choose to optimise in a machine learning era. These KPIs can be customer-oriented or cost-driven, process-specific or investor-centric for value creation, enforcing accountability, transforming capabilities, and creating a competitive advantage.

Furthermore, for executives to make effective strategic decisions, they rely on numbers and figures to support their choices (Steyn & Puth, 2000:10). These numbers mainly depend on the measurement figures generated from the organisational KPIs. The new role of KPIs is sometimes

compared to navigational tools like compasses or GPS systems because, like these instruments, KPIs guide employees, managers, and businesses on their strategic or financial journeys (Bititci *et al.*, 2004:30). By tracking KPIs, employees can better understand their career development, and companies can identify areas of improvement and evolve with the prevailing environment, enhancing the entity's overall strategic competitive advantage (Indeed, 2019).

The purpose of this study is to investigate the changing role of KPIs in creating strategic competitive advantages for entities in technology and project management. The potential benefits of this research include understanding how to correctly use KPIs for developing, and increasing organisational strategic competitive advantages. This will also debunk the legacy retrospective role of using KPIs in reviewing past performance.

1.3 PROBLEM STATEMENT

There has been widespread criticism of the traditional role of KPIs for only focusing on a narrow and retrospective view of a compliance evaluation. This includes measuring past performance while offering little insight on how an entity's future performance was likely to be impacted (Kiron & Schrage, 2018b). Dharak (2020) also asserted that the previous role of KPIs was mainly concerned with the short-term results of the entity. This was also supported by Deeb (2020) who said that entities that used KPIs were not flexible in responding to change in the economy. This reduced the relevancy of KPIs in most entities as KPIs were viewed as less value-adding instruments. However, recently there has been an exponential growth in the use of KPIs, especially by born-digital and other transforming old entities. This includes entities such as Amazon, Google, Netflix, Facebook, Apple, Alibaba, and others which have developed numerous KPIs to deal with their ever-changing environments (Schrage, 2019). The explanation above explains why it is important to investigate why entities have renewed their interest in using KPIs.

To answer the above research problem, it is hypothesised that the role of KPIs has changed from initially used in compliance evaluation to recently being used as tools of transformation and value creation. This could be why there has been a renewed interest in the KPIs' use as they are now regarded not only as tools for performance measurement but also to formulate organisational strategies and create strategic competitive advantages.

Numerous studies cover corporate KPIs' measurements in different sectors. Less investigated, however, is the changing role of KPIs in technology and project management and how they contribute to creating strategic competitive advantages. This is supported by a similar study

conducted in the United States of America (Kiron & Schrage, 2019). Based on the above background and information collected from the literature, there is a clear indication that limited research has also been conducted on how KPIs create strategic competitive advantages in different sectors. However, no specific studies cover technology and project management industries regarding the changing role of KPIs. Hence this will be the first attempt to specifically investigate the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa. This has created a research gap that justifies the rationale behind this study to solve the problem mentioned above.

1.4 RESEARCH OBJECTIVES

The research objectives of this study consist of primary and secondary objectives.

1.4.1 Aim of the study

The main aim of this study is to investigate the changing role of KPIs in creating strategic competitive advantages in technology and project management entities. For this reason, the following specific secondary objectives emanate from the primary goal:

1.4.2 Research objectives

The objectives of this study are:

- 1.4.2.1.1 Investigate the changing role of KPIs in creating entities' strategic competitive advantages.
- 1.4.2.1.2 Investigate whether KPIs contribute to broader strategic alignment of the organisation and used as tools for leading and managing the entities for strategic competitive advantage.
- 1.4.2.1.3 Investigate how KPIs contribute to enhancing employee engagement and development of customers integrated view for entities' strategic competitive advantage.
- 1.4.2.3.4 This study will apply a relevant methodology through prior literature that will best assist in achieving the research objectives. This will be done in chapter 3.
- 1.4.2.3.4 Analyse, present, and discuss the results obtained from responses to the completed questionnaire received in conjunction with prior literature covered in chapter 2. This will be done in chapter 4.
- 1.4.2.3.4 Recommendations and conclusions on the findings (chapter 4) will be conducted in chapter 5.

1.5 LIMITATION OF SCOPE

This study's investigation will be limited to entities in the technology and project management industries in South Africa because of the more enormous economic impact these industries have on South African society. This is evidenced by a higher proliferation in the adoption and reliance on technology by other sectors such as mining, financial services, tourism, and hospitality. This is affirmed by the LaBerge et al. (2020) survey, which found that many entities from various sectors have embraced technology adoption. This has been increased by the COVID pandemic, which has changed the way entities do business. Furthermore, the importance of effective project management also impacts the South African economy of reducing project inefficiencies in both private and public sectors. It will also only focus on applying KPIs, which deal with fully understanding customer needs, employee engagement with the organisation, organisational alignment, leading and managing entities, and how they create strategic competitive advantages for technology and project management entities (Boillet & Larkin, 2020).

1.6 PHILOSOPHICAL ASSUMPTIONS

Philosophical assumptions are defined as a collection of beliefs that state how research should be conducted, what should be studied, and how to analyse and interpret the results (Bryman & Bell, 2015:14). Creswell (2009) further affirmed that they are general orientations about the world the researcher holds. "A paradigm contains the researcher's assumptions about how an investigation should be carried out, i.e. (methodology), as well as his / her definition about truth and reality, i.e. (ontology) and how the investigator comes to know that truth or reality, i.e. (epistemology)," (Lincoln & Guba:44). Collis and Hussey (2003:87) further stated that the methodological choice of a researcher is determined by the philosophical assumptions about ontology and epistemology.

There are mainly four philosophical assumptions which comprise of the following:

- Ontological assumptions.
- Epistemological assumptions.
- Rhetorical assumptions; and
- Methodological assumptions (Collis & Hussey, 2003:87).

There are two opposing views regarding ontology, namely objectivism and constructionism. According to objectivism, an independent reality exists, while constructivism sees truth as a product of social processes (Tuli, 2010:99).

However, truth and reality are dynamic and are evolving continuously. The existence and context of KPIs initially revolved around compliance evaluations. Over time, the evolution in technology and economic environments changed. KPIs became more about value addition through enhancement in alignment with business strategy, being used as tools for leading and managing enterprises, developing an integrated view of the customer, and solving the problem of employee engagement with the organisation (Kiron & Schrage, 2018b), thus creating entities' strategic competitive advantage.

There are two opposing views on epistemological assumptions, viz. etic and emic. An etic epistemology states that research is done in an objective way such that the researcher and links to realism do not influence research. In contrast, an emic epistemology links to a relativism ontology. What dictates the epistemological assumption for the research study is the type of ontology selected (Grix, 2004:83). This is further supported by Whittemore (2021) who emphasised that emic approach uses people within the cultural group as the main source of information used in a study. This information is obtained through interviews and observations. On the other hand, etic approach uses existing theories and perspectives that originated outside of the population which is being studied.

This study will take an independent and objective view in conducting research and thus adopt the ontology's objective element, which also guides the etic epistemological assumption selection. Details of the rhetorical and methodological assumptions and the researcher's chosen philosophical stance will be covered in chapter 3.

1.7 RESEARCH DESIGN AND METHODOLOGY

Crotty (1998:3) defined research methodology as a strategy or action plan that determines the selection and use of specific research methods. These research methods include all the steps taken during research, from broad assumptions made to the ways of data collection, the analysis, and interpretation of data (Creswell, 2009:8). According to the University of the Witwatersrand (2021), research methodology refers to procedures used to identify, select, analyse and process specific topic information. The research design and methodology discussion will consist of research philosophy, research approach, methodological choice, strategy, data collection, and analysis.

1.7.1 Research philosophy

Research philosophy believes in how data will be gathered, analysed, and used (Dudovskiy, 2020). Saunders *et al.* (2009, 124) described research philosophy as a system of assumptions and beliefs in developing knowledge. To put it in context, he further stated that it is what a researcher does when they follow the route of developing knowledge in a particular field. There are many types of research philosophies that comprise interpretivism, positivism, pragmatism, and realism. Interpretivism believes that the world does not exist independently of our knowledge (Grix, 2004:83), whereas positivists believe science is the only way to understand the truth. The positivism philosophy adheres to the view that the only trustworthy knowledge is the knowledge that is factually gained through observation (the senses), including measurement. In positivist studies, the role of the researcher is limited to objective data collection and interpretation (Dudovskiy, 2020). Lincoln and Guba (1994:110) supported this by emphasising that positivists assume that the researcher and the research object are independent entities; thus, the researcher can conduct research independently without being influenced by the research object.

Pragmatism research philosophy only accepts the concepts to be relevant if they support action. Pragmatics recognise that there are many ways of understanding and interpreting research. They also emphasise that there may be multiple realities and no single point of view can give the entire picture (Dudovskiy, 2020). According to Guba and Lincoln (1985:107), a paradigm is defined as a belief system or world view followed by the researcher, which comprises choices of methods, ontology and epistemology. Dudovskiy (2020) further stated that pragmatism research philosophy recognises the research question as a determinant of the research philosophy. Pragmatics can combine both positivist and interpretivism positions within the scope of single research. Pragmatism research philosophy can integrate more than one research approach and research strategies within the same study, unlike positivism and interpretivism research philosophies. On the same note, pragmatism research philosophy studies can combine multiple research methods such as quantitative, qualitative and action research methods (Dudovskiy, 2020). Based on the above discussions, a paradigm represents a belief system that defines the nature of the world, a person's place in the world, and the possible relationships that one can have with parts of the world and the world in totality Guba and Lincoln (1985:107).

Realism research philosophy tends to see or represent things as they are, as distinguished from the abstract or speculative (Warwick, 2020). According to Dudovskiy (2020), realism research philosophy depends on the idea of independence of reality from the human mind. It is also based on the assumption of a scientific approach to the development of knowledge.

In this study, the researcher will follow a positivist approach to objective quantitative data collection and interpretation, which is in line with this study's quantitative research strategy. This is also guided by the quantitative choice of methodology which the researcher will use in conducting the research. The researcher will also exercise independence and not attempt to influence the investigation.

1.7.2 Research approach

There are three research approaches, namely deductive, inductive, and abductive reasoning as explained below:

1.7.2.1 Deductive reasoning approaches the research process from the more general to the more specific. This approach is informally called a “top-down” approach. The researcher begins by thinking up a *theory* about the topic of interest and, then curtailing the idea to test a more specific hypothesis that narrows the belief further when collecting observations to address the ideas. Deductive reasoning is narrow and close-ended, as it aims to test the existing theory based on the current literature (Trochim, 2020).

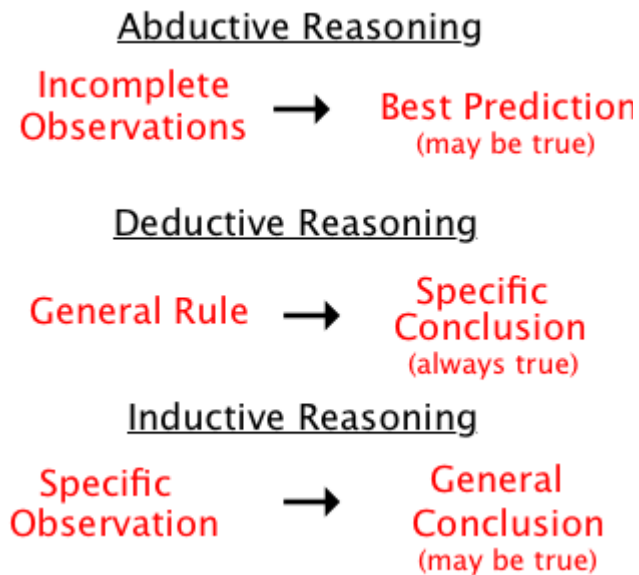
1.7.2.2 Inductive reasoning is opposite to deductive reasoning in that it moves from specific observations to broader generalisations and theories. It is also informally known as a “bottom-up” approach. This approach starts with detailed observations and moves on to detect patterns and regularities, creating hypotheses to explore and finally developing general conclusions or theories. Inductive reasoning is used when there is little or no literature on a topic, hence no theory to test (Trochim, 2020).

Unlike deductive reasoning, inductive reasoning aims at developing a new theory and is more open-ended and exploratory, mostly in the initial stages. However, most social research has both inductive and deductive reasoning elements in their processes at some point in time during the project (Trochim, 2020).

In the abductive approach, the research process begins with surprising facts, and the research process is given its explanation. Surprising facts may arise when researchers come across an empirical phenomenon that existing theories cannot well articulate. The main aim of abductive reasoning is to address the weaknesses highlighted in the inductive and deductive approaches by a careful, pragmatic perspective. The researcher chooses the best explanation from a list of alternatives when following the abductive path. This path helps to explain the surprising facts

identified earlier in the research process (Bryman & Bell, 2015:27). Figure 1.1 illustrates the main differences among inductive, deductive, and abductive approaches.

Figure 1.1: The difference between abductive, deductive and inductive reasoning



Source: Bryman & Bell (2015)

In this study, since there is readily available literature concerning KPIs, the researcher will adopt a deductive approach to test the existing theories and knowledge obtained from the literature. This is affirmed by Saunders *et al.* (2009:145), who stated that the deductive approach is used when research starts with a theory derived from reading literature. A research strategy is then designed to test the theory. Streefkerk (2019) further states that, deductive approach starts with testing existing theories, that is, it moves from broad generalisation to specific observation.

Therefore, this study will start with a general theory investigating existing literature concerning the KPIs and their changing role in creating strategic competitive advantages for technology and project management entities. It will further narrow the idea during data collection through responses that will be obtained from the survey to address the idea and end with specific conclusions in various elements.

1.7.3 Methodological choice

There are three methods for conducting research: qualitative, quantitative, and mixed methods (Creswell, 2003:153). Quantitative research is a process of collecting numerical data so that

information can be quantified and subjected to statistical treatment to either affirm or dispute “alternate knowledge claims”. In this approach, the researcher employs inquiry strategies such as experiments and surveys and collects data on pre-determined instruments that yield statistical information (Creswell, 2003:153). One of the significant strengths that Lelissa (2017:107) elaborated upon quantitative research is that its methods produce reliable and numerical data that can be generalised to a large population.

Creswell (2003:153) defined qualitative research as an unfolding model that occurs naturally and enables the researcher to develop comprehensive detail from high involvement in the actual experiences. Qualitative researchers are more engaged in inquiring about and interpreting natural occurrences (Lelissa, 2017:108).

Mixed-method research incorporates both quantitative and qualitative research approaches in collecting and analysing both quantitative and qualitative data in a single study (Creswell, 2003:154). This achieved by finding trends and generalisations, as well as in-depth information of participants' perspectives, mixed methods research helps to provide a holistic picture (Lelissa, 2017:105).

This study involves collecting and analysing numerical data that answers the research objectives. The researcher will implement a quantitative approach to address the research objectives of investigating the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa. The quantitative approach is usually selected to answer numerical research questions when a researcher anticipates numerical data (Williams, 2007:65). Key advantages of quantitative research as expressed by Lelissa (2017:107), is that its methodologies produce trustworthy and numerical data that may be generalised to a broad population. The researcher will apply the quantitative method to confirm or refute the central research objective of investigating the changing role of KPIs in creating strategic competitive advantages in South Africa’s technology and project management entities. Descriptive statistics will be used to analyse the basic numerical features of this study and then draw conclusions. The central research question demands a quantitative answer due to the nature of the study and previous literature. More details regarding the quantitative research method used in this study will be covered in chapter 3.

1.7.4 Research Strategies

A research strategy is a comprehensive guide or plan for conducting research. A researcher is guided by the research strategy in planning, executing and monitoring the study (Leedy & Ormrod, 2001:148). It describes how the researcher intends to respond to the research questions and how the approach will be implemented. There are many types of research strategies: action, survey, case studies, grounded theory, ethnography, content analysis and phenomenological (The Open University, 2020).

In an action research strategy, the researcher objectively observes a particular human behaviour or process and records the data. It is a form of applied research where the researcher tries to develop or obtain a practical solution to the people with whom the study is working and concurrently develop theoretical knowledge. Action research brings a change in a specific context (Williams, 2007:67). Meyer (2000:181) affirmed that action research focuses on generating solutions to practical problems. According to The Open University (2020), action research is carried out by insiders in a participatory way by aligning theory and practice, action, and reflection. It is based on the need to actively involve participants to own the project and implement the change required.

A survey research strategy involves the researcher capturing the phenomena. This methodology is often used to sample data from respondents that represent a specific population and use either close-ended instruments or open-ended items (Williams, 2007:67). Surveys can be sent to the entire population such as all employees of a certain company. Both action and survey strategies are mainly used for conducting quantitative research (The Open University, 2020).

However, qualitative research often uses the following methods of conducting research:

- Case studies,
- Grounded theory,
- Ethnography,
- Content analysis, and
- Phenomenological, among others (Leedy & Ormrod, 2001:149).

Creswell (2003:15) further described how these methods meet different needs. Case studies and grounded theory research is used to explore processes, activities and events while ethnographic

research analyses the broader cultural behaviours of particular individuals or groups. Case studies and phenomenology are used for individual study (Creswell, 2003:15).

Creswell (2003:15) depicted a case study as a process where a “researcher explores a program, an event, an activity, a process, or one or more individuals” in detail. Leedy and Ormrod (2001:149) further stated that the norm of a case study usually has a time frame that is precisely defined. Case studies aim to learn “more about a little known or poorly understood situation” (Leedy & Ormrod, 2001:149). Creswell (2018) suggested that the proper structure of a case study should comprise the problem, the context, the issues, and the lessons learned. Case studies draw extensive data from multiple sources including interviews, archived records, physical artefacts, direct or participant observations, and audio-visual materials (Williams, 2007:68). The Open University (2020) affirmed this by emphasising that data can be quantitative, qualitative, or a mixture of both drawn from multiple sources such as observations, surveys, interviews, and analysis of documents. The researcher will spend time on-site interacting with the people being studied to compile a report which will include lessons learned or patterns found that connect with theories (Williams, 2007:68).

Ethnography study focuses on an entire group that shares a common culture (Leedy & Ormrod, 2001:149). Creswell (2003:14) further defined ethnography “as a study in which the researcher studies an entire cultural group in a natural setting over a long period by collecting observational data”. The researcher focuses on the everyday behaviours of the group to identify norms, beliefs, social structures, and other factors (Williams, 2007:68). The purpose of ethnography studies is to understand the group’s culture changes over time. This results in generalising limited findings in other topics or theories (Williams, 2007:68). Ethnography requires the researcher to become part of participants' daily lives so that they observe their behaviour then interprets the culture or social group as well as systems (Creswell, 2018). The Open University (2020) further states that ethnography approach entails immersing the researcher in the daily lives of the people and setting of study for an extended period of time, perhaps a year, although ethnographic studies are increasingly being conducted over much shorter time periods.

Grounded theory research is defined as the process of data collection, analysing the data, and repeating the process. Grounded theory research starts with data collection that develops into a theory. There are several sources on obtaining data, including interviewing participants or witnesses, reviewing historical videotapes or records, and observing while on-site (Leedy & Ormrod, 2001:149). Creswell (2018) supported Leedy and Ormrod’s (2001:149) standard format

on the data analysis process in grounded theory research that incorporates open coding, selective coding, axial coding, and developing a theory. Lastly, the report from a grounded theory includes five aspects: describing the research question, literature review, methodology, data analysis explaining the idea, and discussing the implications (Leedy & Ormrod, 2001:149). According to Dudovskiy (2018), the main goal of grounded theory is to develop a theory by creating, testing, and recreating a proposition. This method describes a theory that is derived from various data sets (Dudovskiy, 2018)

This study will use a survey and grounded theory research instruments in research as the researcher believes that following these methods in investigating the changing role of KPIs in technology and project management entities will help in achieving the research objectives. Thus, after achieving the objectives, it will create a basis on which future research and theory will be developed.

The questionnaire which will comprise close-ended questions will be used to obtain data for analysis and find a conclusion for the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa. This study will also follow a process of describing a research question, investigating the literature review, describing the methodology used in the study, analysing the data of the results obtained, and discussing the implication of the results, that is asserting the alignment with grounded theory strategy in research, as indicated above.

1.7.5 Data collection and analysis

This part provides a detailed explanation of considerations regarding data gathering as well as handling of such data that will be used in the study.

1.7.5.1 Data collection

Data collection is the “process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer queries, stated research questions, test hypotheses, and evaluate outcomes” (Jovancic, 2019). This study will use quantitative data based on the explanation in the following paragraph.

Quantitative research uses numeric data to provide answers such as “Who? When? Where? What? and How many?” Close-ended questions are created to achieve the research objectives, making the answers easily transformable into numbers, charts, graphs and tables. Using quantitative techniques to obtain data is usually seen as more objective and reliable than

qualitative techniques because quantitative methods of gathering data are often based on numerical calculations (Jovancic, 2019).

This study will utilise quantitative research due to the objectivity and positivity the researcher displays. A self-constructed questionnaire will be developed to cover this study's data gathering process. It will be guided by the objectives of the study and literature obtained so far. The questionnaire will consist of a set of questions which will be used to gather a range of pre-determined responses to measure the existence of KPIs and their changing role in creating strategic competitive advantages through strategic alignment, development of customer integrated focus, enhancing employee engagement, being tools for leading and managing different organisations.

Due to the impact of COVID on the world, a web-based questionnaire will be distributed by using LinkedIn and email by to different respondents working in various capacities in technology and project management entities. These participants will be requested to participate in the survey by completing a questionnaire. All completed questionnaires will be collected immediately in an automated way, and the identities of all participants will remain confidential. A similar method of collecting data was used when conducting Covid 19 and my personal finances survey by Fouche (2020).

1.7.5.2 Target population

The target population is the group that the researcher wants to gather information from (Glen, 2019). The primary targets will be the respondents working at supervisory, managerial and executive levels in technology and project management entities in South Africa. These individuals are presumed to be exposed to KPIs and strategy formulations in their respective roles at the entities they are working. The researcher will initially identify 20 participants working in 15 technology and project companies in South Africa. The non-probability sampling method will be used to choose samples (entities and individuals) from the target mentioned above population. As these types of participants are expected to be scarce, adopting a non-probability sampling technique is regarded as applicable to this study. This will involve chain-referral, where primary data sources will be referred to or recommended to potential primary data sources to take part in the study. Snowballing sampling is one of the most common primary data collection methods in business studies, where the researcher first identifies a section of individuals in targeted companies (Dudovskiy, 2018). Specifically, exponential non-discriminative snowball sampling will be used. A researcher plans to approach about 20 individuals in technology and project

management companies with whom he has a professional relationship; these individuals will act as primary data sources.

These first 20 participants working in 15 technology and project companies in South Africa will be recruited and will also be asked to provide multiple referrals of other participants. Each new referral will be expected to provide more referrals until there will be enough participants for the sample. A questionnaire will be sent to these individuals to complete, and they will also be requested to forward the same questionnaire to their colleagues whom they have recruited in the same or similar technology and project management entities. For the sake of the protection of private information, this study will not request any contact details of respondents. Still, it will rely on primary targets to forward the questionnaire or recommend it to other prospective respondents.

1.7.5.3 Data analysis

Data analysis for this study will be done using descriptive analysis based on the findings from respondents who completed the questionnaire. The Department of Statistics from The North-West University will assist in conducting this task. Since the study uses quantitative research, data will be analysed using ratio analysis based on responses to each category of the web-based questionnaire. This will enable the researcher to conclude respondents' views on the questions asked. Statistical analysis will be performed using SPSS tool and will use tables as analysis aids.

The study will also ensure that the scientific requirements of generating research findings will be followed to uphold the validity of the research. This is based on Oliver (2010), who asserted that all types of studies should compulsorily follow validity requirements. The survey responses will be stored in a controlled environment in Google drive to which the researcher will have sole access.

1.8 EMPIRICAL RESEARCH

Empirical research is a type of research methodology that uses verifiable evidence to arrive at research outcomes. This type of research relies on evidence collected through observation or scientific data collection methods, according to Bhattacharya (2008). The quantitative data collection method will be applied to this study since the study will only rely on numerical empirical evidence obtained from selected respondents. The respondents will fill in numerical responses by indicating whether they agree or not with the statement and the extent of their agreement or disagreement on a four-point Likert scale. A non-probability sampling method will be used to identify the sample, as illustrated in detail in paragraph 1.7. The maximum number of participants

will be 80, and the minimum will be 60. This sample is considered sufficient for this study due to the following reasons:

- This study only covers two industries within South Africa. Comparative studies such as Leading with next-generation KPIs, Customer focused KPIs, and Strategy for and with AI had a survey sample of 3200 covering 20 industries in 107 countries (Kiron & Schrage, 2019).
- Unlike some studies that randomly select respondents from targeted industries, this research will only focus on respondents at strategic and managerial levels within the technology and project management industries because these people are involved in KPIs and strategy implementation. These comprise both listed entities on the Johannesburg Stock Exchange and unlisted companies in South Africa. Considering that this study will target respondents at strategic and managerial levels, such respondents are not abundant and are regarded as scarce to find.

1.9 THEORETICAL ROUTE OF THE STUDY

The theoretical approach that underpins this study is the grounded theory. Grounded theory is a research method that develops from the data (Davidson, 2001). According to Dudovskiy (2018), the main aim of grounded theory is to create, test, and recreate a proposition until the theory is developed. This approach describes a theory developed from different data sets (Dudovskiy, 2018). This theory is essential since this study will mainly use quantitative data collection, analysis, and conclusions about the changing role of KPIs in creating strategic competitive advantages for technology and project management entities. Grounded theory is perceived as a method that separates theory and data, although some researchers insist that the technique combines the two. Data collection, analysis, and theory formulation are connected to common sense, and the grounded theory approach incorporates explicit procedures to guide this. This is especially evident because, according to grounded theory, the processes of asking questions and making comparisons are specifically detailed to inform and guide analysis, and facilitate the theorising process (Davidson, 2001).

1.10 LIMITATIONS OF RESEARCH

The total population in this study was about 85 and was considered small compared to the targeted industries, which are very broad. Although the study was successful in helping to investigate the changing role of KPIs, it only focused on two industries (the technology and project management sectors), and its findings can therefore not be generalised to all industries at large. As highlighted in the literature review, where KPIs are used in conjunction with AI in shaping the

strategy of most technology entities, there are so many factors that contribute to creating strategic competitive advantages. Therefore, emphasis should be placed on looking at integrated factors and not only focusing on KPIs as major contributors, which may be misleading to many users if they do not consider other factors.

1.11 OVERVIEW OF CHAPTERS

The chapters in this mini dissertation are as follows:

Chapter 1: Introduction and background

This chapter describes the nature and extent of the study. It consists of the introduction, background, limitation of scope, problem statement, research objectives, theoretical routes of the research, and the research design formulated for the research project. It also introduces the research methodology used in investigating the existence of KPIs and their changing role in creating strategic competitive advantages for technology and project management entities in South Africa.

Chapter 2: A literature review

This chapter will discuss the empirical and theoretical aspect of the existence of KPIs and their changing role in creating strategic competitive advantages for technology and project management entities in South Africa, as elaborated by secondary objectives in paragraph 1.4.2.1.1. to 1.4.2.1.3.

Chapter 3: Research methodology

A detailed breakdown of the research methodology is followed to achieve the primary and secondary objectives is provided, as set out in paragraphs 1.4.1 and 1.4.2.4.

Chapter 4: Analysis, presentation, and discussion of findings

This chapter discusses and reports the results of the research project by detailing the findings from the empirical research study based on the responses from a questionnaire about the existence of KPIs in technology and project management entities, as well as their changing role in creating strategic competitive advantages, therefore, answering secondary objective 1.4.2.2.2.

Chapter 5: Conclusions and recommendations

Finally, the last chapter presents the conclusion and recommendations based on the findings drawn from the research brought about by the literature and empirical studies above., thus, achieving the primary and secondary objectives as indicated in paragraphs 1.4.1 to 1.4.2.2.3.

1.11 SUMMARY

This chapter introduced the background to the study, which further described the research problem and scope limitations. It also outlined the research objectives which the researcher wants to achieve. The research methodology this study will follow was discussed, including the paradigms of assumptions. The theoretical routes of the study were also elaborated upon, with a final overview of every chapter.

The next chapter will examine the literature review that addresses the research problem and objectives of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The literature review is typically a summary of previous research conducted on a specific topic through surveys of many scholars, books, articles and other sources (Fink, 2014). These reviews create firm foundations for identifying gaps in previous research and advancing knowledge (Webster & Watson, 2002:13). A literature review serves as an introduction to a particular topic or subject. It provides an overview of the primary sources utilised in the study and its findings (Fink, 2014).

This chapter will analyse the literature review to understand the changing role of KPIs in creating entities' strategic competitive advantages for technology and project management entities in South Africa. This will present in-depth knowledge about the existence and use of KPIs from the organisations researched. It will also investigate the contribution of KPIs to the broader organisational strategic alignment, enhancement in employee engagement to the organisation, development of customer integrated view and how KPIs augment leading and managing entities for strategic competitive advantage.

2.2 DEFINITION OF KEY PERFORMANCE INDICATORS AND GENERAL OVERVIEW

KPIs are regarded as tools that help individuals and their teams measure the performance of their organisations. They also serve as a compass, guiding teams and individuals toward their strategic goals (Jackson, 2017). Law (2018) further defined KPIs as metrics that communicate if entities or individuals perform well concerning their goals and objectives. They highlight the company's changing position and guide management on the direction to achieve business goals and objectives.

Nevertheless, for KPIs to be effective, Jackson (2017) emphasised that they must possess the following attributes:

- Be quantifiable and well defined;
- Be cascaded throughout the department and organisation;
- Be vital in enhancing the achievement of the entity's goals,
- Be applicable to the department and line of business.

The United States of America's Department of Transport Government (*as cited by* Shackleton, 2007:139) further defined KPIs as the procedure which supports decision making processes. This

definition opens up a new way of understanding and interpreting KPIs. KPIs are viewed as tools for assessing if entities are successfully meeting their desired objectives as they perform their activities but also and to determine if KPIs provide input in decision-making. The interpretations varying nature provides great insight into how entities view their performance measurement systems. According to Robson (2005:145), the following four aspects can be obtained from these definitions:

- Decision-makers use KPIs as a source of information;
- The KPIs are used to measure strategies and ensure that they remain effective;
- The KPIs are used in measuring continuous improvement, and
- The indicators are mainly quantitative.

The above explanation highlights that the most vital work of KPIs is to assess if the entities are meeting their strategic objectives or not. By measuring the strategy, KPIs help i implement the strategy (Robson, 2005:145).

2.3 THE VALUE OF KEY PERFORMANCE INDICATORS

The KPIs play a vital role in managing entities, mostly in continuously evolving, uncertain, complex and competitive operating environments where decision-makers are highly exposed to a vast array of data and issues on which they are expected to make strategic decisions (Fleisher *as cited by* Shackleton, 2007:135). Business executives can be overwhelmed by the large amount of information they receive daily about their company. Determining the use of KPIs allows the executives to focus on the most important information because additional information can distract them from their leadership fiduciary duties (Stephens, 2019). Although tracking and understanding KPIs is time-consuming and requires more effort, this investment always pays off in the long run. Understanding the relationships between the various components of a business helps management to make well-informed decisions which enhances the entity's strategic competitive advantage and the end bottom-line (Law, 2018).

Measuring a strategy is a widely accepted philosophy for creating strategy-focused organisations (Kaplan & Norton's, 2001:1). KPIs align with strategy by consistently evaluating the effectiveness of the strategies and positioning them with the demographics and uncertain market forces. Stephens (2019) further outlined the following four benefits of KPIs as measuring tools:

- **Communication of the company's priorities:** KPIs guide the prioritisation of scarce resources in the organisation. KPIs can improve communication within an organisation by

allowing everyone to own and recognise the plans created by management. When two aims clash making anything, a priority declares what will be secondary.

- **Clear definitions of success:** While everyone in the organisation may agree that the goal is to "be the leader in our market," they may disagree about what defines success. People have varied tastes when it comes to determining whether success is characterised by the highest customer happiness, the largest market share, or the highest profitability. KPIs were created to address this issue.
- **Continuous feedback for quick changes:** Everyone wants to know right away if their plans and tactics are on track to meet their objectives to prevent them from losing time and money. Strategies, goals and plans, like anything else, are not always flawless, and regular response helps to improve them.
- **Accountability:** "What is measured gets managed," as the adage goes in performance measurement. Since the organisation is committed to raising particular KPIs, it shows that they are crucial to success, and action must be taken if a metric is not fulfilled.

By implementing KPIs that analyse the impact and strategic success management can only identify where the entity is going, whether it is heading in the intended direction, how accurate the direction is, and how rapidly the entity is moving in that route (Ritter, 2003:44). KPIs are similar to speedometers, rearview mirrors, maps, and GPS in that they display information about an entity's past, current, and expected positions (Bititci *et al.* 2004:30). Kaplan and Norton (2001;17) stated that when entities measure their strategy, they achieve the following:

- The operationalisation of the strategy;
- The potential to align and integrate entire entity functions and processes to the strategy;
- The potential for the strategy to be well accepted by all employees at different levels of the entity, as the strategy becomes all employees' daily activity;
- Entities can treat strategy as a continuous process;
- Leaders can organise innovative mechanisms for the entity;
- The possibility of embedding and improving participatory and consultative management approaches;
- The potential to transform entities from the original culture to a more goal-oriented achievement culture.

To expand on the above discussion, the general belief of society is that the most essential and managed areas of the entity are the ones that can be quantitatively measured using performance measurement systems such as KPIs. Those areas which are found to be unmeasurable are regarded as less important and do not require management's attention (Rensburg & Ferreira, as cited by Shackleton, 2007:136). Furthermore, management uses the process of KPIs performance measurement to understand, adjust and improve all business functions. This is in line with a popular proverb that states that if the entity or individual wants to improve its affairs, it needs to continue to measure its results (Velimirovic *et al.*, 2011:65). Management also uses quantitative and general results as strategy measurement and adaptation tools. Identifying KPIs forces executives to think about the company's long-term objectives. This helps leaders to generate questions on what the company is trying to accomplish at a particular time. By their nature, KPIs are strategic because they answer the questions generated by the business objectives (Taylor, 2017).

The importance of KPIs is that they encourage measurements, accountability of overall organisational performance and create a base for continuous improvement (Poleski, 2019). Serious strategists use KPIs to hold their entities and themselves accountable for the strategic outcomes (Velimirovic *et al.*, 2011:65). Poleski (2019) also asserted that KPIs provide simplicity to performance management since they allow everyone to see what they are doing individually, and what others are doing as well. This demonstrated transparency ensures that everyone's work aligns with the broader organisational directional goals (purpose). To add to this, KPIs serve as a compass, guiding KPI holders to stay focused on attaining their goals. Seeing that the response to "How are we doing?" is wrapped in a simple number rather than hidden under spreadsheets, services, or estimates, lines of communication are then streamlined.

2.4 THE PURPOSE AND EFFECTIVENESS OF KEY PERFORMANCE INDICATORS

The main role of KPIs is to measure the outcomes of organisations and individuals. This is aided by KPIs' ability to characterise events that occur when an employee, department, or organisation performs a specific function. KPIs are not activities; they are outcomes that need to be assessed, and the outcomes, no matter how small, should be business-related Harrison, as cited by Shackleton, 2007:137). Furthermore, a comprehensive set of integrated measures relating to the mission, objectives, vision and strategies is required (Seang, 2003:6). According to Marr (2013), only after the mission has been analysed, stakeholders identified, and goals specified, are KPIs set in place to track progress toward goals. To be effective, KPIs are closely tied to the strategic objectives of either the entire entity, a business unit or an individual. KPIs depend on the nature

and requirements of the organisation, hence differences in the types of KPIs every organisation uses should be expected.

To achieve full actuation, it is not enough to know where you are going (vision), but the direction must be backed by the how (strategy), the what (objectives), the focus areas (CSFs), the action (key action initiatives), and the metrics (KPIs) (Seang, 2003:8). However, Seang (2003:2) further stated that KPIs must represent all levels of the organisation, including individuals, teams, processes, departments and the broader organisation as a whole, to be effective. The focus should be on sustaining a continuous improvement mindset in relation to the organisational goals. Individuals and teams in organisations can use KPIs to understand what they need to accomplish to contribute to the organisation's higher-level goals. This was also affirmed by MindTools (2021) which emphasised that KPIs can be used to measure any aspect of performance and should be in line with the organisation's key success criteria as well as its stated vision and strategy for the to be successful.

KPIs must also be developed and agreed upon by all participants before any activities can be carried out because, unlike corporate activities and procedures, KPIs indicate the strategic value (Bauer, 2004). KPIs are produced with input from all parties concerned and then distributed to all levels of the organisation to ensure accountability (Bauer, 2004). According to Seang (2003:1), the greatest advantage of KPIs is the process of generating useful performance metrics for an organisation only if the procedure integrates the entire organisation is it considered effective. KPIs serve as a link between an organisation's vision and individual action. In an ideal circumstance, KPIs in an organisation cascade from one level to the other (MindTools, 2021).

2.5 THE CHANGING ROLE OF KEY PERFORMANCE INDICATORS

KPIs have a history of measuring previous indicators such as profits, revenue and costs retroactively with little insight into how an entity's future performance is likely to be. In addition to the above criticism, the legacy role of KPIs has been blamed for lacking predictive power as their major focus has been on lagging indicators that emphasise evaluating past performance (Kiron & Schrage, 2018b). They are also blamed for only focusing on a single performance measure, rewarding bad behaviour, being inflexible, and not recognising major business developments until events happen; it is too late to strategise and respond to (Robson, 2005:141). KPIs have also been chastised for obstructing investments in customers, suppliers, processes, people, technology and innovation, all of which are considered critical for the entities' future value development (Du Plessis *et al.*, 2001:424 as *cited by* Shackleton 2007). This was also affirmed

by Ritter (2003:45), who compared the old role of KPIs to car rear-view mirrors since they show results of previous decisions but do not consider future anticipated outcomes. As a result, the old role of KPIs has focused on how the entities have been doing rather than where the entities are going (MIT IDE, 2019).

On the other hand, the balanced scorecard, was an early influencer in redefining the old role of KPIs. This framework was created by Kaplan and Norton in 1992, and it altered the way businesses linked KPIs with the company's overall goal (Kiron & Schrage, 2018b). Kerzner (2013:85) supported this by highlighting how project management KPIs have evolved from prior focus on cost and time to the current integrated model of incorporating quality of results, productivity, business value to be delivered, and team performance. The above narrative is affirmed by Kiron’s and Schrage’s (2018a) research they conducted to understand how companies were now using KPIs. Kaplan and Bower, senior fellows and professors of leadership development at Harvard Business School, were among the people they contacted. Kaplan and Bower elaborated that many CEOs they encountered emphasised the current role of performance measurements as tools to enhance communication with every employee to understand the company’s mission and objectives. This demonstrates that the role of KPIs is not limited to compliance evaluations but covers a broader area which includes decision-making enhancement and strategy execution.

Due to a shift in focus, table 2.1 compares the roles of classic and more contemporary performance measurement systems (Seang, 2003:5).

Table 2.1: Performance measurement systems' shifting priorities

Traditional	Innovative
Based on cost/efficiency	Value-based
Dedicated to results	Oriented toward compatibility in terms of performance
Profit-orientated	Customer-orientated
Orientation for the short-term	Long-term planning
Individual measurements' prevalence	Team measures are commonly used.
Functional measurements are commonly used.	Team measures are commonly used.
In comparison to the norm	Monitoring of progress

Attempt to assess	Aim for evaluation and participation
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Source: Seang (2003:5)

Table 2.1 shows that the relationship-orientated understanding of how entities are performing has become the new focus of performance measurement systems. According to Robins (*as cited by* lerissa, 2017), this view is similar to the Systems Approach in organisation theory, concerning measuring entities' effectiveness. Here the emphasis is placed on the integrated measurement systems focusing on both financial and non-financial elements. The entity's integral focus is on its ability to procure resources, maintain them, interact with its external environment, and emphasise long-term survival. As a result, reaching several end objectives has become more crucial than focusing on a single historical goal.

2.6 KPIs AND THEIR CHANGING ROLE IN ENHANCING ORGANISATIONAL STRATEGIC COMPETITIVE ADVANTAGES

Despite the history of KPIs as discussed in paragraph 2.5, the survey conducted by Kiron and Schrage (2018a) showed that KPIs are used by the majority of senior executives in their firms to measure competitiveness, effectiveness and success. KPIs are now considered the core components of organisational transformation since they also reflect the business culture of the leaders who develop them (Bloem, 2016).

With KPIs' changing role, management functions of organising have been enhanced, leading to better investment in data and decision making. The revolution of KPIs has made them responsible for determining and redefinition of decision-making authority and analytic priorities. KPIs have become essential organising principles for leadership investment in data and decision-making, which is the most valuable insight they provide. This is due to the reorganisation of people, processes, and technology regarding measurements (Schrage, 2019). Unlike the previous analysis in paragraph 2.5, where KPIs were viewed as retroactive, the new purpose of KPIs is now viewed as prospective, and they are frequently equated to navigational tools such as compasses or GPS systems. KPIs, like these instruments, help individuals, managers and enterprises navigate their strategic and financial goals (Bititci *et al.*, 2004:30).

2.6.1 The role of KPIs in building a better and engaged team for organisational strategic advantage

There is a global business temptation to believe that KPIs are only the responsibility of organisational leaders, such as CEOs, presidents, board members and other C-suite executives

who must make critical strategic decisions. KPIs indicate strategic success and serve as a benchmark for areas that could use some work (Boyle, 2017). KPIs operationalised within the organisation can provide real-time insight into changing activities, direct course correction, indicate areas for process improvement, and provide internal indices to change strategy (Bloem, 2016). KPIs are also seen as a vital tool for building an organisation's team and achieving high-quality organisational performance since they can provide a creative solution to the intractable problem of employee engagement (Boyle, 2017).

Many organisations are struggling with employee engagement worldwide. According to Gallup data, only 33% of employees in the United States (and only approximately 15% globally) consider themselves engaged, which indicates they are "interested in, excited about, and committed to their job and workplace" (Boyle, 2017). The absence of employee engagement has a negative influence on many firms' bottom lines (Boyle, 2017). According to Gallup's research on promoting employee engagement through culture, businesses with a highly engaged staff enjoy a 20% gain in revenue on average (Harter & Mann, 2017). Adkins (2016) elaborated on this, stating that global employee engagement is one of the most challenging and misunderstood ideas. Many bosses are feeling overwhelmed by increased employee demands daily. Employee mobility is greater than it has ever been, with people changing employment at a rate that would have appeared inconceivable only a few decades ago. The rise of career sites like Glassdoor.com, Pnet, Career 24, Indeed, Gumtree, LinkedIn, and articles about a good company culture, has exacerbated this. As a result, employees are more knowledgeable than ever before, which has streamlined their job search (Adkins, 2016).

Moreover, managers are faced with how they can motivate disengaged employees. The first thing managers can do is to identify the views of employees on the work environment they are experiencing relating to the loyalty and satisfaction of their employer (Morgan, 2017). According to Dewar (2019), one of the most prominent KPIs is Net Promoter Scores which can be used to accomplish this objective. Net Promoter Scores (NPS) were created to track customer happiness, loyalty, and the likelihood of recommending the company's products or services to friends or colleagues. Progressive employers have since implemented the NPS internally to obtain the same information from their staff. This is accomplished by simply asking, "How likely are employees to recommend working at a company to a friend or colleague?" Employees that are engaged are more likely to recommend a position to a friend or colleague; therefore, the higher the score, the better. If the score is low, management must figure out how to boost employee satisfaction.

According to Dewar (2019), having a good understanding of what employees want from their jobs aids in determining the reasons for a low employee NPS. Management will be able to formulate strategies that will help in alleviating the problems of employee non-engagement. This can be accomplished by emphasising the need of informing employees about the ideals of employee engagement and involving them in the development of policies that directly influence employees' lives. Employees who are engaged are more likely to invest in the company's overall success rather than just being there for the money and other perks. They are also more likely to consider their jobs as vital components of the firm's mission, and they are more inclined to help the company in a variety of ways outside of their regular duties (Dewar, 2019).

2.6.2 The role of KPIs in connecting employees to organisational purpose

This section opens with an intriguing narrative, as told by Jansen (2014), that commonly circulates concerning employee engagement. It refers to a period in the 1960s during which John F. Kennedy, the then-president of the United States of America, paid visits to the National Aeronautics and Space Administration (NASA). The President approached a worker at the site and inquired about his occupation. "I'm helping to put a man on the moon, Mr. President," a NASA staffer said. This is widely considered to be the apex of employee engagement. The above NASA employee was well informed about the mission which the organisation was trying to achieve and was connected to organisational purpose. Clearly, defining the organisation's mission and objectives play a major role in achieving the said employee's connectedness with the organisation's purpose.

Entities that want their employees to be fully engaged with their organisation's mission must identify the distinct trait motivating them to work. After establishing a distinct trait, the organisation must demonstrate how its employee relates to it. Seeing that KPIs are involved in clearly identifying the organisation's objective and conveying the strategy to leaders and lower-level employees, they can assist in linking people to the organisation's purpose (Jansen, 2014). The observation by Taylor (2017) is that when employees are asked why they do not feel engaged at work, the most common responses are:

- They do not feel connected to the organisation's wider mission;
- They do not perceive how their daily efforts and activities affect the larger entity's aims;
- They do not comprehend the organisation's broader strategic direction.

Although they appear to be unique concerns in some ways, the preceding replies all come to the same conclusion. A thorough examination reveals that they all arise from the same problem: inadequate or ineffective strategy communication between management and lower-level

employees. KPIs, by their nature help, solve this problem, as illustrated earlier by communicating strategies that are formulated at the executive level to lower team members. Naturally, KPIs are strategic because their major strength comes from their ability in helping entities to focus on what is important. They also play a vital role in highlighting to employees what is essential to management in the first place, and when employees perceive the ultimate goals for which they are working, they feel inspired and engaged (Taylor, 2017).

2.6.3 The role of KPIs in helping team members connect and pull towards broader organisational goals

According to Taylor (2014), one of the biggest challenges that management responsible for team building has been bringing together disparate aspects of an organisation to focus on essential goals. The sales department or team, for example, is primarily concerned with obtaining new clients and converting them into customers. On the other hand, the product development team, focused on the most recent technologies or goods and attempt to put them on the market. Similarly, the human resources department is responsible for hiring new personnel to fill any openings and ensuring that the entire workforce is committed to the company's mission. The use of some KPIs can assist in bringing all of these disparate components of the organisation together by focusing on the key parameters that underpin business success. Entities can convey to their employees the importance of their efforts or activities beyond what they accomplish on behalf of their departments (Taylor, 2014).

To expand on the above, Taylor stated (2014) that KPIs play an important role in communicating strategy to all entity employees. This is done by connecting employees to the broader end goals of the organisation. Employees' frustration and eventual disengagement set in when they are given tasks of which they fail to understand the end goals. KPIs assist in resolving this issue by eliminating the uncertainty that exists in many global companies tactical and identifying the end goals which everyone is striving for.

Poleski (2019) also emphasised that KPIs play an important role in communicating business objectives since they help management keep an entity objective at the forefront when making a decision. Lack of effective communication of broader business purposes has been cited as one of the major problems in many entities. Business goals must be successfully communicated throughout an organisation so that everyone is aware of and accountable for their respective KPIs. This helps to keep the company's overall objectives at the forefront of everyone's thoughts.

2.6.4 The role of KPIs in enhancing teams reaching their organisational key goals

Many entities' management encounter problems in helping teams of employees accomplish their goals. This is because they tend to utilise the wrong management style, popularly known as micromanagement, in all situations. This management style causes a slew of issues for employees, including low morale, stifled innovation, and a loss of autonomy (Poleski, 2019). When managers micromanage, they believe they are simply doing their jobs or are even being helpful to their employees. In reality, they do not know that they are hampering their employees' creativity, morale, freedom and are also frustrating them (Taylor, 2014). Managers are expected to be involved in what their employees are doing by the entire business community. Setting an ultimate goal and directing staff how to get there, on the other hand, is a narrow line to walk. KPIs provide an advantage by allowing management to set some expectations (goals) of what they want to accomplish while leaving the specifics on how they will achieve their goals (creativity and ingenuity) in the hands of the team (Poleski, 2019).

In summary, the points below show how KPIs play a role in helping employees reach organisational end goals for strategic competitive advantage:

- **It starts a debate about the strategic direction.** Most entities fail to explain their strategic direction systematically and clearly. Employees and other senior managers are usually left to seek a good understanding of their organisation's strategy. This issue is overcome by defining KPIs, which assists at the beginning of a conversation about strategy. As a result, management and all staff are compelled to enquire about the entity's overall goals.
- **It aids in determining how KPIs relate to strategic objectives.** Employees can learn what KPIs are and how they relate to an organisation's end goals by participating in a KPIs exercise.
- **It directly engages employees.** KPIs help in improving communication between management and general employees by forcing management to listen to employees' views which have intrinsic engagement benefits (Klipfolio, 2019).

2.6.5 The role of KPIs in enhancing employee's morale and personal growth

A company's performance is also dependent on the culture prevailing in the organisation. Entities that have a prevailing culture that supports and motivates all their employees mostly perform better than others that do not do the same. As a result, measuring KPIs aids in recognising employees' efforts, identify areas where they require assistance and assuring their sense of accountability and duty (Poleski, 2019). Individuals or team members who fulfil their KPIs targets have a sense of ownership in their work and visible evidence of their contribution to the team,

according to (Stephens, 2019). The explanation is that most people are motivated by a desire to succeed and a desire to find meaning in their work. KPIs are valuable because they provide clear and consistent feedback on progress toward goals (Stephens, 2019). When a firm grows, the gap between the organisation's accomplishments and the individual's efforts usually widens. When people are held accountable for KPIs, they are more inclined to push themselves and experience greater satisfaction from a well-done job (Poleski, 2019).

One of the benefits that Poleski (2019) highlighted is that if an entity introduces KPIs to monitor its performance against targets, an environment of learning is created, even if the results are good or bad. Employees can use KPIs to see how they are performing at any given time. Employees do not have to wait until the end of the month, quarter, year, or project to tabulate the findings. If they measure KPIs, they can ask themselves numerous questions about their performance, such as what, why, how, and when, especially if they do so on a real-time KPI dashboard. As a result of this propensity, learning from successes and failures becomes a daily rather than weekly or monthly experience. Furthermore, when an organisation allows its employees to evaluate and respond to their performance in real-time, employees are more likely to achieve their objectives and understand how to do so in the future. This sense of constant progress enables people to achieve far bigger results than they could have imagined, which is critical for job satisfaction and personal development (Poleski, 2019).

2.6.6 The role of KPIs in enhancing customer retention

The cost of recruiting new consumers is five to 25 times higher than the cost of keeping existing customers, according to Harvard Business Review (Schrage, 2019). Instead of wasting time and resources looking for new consumers, it makes sense to keep present customers satisfied and retain them (Gallo, 2014). Customer retention is extremely lucrative, as evidenced by research conducted by Fredrick Reichheld of Bain and Company (the originator of the Net Promoter Score) who found that boosting customer retention rates by 5% improves earnings by 25% to 95% (Reichheld, 2010).

Customer turnover rate is one of the most important measures in determining whether a company retains its customers (Steenburg & Avery, 2013). Churn is a KPI that measures how many customers leave a company during a given period. Customer retention is essential for maintaining cash flow and profitability, both of which are important for long-term investment in the company's strategic competitive advantage. This is especially true in subscription-based businesses such as

software, entertainment, financial services, gymnasium memberships and mobile phone services, to name a few (Gallo, 2014).

As mentioned above, one of the ways these organisations achieve this is by predicting the churn rates so that they can eventually prevent it. Reduced turnover is a strategic aim for several sectors. The acceptable KPI example of how virtual interdependencies between data and decision making emerge simultaneously is customer churn. Significant changes in churn rates also necessitate prompt attention from top management (Gallo, 2014). According to Jill Avery, a senior lecturer at Harvard Business School, many executives prefer to track and publish churn rates instead of retention rates, or how many customers stay. However, churn isn't just a concern for marketers. Many investors use the number to assess a company's underlying health, as the higher the churn rate, the more they doubt its viability (Steenburg & Avery, 2013).

Understanding retrospective churn is not important enough in big data and AI contexts because organisations want to predict churn and avoid it ahead of time. "A virtuous cycle approach is required to make churn a more anticipatory and prescriptive KPI. In other words, the KPI becomes smarter as a result of "learning from churning" (Schrage, 2019). According to Steenburg and Avery (2013), if a firm wants to keep consumers, it needs to know how many depart and the underlying reasons for terminating their engagement with the company. Any changes in a company's churn rate could indicate that something is going well if the number goes down; on the other hand, if the number goes up, it could indicate that something needs to be addressed. According to the theory, when management realises that more customers are departing, they can modify their marketing strategy or customer service approach, according to the theory. An examination of attrition rates by customer category reveals which consumers are at risk and may require action. Churn is a straightforward metric that informs executives about when and how to communicate with customers (Steenburg & Avery, 2013).

Customers depart for a variety of reasons, according to Schrage (2019), including exposure to specific negative events such as poor service or unexpected expenses. On the other hand, some competitors may provide more tempting solutions, or the service may become less interesting for other reasons. This type of churn, known as silent churn, is more difficult to detect and anticipate. Although it may be difficult to forecast future churns, companies attempting to develop a better churn KPI must link unfavourable customer experiences to the likelihood of churning. Companies should be able to recognise the disengagement behaviours that consistently result in disconnection. They would probably put money into identifying the clients and categories that are

most likely to leave. This necessitates that these businesses understand which data sets would be the most useful for scoring or ranking consumers who are “likely to churn” and prioritise preventative action (Schrage, 2019).

Marketing executives examine the turnover rate at a segment level, such as how many consumers aged 18 to 25 left the company in the previous month. However, sophisticated and data-rich businesses are beginning to look at the numbers on a per-customer basis. The rise of big data allows businesses to respond to churn rates more rapidly and precisely. Many companies are using churn rates to understand what happened in the previous period and to predict what will happen in the future (Steenburg & Avery, 2013). HubSpot, which provides inbound marketing software solutions to small and medium-sized enterprises to attract prospective consumers to their websites, is one of the most sophisticated churn managers that use the above predictive analytics. Customers can access this company's software via the cloud, allowing it to track real-time customer usage of its tools and services (Steenburg & Avery, 2013).

Churn is so critical to the profitability of a software service company that it is taken extremely seriously. When the economy slipped into a recession in 2008, the HubSpot churn rate increased exponentially. The company looked at its customer churn statistics to see what it could learn about which customers were more likely to depart and when they did. The organisation was able to target consumers whom it suspected of cancelling their memberships using the above research and offer them services such as extra training on specific features to persuade them to stay (Steenburg & Avery, 2013).

HubSpot and other companies have built analytics and KPIs such as churn to anticipate which customers would depart. Most innovative organisations are utilising churn rate analysis as an opportunity to stay ahead of losing clients rather than just accepting it in this unpredictable market (Steenburg & Avery, 2013). This helps these entities to strategise marketing offerings or customer services approaches which lead to customer retention (Steenburg & Avery, 2013).

2.6.7 KPIs role in enhancing entities focus on customer experience

In many businesses in the 1960s, the mass production business model was fully established. Because of the widespread use of this paradigm, economist Theodore Levitt famously said that many businesses at the time were prone to "marketing myopia" (Kiron & Schrage, 2018b). They were more concerned with producing things and services than with understanding the needs and desires of their clients. Companies have undergone a full shift from their past fixation with

marketing myopia to a changing increased emphasis on customer attention since Levitt coined this statement decades ago. Both the availability of bigger volumes of data and the ability for firms to understand more about their customers have enabled this goal. This has been aided by the development of digital markets, which have made converting customers into brand advocates and evangelists a reality (Kiron & Schrage, 2018b). Moffat (2018) echoed the above sentiment, stating that more organisations realising realise the importance of having more than just digital-focused KPIs to gauge success. These organisations recognise the importance of using KPIs to improve customer engagement and happiness. He went on to say that if a brand engages with its customers and those customers are happy with the interaction, satisfaction rises, and customers buy more from the brand.

Belanger (2019) further stated that entities that have engaged customers have more leverage in pricing their products and services. This is indicated by companies such as Apple that sell their products and services at higher margins than other entities. The reason is that companies like Apple have specialised in the art of customer engagement by using KPIs such as net promoter score (NPS) and customers commitment (possible future purchases) in analysing their customers (Belanger, 2019). This is enhanced by the use of KPIs such as social engagement, social sentiments, social advocacy, services reviews, percentage of returning customers, and net promoter score. The goal is to understand customers' views about the brand so that the entity can improve the offerings and enhance customers' experience (Kiron & Schrage, 2018b).

According to Kiron and Schrage (2018b), the success of most digital-born firms is strongly related to how they use KPIs to engage customers better and expand their enterprises. Companies that are kin at prioritising customer related KPIs find themselves in a leading role in gaining strategic competitive advantage. As a result, companies at all alignment levels have embraced the use of customer focused KPIs to improve customer experience. Customer experience will supersede pricing and product as the major brand differentiator, according to 2020 research (Walker Information, 2020). This has necessitated businesses to increasingly invest in customer experience platforms to attract, engage and retain customers. Furthermore, this is enhanced by customer focused KPIs investments intending to measure the results of entities' efforts so that they can improve customer experience initiatives (Walker Information, 2020). Watkins, the Vice President of Slack Technologies, reaffirmed this by emphasising that, like Slack, CEOs should invest heavily in defining extremely explicit and tangible customer focused KPIs that staff can understand and use to guide their work. This enhances the probability that team members will

work faster and make better judgments that are aligned with the business's intended outcomes (Kiron & Schrage, 2018b).

Simon Atkins, Adidas North America Brand Director, echoed a similar sentiment, explaining that his business's KPIs previously only focused on financial indicators until the company committed to reengineering its brand with the customer at the very center (Kiron & Schrage, 2018b). Adidas had struggled to stay relevant to its increasingly digital and mobile consumers before this reengineering, which harmed company competitiveness. However, Atkins claimed that following the reengineering, KPIs that articulate Adidas's progress in the customer's minds obtain greater attention in the organisation (Kiron & Schrage, 2018b). Net Promoter Score (NPS) is an example of a KPI that assesses a customer's satisfaction with a company's products or services and their desire to suggest the company's products or services to others. This KPI is used as a proxy for measuring customer satisfaction with the company's products or services, as well as brand loyalty (Gallo, 2014).

Nonetheless, Adidas is not alone in increasing its focus on customer experience, as more businesses prioritise customer focused KPIs. Adidas's experience demonstrates a growing understanding that KPIs must begin to link internal processes with external customer behaviour for businesses to develop strategic competitiveness. This is evidenced by organisations migration away from traditional sales funnel KPIs, for example, metrics earlier in the sales process and after purchase (Kiron & Schrage, 2018b).

According to Commbox (2020), many businesses regard customer service as the most important predictor of client conversion, retention and promotion because it is widely regarded as the most important aspect in establishing customer trust. According to a poll done by Commbox, customer service is the most important aspect in the procurement decision making process for 96 percent of private consumers and business to business (B2B) purchasers. B2B purchasers, who prioritise customer service more than individual consumers, are more likely to make this decision. In comparison to individual consumers, B2B purchasers are heavily impacted by great customer service experiences when making purchasing decisions. As a result, most organisations have identified customer service experience as a key competitive advantage. The importance of customer focused KPIs in tracking, measuring, and continuously improving the customer service experience for corporate success has grown as a result. With this in mind, customer focused KPIs define the number of sales and how a company can price a product or service, the marketing and customer acquisition spend and the company's overall competitive position.

2.6.8 KPIs role in the development of customer integrated view

Customer-centric KPIs have become increasingly important in a mobile/digital economy as the global adoption rate of mobile phones, tablets, and laptops continue to rise. As a result, the value of customer focused KPIs is being re-examined. According to Kiron and Schrage (2018a), the results of their poll show that businesses are serious about increasing customer knowledge and accountability. These businesses want to establish multidimensional customer insights based on a variety of functional viewpoints.

Traditional KPIs such as client lifetime value, on the other hand, play an important role in these organisations. They are still looking for ways to improve externally oriented KPIs so they can better segment and engage clients. This type of collaboration between traditional KPIs and externally focused KPIs serves to complement and build on more internally focused process KPIs that are used to better understand an entity's clients (Kiron & Schrage, 2018a). According to Barr (2018), the coordination of traditional KPIs and external focused KPIs creates an important cause-effect relationship between these KPIs. He further states that this relationship is useful for determining the cause of a KPI's trend. This KPI's trend can be utilised to forecast the future performance of their KPI's effects. Entities can use this strategy to determine the best improvement projects Barr (2018).

Furthermore, many businesses are already employing KPIs to create a single, integrated customer view. This is done to obtain a comprehensive grasp of their clients. By integrating tactical KPIs with strategic aggregates, the above can be accomplished. As a result, the top priority among customer focused businesses demonstrates that customer segmentation is their primary emphasis, followed by customer lifetime value, brand equity, and turnover (Kiron & Schrage, 2018a).

One of the companies which are following the above model is Colgate-Palmolive. Although it is adept at using past performance KPIs, the corporation has confessed that it is now more concerned with KPIs that deal with how its customers engage with its brands (Kiron & Schrage, 2018b). According to Belanger (2019), the increasing availability of data has made it possible to analyse every customer touchpoint. This is also enhanced by AI-enabled KPIs that help entities fully understand the customer journey. For example, when a customer buys a product, data will review every customer interaction, i.e., marketing, warranty claims and service events. In other words, it implies all events relating to price or customer services that would cause the customer to increase or decrease their propensity to purchase another product from the entity. This has

also been enhanced by the growing use of the internet and smartphones, which speeds up the process of customer interaction and engagement (Belanger, 2019). This means that planned KPIs will have to take into account a variety of factors, such as changing consumer sentiments, consumers' future expectations, how consumers will engage with the media in the future, what trends or conversations they are likely to be a part of, what kinds of conversations the brand can be a part of, and how to keep consumers connected to the brand strongly (Kiron & Schrage, 2018b).

Furthermore, some companies such as Slack strive to gain strategic competitive advantages by gaining fresh insight into their clients by going beyond typical financial and customer happiness KPIs (Kiron & Schrage, 2018b). According to Gallo (2014), many sales forces are currently concentrating their efforts on understanding the customer journey (as opposed to the sales funnel), which encompasses a wide range of elements or channels via which customers interact with brands today. KPIs that focus on customers beyond the sales funnel has recently spurred organisational reconfiguration around sharing, coordination, and collaboration. This improved understanding of their customers is complemented by a drive to transform their most loyal clients into brand ambassadors (Gallo, 2014). Adidas backed up this assertion by implementing a customer-centric discipline in reaction to the brand's waning relevance in traditional retail channels. To follow up on the previous point, Airbnb developed a similar strategy that centered on the company's strategic goals of turning guests into hosts (Kiron & Schrage, 2018b).

The traditional roles of Chief Marketing Officers and the staff compositions of marketing functions are also altering as a result of the trends mentioned above. For instance, GE Healthcare went through this transformation journey to respond to changing customer needs. GE Healthcare also stated that the business recently engaged a worldwide customer-experience leader to drive a more holistic perspective of client demands by using analytics. The organisation has been focusing on customer experience projects such as commercial engagement, insight generation, and the implementation of digital customer experiences (Kiron & Schrage, 2018b).

Belanger (2019) also asserted that many entities' focuses on the customer-integrated view is now enhanced by the latest KPIs enabled with AI and reinforcement learning models. The latter offers marketers a way to build an integrated measure of customers commitment to entities' brands and products. This is done by using the digitally recorded data which the entity has accumulated about the customer journey. i.e., purchase transactions, warranties, marketing events, recalls, service events and external events from the internet, like social media. AI-enabled technology helps to

compile and process this customer-journey information which is being used by entities to fully understand the customers and improve customer experience. Entities can also use this information as a key variable in determining sales prices.

However, customer experience delivery, on the other hand, extends beyond commercial and is only the first step in achieving a customer-integrated view because everything, from the initial touch they have from marketing and sales interactions to the first time they receive a product, billing, service experience, and continuous relationship with customers drives customer experience (Belanger, 2019). As a result, it is critical to define a role that encompasses all of these aspects of the firm (Kiron & Schrage, 2018a). Customer experience, according to Schwager and Meyer (2007), encompasses all aspects of a company's products, including advertising, the quality of customer service, packaging, reliability, product and service features, and simplicity of use.

GE Healthcare is one of the companies that understand the importance of customer experience in gaining a competitive advantage. It highlights the importance of customer advocacy as a desired and desirable KPI in determining customer happiness. When a company's KPIs are driven by the goal of turning consumers into influencers and evangelists, it is likely to create an operational and cultural reckoning in the company, necessitating enhanced customer awareness and anticipation. This can be accomplished with the use of machine learning/artificial intelligence, which provides firms with new and innovative ways to establish a holistic perspective of their clients (Kiron & Schrage, 2018b). Understanding and deriving customer commitment, using machine learning models and AI are revolutionising how businesses interact with their customers. The advantages AI offers are that they also recommend the next best actions that a marketing team should take regarding a customer. These analytical abilities enable entities to know customers' individual characteristics by creating personalised offerings for their valued customers (Belanger, 2019).

2.6.9 KPIs role as tools for leading and managing organisations

It is imperative to note that management and leadership have different attributes, although they complement one another in many ways. Managers' tasks are primarily concerned with short-term organisational and problem-solving goals, whereas leaders' responsibilities are more concerned with innovation and a larger, longer-term vision for the company. As a result, there is a significant distinction between utilising KPIs to tactically manage a firm and using them to guide an organisation into the future. The majority of successful firms recognise that KPIs designed to

analyse previous performance are less helpful than KPIs that allow them to take advantage of predictive insights (Kiron & Schrage, 2018a). This insight indicates the future trend of KPIs (Kiron & Schrage, 2018b).

With advances in technology innovation, increased competitive pressure, and ever-increasing customer expectations, many company executives, have been pushed to reconsider how they utilise KPIs to lead and manage their organisations. The continued exponential developments in machine learning and artificial intelligence (ML/AI), that is, a machine's ability to enhance its performance based on previous outcomes, are predicted to have a significant impact on how executives utilise KPIs to monitor and promote growth (Kiron & Schrage, 2018a). As a result, the next generation of KPIs will provide predictive and prescriptive indicators rather than the traditional rearview mirror appraisals. Data-driven businesses that take advantage of these advancements by redefining their KPIs are projected to gain distinct strategic competitive advantages (Kiron & Schrage, 2018b).

The way these successful organisations handle their KPIs, not just as compliance metrics but as tools for transformation and plan execution, sets them apart. KPIs are used by these entities to help individuals at all levels focus their efforts on reaching established objectives. The entities can make adjustments to tasks or goals over time based on KPI data (Indeed, 2021). KPIs fulfil the essential management principle in leading and managing organisations. They accomplish this by establishing a foundation for continual improvement of organisational performance through ongoing measurements. Besides the provision of continuous improvement, KPIs also perform the function of developing and guiding entities because they provide a base for strategy formulation and execution. Many effective organisations understand that, they must have information regarding processes, products, and services for control to be realised. Since KPIs provide information for organisational improvement and control, this helps awareness for all employees about activities that are necessary to management (Velimirovic et al.,2011:65).

Leading indicators are used by most firms that employ KPIs as a leadership tool, a source of their strategy formulation and a tool for communicating their strategic goals to the whole organisation. This creates organisational alignment by encouraging all people and functions to work towards common goals. Furthermore, people are more motivated when they understand how several KPIs align with the entities' goals (Marr, 2020). One of the entities that use this philosophy is McDonald's, claiming that the terms leading and lagging indicators are frequently used in the company. McDonald's has a seven-driver growth strategy, each with two future-oriented leading

indicators and one lagging indicator to track progress. Making the fast-food chain a destination is one of the drivers. There is a leading indicator - a place where I am glad to bring my children - a brand image attribute. An increase in the number of family visitors and children under 13 is a lagging indicator. All these KPIs help McDonald's in assessing its performance (through lagging indicators) and are tools in predicting future trends, which help to formulate its strategies (through leading indicators) (Kiron & Schrage, 2018b).

Merck also affirms the recent use of KPIs as tools for managing and leading. Even though it recognises that change comes more slowly to legacy entities than to more nimble and digital-born companies, it has adopted a more forward-looking attitude. The organisation claimed that it has gone from being a backwards-looking organisation to adopting an integrated business planning framework that looks into the 24-month rolling horizon in the last several years. The organisation is continuously striving to be more proactive in anticipating the future (Kiron & Schrage, 2018b). This enables it to focus on leading indications rather than lagging indicators to lead better its organisation (Kiron & Schrage, 2018b). This shows that KPIs have become powerful enablers of improvement in various entities. Many entities have also emphasised that they are using KPIs to motivate individuals and teams across their businesses (Marr, 2020).

Leading entities also use KPIs to help them lead by uncovering new growth prospects for their firm and new ways to motivate and inspire their employees (Kiron & Schrage, 2018c). These entities also use KPIs as a motivation function to induce management in fulfilling organisational goals and also to motivate all other stakeholders to meet set goals (Velimirovic *et al.*, 2011:65). According to Marr (2020), many entities have learned to blend a combination of strategic and operational KPIs which cover different purposes and levels of the organisation. These entities emphasise delegation in the setting of KPIs by highlighting that management should set strategic KPIs, which indicates the organisational goals the entities want to achieve. As a result, teams are given the authority to choose alternative operational KPIs that indicate how they might contribute to the achievement of those objectives. As KPIs become jointly owned indicators for guiding decisions and delivering strategic priorities, it fosters even more organisational alignment.

Furthermore, because people see that they have greater ownership, input and influence over performance measures, it motivates them. KPIs serve as communication tools, providing a clear picture of current performance levels and how they relate to important objectives (Marr, 2020). The preceding explanation indicates that well-designed KPIs allow management and other leaders to evaluate fundamental business operations and not only simply financial success

outcomes. This knowledge aids leaders in making better decisions that move the company closer to its objectives (CIMA, 2013).

GoDaddy is one of the companies that have adopted the concept of employing leading and lagging data driven KPIs described above. Because of its combined dedication to strategic KPIs and machine learning, the entity market value has grown faster than planned since 2016. Its main premise is that entity leaders have the authority and responsibility to choose the time horizons and objective functions that will best optimise the entity (Kiron & Schrage, 2019). Customer lifetime value KPIs (which predict future revenues, costs, and loyalty in addition to collecting historical purchase behaviour) are highly valued by the company, which decreases short-termism and threats to customer experience quality. According to its findings, when a corporation assists its consumers in succeeding, the lifetime value it brings to the entity is substantially larger than when it approaches people with a transactional mindset. It further states that, as the entity starts to extend the time horizon by using long-term KPIs (focusing on long-term goals), the degree of organisational misalignment usually tends to decrease. This creates strategic competitive advantages (Kiron & Schrage, 2019).

CIMA (2013) also claims that a focus on long term success rather than short term financial performance has been a big concern for many businesses. They accomplish this by combining financial and non-financial KPIs to contribute to this longer-term emphasis. It says that by integrating strategic objectives with business operations and individual actions, leaders who use KPIs for entity management improve company strategy implementation.

2.6.10 The role of KPIs in aligning organisations

The common problem which entities face is how difficult they find it to align everyone to organisational strategy or goals. One of the most cited causes has been teams having a problem in seeing their direct contribution to corporate strategy. In other words, they do not see a clear relationship between what they do and corporate goals (Barr, 2017). Furthermore, most of the time, confusion happens in the entities due to many tactics which may be enacted for achieving different objectives (Klipfolio, 2019). KPIs, on the other hand, solve these challenges by identifying and connecting the goals that everyone is working on, to the organisation's final goals. This is accomplished by establishing organisational KPIs during the strategic planning phase to guarantee that everyone is working toward the same goals. As a result, there is organisational alignment from the top down to frontline personnel (Klipfolio, 2019).

According to Barr (2018), it is imperative to first cascade strategy or goals to realise KPIs alignment with the strategy. Then, at each level of the cascaded plan, KPIs must be developed for each goal. This ensures that KPIs are immediately aligned with strategy and communicated with the appropriate stakeholders. Setting the correct KPIs that are related to the organisation's strategy and purpose is part of the cascading KPIs process. Business divisions and teams can then utilise these KPIs to measure business objectives and make informed decisions (Barr, 2018).

Bergen (2020) further states that leaders align organisations by using KPIs in turning organisational visions into measurable goals. For example, an organisation's vision might be to be the leader in selling a particular product or service. To achieve this, the entity would need to sell an extra number or percentage (KPI) of the said product or service. This KPI would be trickled or cascaded to all functions of the entity and would affect everyone's goals and KPIs. This means that to meet the above overall KPI and vision, the production team would need to increase the quantity or amount of service to be produced or provided. The sales team would also need to increase its sales and the operation team would also need to manage the costs of the expansion. This demonstrates the importance of KPIs as they clarify where employees should focus their time to achieve their targets, which in turn align with the overall organisational goals and vision.

According to Kiron and Schrage (2018b), most companies have established internal organisational alignment around KPIs. Internal, employee related KPIs and financial or process KPIs cannot be separated from the customer experiences these companies aspire to provide. In other words, they recognise that for success to be realised, there must be a coordinated effort of all KPIs towards the organisational common goal. These companies are classified as measurement leaders mainly due to their effective use of KPIs for organisational alignment. They accomplish this by utilising KPIs to align people and processes to better serve the consumer and the brand's mission. State Street also confirmed this and has implemented KPIs (similar to Adidas, which uses Net Promoter Score) to keep the corporation on track with its goals (Kiron & Schrage 2018b).

According to the PWC UK report, KPIs' linkage to goals and strategic objectives is the key that enables entities to assess their progress towards objectives. It further states that, when KPIs are aligned to strategic objectives, they become more effective and help to answer the most important business questions (PWC, 2017). The value of KPIs is that they help decision-makers to fully understand their business model which in turn enhances their strategy execution and gets the entire organisation aligned. KPIs are used in organisations to create, communicate and track

goals so that teams of people are working towards the same goals. KPIs are also a wonderful approach to communicate strategy to employees and the functions of the entity. KPIs also ensure that clear work objectives are established and understood by employees and functions which enhance their success by easily meeting desired organisational results (Klipfolio, 2019).

The alignment of the organisation has also been enhanced by evolution in technology which has helped smarter KPIs in aligning the immediate needs with longer-term strategic ambitions of entities. This is accomplished by creating virtuous loops by digitally connecting KPIs, data, and decision making. The virtuous cycle of KPIs, data and decision-making outlines mechanisms that reinforce fundamental interdependencies and enable the strategic execution that digital transformation necessitates. As a result, digital transformation enables smarter KPIs, and smarter KPIs, in turn, promote digital transformation. Each of these components is a major management responsibility for both digitally native and digitally transitioning businesses. Amazon, Google, Netflix, Facebook, Apple and Alibaba are among the digital leaders who recognise, embrace, and continue to invest in this cycle (Schrage, 2019).

As provided by KPIs strategic alignment, is thought to be more effective when combined with a decision-making culture that values strong data capabilities, such as data quality, information management and analytics. This is especially true for companies that specialise in marketing and sales. Due to the persistent uncertain environment most companies experience, it has become a norm for all players to be agile in how they interact with customers. Most businesses are stepping up their attempts to engage customers outside of the sales funnel. As a result, some businesses are changing their KPIs to make use of more diverse data sources and analytical tools (Kiron & Schrage, 2018b). KPIs are typically established during periodic strategic planning processes by these entities. The idea is to make sure that everyone in the entity is working toward the same goals (Marr, 2013).

In addition to the above, KPIs guarantee that success is measured in terms of the larger business objectives rather than just reaching KPI targets. This means that all work activities are carried out with purpose and for the proper reasons to accomplish the entity's overall goals (Poleski, 2019).

2.6.11 The role of KPIs, AI and ML in enhancing strategic competitive advantage

The move from shareholder capitalism to stakeholder capitalism has seen exponential development in 2020 and is continuing to gain traction. More stakeholders want to know how KPIs may help with strategic planning, executive remuneration, risk management, long-term business

growth and company value. As a result, businesses must develop new approaches to identify, measure, and communicate company value. This indicates that more research is needed to determine the best KPIs for measuring long-term value development. Keeping this in mind, businesses should recognise that having longer-term predictive power can lead to more investment and innovation, which will help them expand and create value (Boillet & Larkin, 2020).

However, many businesses are facing challenges regarding long-term value because of the massive amount of data accessible, which is making it difficult to draw meaning from it. To add to the above, global digital data has been doubling in size every two years (Boillet & Larkin, 2020). As a result, many entities have adopted the use of technology to simplify and enhance their operations. This is further supported by the survey conducted by Mackensy and Company, which found that many entities from various sectors have embraced the adoption of technology such as machine learning and AI. This has been intensified by the COVID pandemic, which has changed the way entities do business (Laberge *et al.*, 2020).

According to Boillet and Larkin (2020), artificial intelligence/machine learning (AI)/(ML) is proven to be a game changer because of its ability to make sense of massive data and uncover important indicators. This is contrary to the past, where it used to be costly and time consuming to measure value. This was also supported by Fish (2020), who asserted that the involvement of AI is also helping to resolve previous KPIs' ineffectiveness which is common when data becomes huge, unstructured and more complex than in recent years. This is done by AI's ability to create new KPIs, analyse such unstructured data, and tap into it for the entity's strategic and performance enhancement (Fish, 2020). AI capabilities have made the processing of massive amounts of data both instantaneous and tailored to individual needs. This has allowed entities to use real-time KPIs and generate real-time outputs. AI-enabled predictive analytics is also assisting businesses in analysing the market and consumer behaviour, as well as providing trends and forecasts. The AI revolution has enabled organisations to make KPIs more prospective instead of being retrospective, as they were previously. AI's capacity to analyse and make sense of enormous amounts of data and uncover important signs makes this possible (Boillet & Larkin, 2020).

Furthermore, AI/ML is crucial in choosing which outcomes to track, how to track and prioritise them (Kiron & Schrage, 2019). The strategic role and purpose of KPIs have changed as a result of the emergency of digital processes, platforms, and predictive algorithms. KPIs are becoming quantifiably smarter, more dynamic, and responsive to environmental changes. As a result, they

are more adaptable and beneficial in terms of achieving strategic competitive advantages. Keeping this in mind, KPIs are used to monitor and drive enterprise success (Schrage, 2019).

Traditional KPIs' aims and methods have been altered by digitally advanced organisations. The major role of KPIs in these entities is not as analytic outputs for humans but are increasingly used as machine inputs in company optimisation. In other words, KPIs are used by management to train, tweak and optimise AI models for impact on the business. One of the recent contributions of KPIs is that they do not only learn to improve the performance of the entity but also learn to improve its performance. This emergent capability enhances the relationships among management, KPIs and AI (Schrage, 2019).

The above was affirmed by MIT IDE (2019), which emphasised that KPIs were initially seen as outputs that informed human decisions. Now they are seen as inputs for training ML algorithms and models. Therefore, KPIs are seen as data inputs for ML. According to Kiron's and Schrage's (2018b) research, most executives believe that investing more in automation and machine learning technology to drive marketing activities will help them accomplish their changing functional KPIs. This suggests that sharp-witted marketers are increasingly turning to machine learning (ML) not only as a cost-cutting technique but also to inform KPI outcomes and as value-added augmentation systems. All of this is assisting entities in gaining a better understanding of their consumers, themselves, and how they use technology (Kiron & Schrage, 2018a). This shows that KPIs are no longer viewed as analytic outputs for performance review and planning but as data inputs for machine learning (Kiron & Schrage, 2018b).

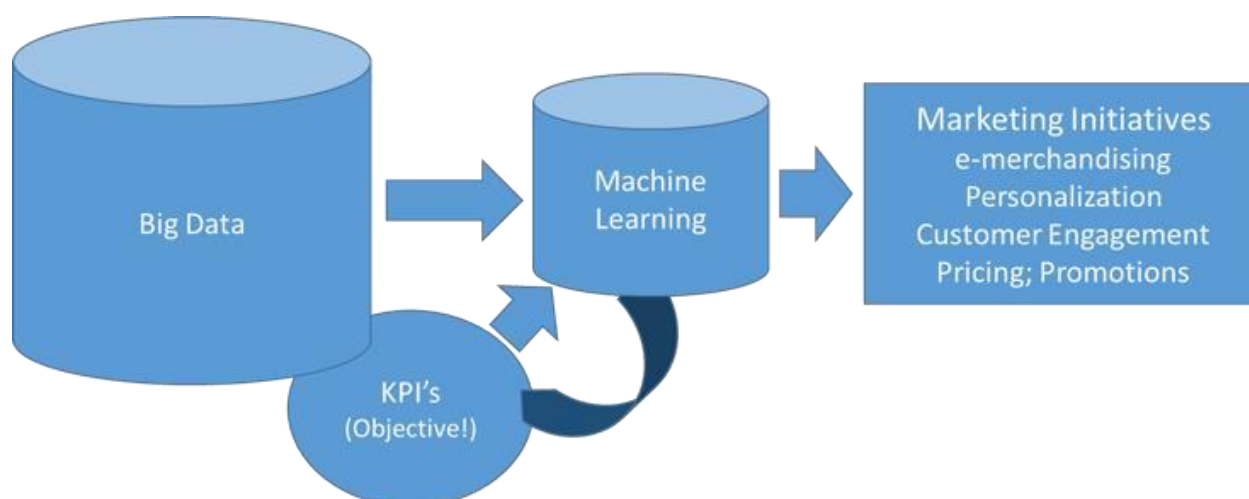
Many leaders in most entities believe that machine learning and artificial intelligence will aid them in achieving their business objectives. These include companies like GoDaddy, which acknowledged the use of KPIs as data inputs for machine learning and explained how a company team leverages a plethora of data to support KPIs for customer lifetime value. The corporation invests in KPIs with the explicit intention of using them as data training sets for its most advanced machine learning algorithms (Kiron & Schrage, 2018b). GE Healthcare further affirmed that it uses predictive KPIs in focusing on the customers' entire journey of life. Part of what the company is moving toward is increasing digitally oriented tracking of major touchpoints and how that translates into the business in terms of providing better understanding, identifying ways to improve customer and entity operations, and creating new commercial opportunities (Kiron & Schrage, 2018b).

One area in which the organisation excels is in the creation of KPIs. It accomplishes this by deriving KPIs from data (rather than specifying KPIs to be assessed) and then analysing the data for targeted reasons to achieve the commercial effect (Kiron & Schrage, 2018b). MIT IDE (2019) further stated that integrating AI and KPIs makes KPIs smarter and makes the organisation distinctive or unique for its customers, employees, and investors because it can learn and adjust.

Nonetheless, AI is assisting many businesses in identifying new KPIs for a rapidly transforming industry that is directly linked to overall performance. Many companies are already acknowledging that ML is helping them in achieving their performance objectives by optimising existing KPIs (Bacon, 2019). According to Kiron and Schrage (2019), KPIs are used widely by well-known ML pioneers such as Amazon, Google, Microsoft, Alibaba, Uber, Facebook, and Netflix to create, communicate and drive strategy. With their increasing investment in AI capabilities, their reliance on KPIs has expanded enormously. With this in mind, all global firms can no longer credibly discuss Maximising strategic KPIs without incorporating machine learning and artificial intelligence capabilities (Kiron & Schrage, 2019). The strength of ML is that it has the power to analyse large volumes of data that are consistently increasing. Such data may comprise pricing, customer behaviour, operational statistics and competitive actions. This is helping companies in realising benefits such as formulation of effective pricing decisions, improving customer services, optimising marketing, and realising operational efficiency (Bacon, 2019).

Figure 2.2 shows how machine learning can be used to identify KPIs related to the whole business success.

Figure 2.2: How machine learning may be used to identify KPIs that are linked to the whole business success



Source: Bacon 2019

By using machine learning, new insightful KPIs can be displayed in the following ways:

- **Meeting needs in rapidly transforming operating environments:** Given the consistent change in the market or competitive environment, ML can reveal new KPIs that may have a greater impact on overall success than previous KPIs. For example, it is now more useful to have supplementary KPIs which cater for the growing importance of supplementary revenue (Bacon, 2019).
- **Focusing on greater personalisation and segmentation:** The growing emphasis on online merchandising has resulted in new merchandising tools for greater personalisation. This means it is vital to have different segmentation schemes. For overall success, machine learning can assist to uncover new segment specific KPIs aimed at better addressing individual consumer needs and which customer groups should be paid attention to with more tailored offers. All this demonstrates AI's value in strategising for organisational success (Bacon, 2019).

Kiron's and Schrage's (2019) research strongly suggested that, entities' strategies are defined by the KPIs leaders choose to optimize in an ML era. AI plays an important part in deciding what entities' KPIs are, how they are measured, and how best to optimise them in today's data-abundant and digitally informed environments. MIT IDE (2019) asserted that a combination of AI, ML, and KPIs are seen as enablers, springboards and platforms necessary for achieving strategic objectives. KPIs, AI, and ML are also seen as media and means to strategic ends. This entails

that AI's strategic purpose has become apparent in optimising carefully selected KPIs. Kiron and Schrage (2019) also recognised that broader awareness of the value of optimisation in the company is critical to integrating and harmonising AI plans. In terms of discovering and exploiting strategic opportunities, using AI to craft strategy offers more value. This difference is at the heart of how AI operates in many successful data-driven entities, these entities emphasise that success requires making AI and KPIs strategies both complementary and interdependent. This can be seen in corporations like Amazon, Alibaba, Facebook, Uber and other traditional businesses looking for new methods to modernise, as many accountable optimisations become an AI-enabled corporate norm. The principles mentioned above have had disruptive repercussions, implying that there is no escaping analytically increased monitoring. This has transformed capabilities, which has also transformed leadership responsibilities due to KPI's ability to define entity strategies (Kiron & Schrage, 2019).

Uber's success, however, can be due to several machine learning models it runs to improve its ride-sharing platform and food delivery service. The company has made significant investments in its machine learning skills and implementations to do this. The ability of Uber's machine learning capabilities to forecast correct arrival times (a KPI) for both customers and drivers has been viewed as critical to the company's ability to compete in the industry (Kiron & Schrage, 2019). Uber's machine learning platform's head, Jeremy Hermann, stressed the importance of accurate projected time KPIs for a great user experience. These KPIs are used to calculate routing and product or service price in a variety of internal systems. Uber's success in operational or strategic delivery ambitions is directly linked to reliably delivering on its accurate estimated times KPI. If Uber's accurate estimated times KPIs outcomes are not in order, this would prevent the entity from being the best low-cost provider in the delivery services and mobility business. This entails that any changes relating to Uber's technical, organisational, or operational that might threaten accurate estimated times, KPIs outcomes will be regarded as counterproductive (Kiron & Schrage, 2019).

Uber's capacity to maintain success necessitates a reduction of KPIs that may clash with or compete with accurate projected times KPI prediction. This is in line with Michael Porter's statement that the core of the strategy is selecting what not to do (Kiron & Schrage, 2019). After the entity's management has established these boundaries, they must identify and decrease undesirable outcomes, which are just as vital as promoting the desired objectives. The most important element to enterprise strategy is prioritising KPIs by ranking them according to their importance and what the organisation must learn best.

In the big data-rich environment, the entity's KPIs become its strategy. One of the major contributions of ML is that it both measures management and manages measurements. Therefore, KPIs do not just reflect strategy but drive it. AI has been striving and learning in enhancing the achievement of KPI outcomes and suggesting new KPIs. This means entities' leaders should not only associate AI with the function of building products, services, or processes. They should also understand that AI's fundamental goal is to improve strategy development and execution. This implies that AI plays a vital role in strategy development and communication. According to Kiron's and Schrage's (2019) research, AI influences strategists' decisions on how to optimise KPIs as well as which KPIs to optimise. In an AI setting, a strategy entails using AI/ML to optimise KPIs (Kiron & Schrage, 2019).

MIT IDE (2019) further stated that data-driven technologies and KPIs help to transform customer expectation, build customer loyalty, deliver greater value for less and become more responsive and agile. This is indicated by leading entities such as Amazon, Uber, Alibaba, Booking.com, Google, Netflix and Microsoft, who are using the strategic alignment of AI, ML and KPIs as their strategic essence to stimulate new efficiencies and value (MIT IDE, 2019). Integrating AI, ML into KPIs provides many entities with increased digital transformations and a chance to gain an insight into their operations and customers. Furthermore, AI is developing the new use of KPIs to better understand the business operations and performance (Fish, 2020).

The integration of AI and KPIs helps to build predictive capabilities which enhance entities to become more adaptable to unexpected changes in the market (Fish, 2020). Many organisations approach to Maximising leading and lagging KPIs has evolved as a result of ML/AI, according to Kiron and Schrage (2019). McDonald's, for example, has a multi-growth strategy that incorporates both leading and lagging indicators. McDonald's has a strategic goal of becoming a family attraction that appeals to parents. As a lagging indicator, the number of visits by families with children under 13 years old is employed, while any evidence of becoming "a place I would be glad to bring my kids" is a leading indicator (Kiron & Schrage, 2019).

However, evaluating the KPI "pleasant place to bring my children" is difficult since consumer surveys are limited to people with an opportunity to participate, resulting in selection bias. This weakness is mitigated by using sentiment analysis enabled by machine learning and artificial intelligence (ML/AI), which can categorise large volumes of social media data such as Twitter, Facebook, Instagram and other data sets to match society well-being with comments about fast food establishments. In academic and business research, several forms of ML combinations are

becoming norms and popular (Kiron & Schrage, 2019). This indicates the role AI is playing in helping performance management by changing the previous fixed KPIs role to a more agile nature where performance and customer behaviours can be tracked and predicted over time. Therefore, this highlights the importance of integrating KPIs and AI in creating competitive advantages (Fish, 2020).

The above literature illustrates that KPIs roles have transformed from being initially used as analytical tools for measuring performance to the recent role in enhancing organisations effort of realising strategic competitive advantages, which in turn increases the value of the entities.

2.7 SUMMARY

The first section of this chapter gave a thorough examination of organisational performance assessment, based on contributions from various theories and researchers. The chapter provides useful insight into the requirements of successful KPIs for measuring the overall performance of an organisation. Furthermore, the debate over the shifting function of KPIs has demonstrated the shift from traditional characteristics of KPIs on having a retrospective view of measuring past performance but offering little insight on how an entity's future performance was likely to be. KPI's recent role has also been embedded in predictive power which has been helping entities in creating their competitive advantages.

Furthermore, KPIs were seen as a valuable tool for growing an organisation's team and generating high-quality results. KPIs have also been proposed as a possible answer to the unmanageable global problem of employee engagement. KPIs have also been identified as helping entities to clearly define their mission which in turn plays a major role in achieving employee connectedness with organisational purpose. The chapter also elaborated on the fact how KPIs play an important role in communicating business objectives since they help management keep an entity objective at the forefront when making a decision. Leaders have been encouraged to reassess how they utilise KPIs to lead and manage their organisations as technological innovation has accelerated, competitive pressure has increased, and customer expectations have risen. It has also been discussed how innovative ways different organisations that use KPIs in retaining customers. Finally, this chapter also discussed how leading companies utilise KPIs to align people and processes to better serve customers and brands.

The next chapter will address the research methodology used in this study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

The research design and methodology utilised to reach the objectives as set out in paragraph 1.4.1 of chapter 1 (primary objective), and paragraph 1.4.2, of chapter 1 (secondary objectives) will be discussed in this chapter. Specific reference is made to paragraph 1.4.2.2.1 of chapter 1 which highlights the determination of the appropriate research methodology to achieve the main objective, including a review of methodology and the justification thereof.

3.1 INTRODUCTION

Crotty (1998:3) defined methodology as the strategy or action plan that determines the selection and use of a specific research method. These research methods encompass all the steps taken during research, from broad assumptions to data collection, analysis and interpretation (Creswell, 2009:8). The University of the Witwatersrand (2021), further describes research methodology as procedures used to identify, select, analyse and process specific topic information. The researcher's decision on methodology was guided by the research topic and philosophical attitude in this study's research design and methodology. This chapter also covers the techniques for gathering, analysing and reporting data. Finally, ethical concerns of conducting research will be discussed.

3.2 RESEARCH DESIGN

The conceptual blueprint within which research is conducted is referred to as research design (Akhtar, 2016:68; Saunders et al., 2012). The phrase "research design" does not appear to be related to any specific data collection technique, and it appears that various authors have diverse interpretations of the term. Some authors define it as the choice of qualitative or quantitative research methodologies, while others define it as the precise data gathering and processing methods (Akhtar, 2016:68). According to Saunders *et al.*, (2012), a research design is a strategy that will be followed to answer the research question or achieve the study objectives. To be precise, it is the procedure for collecting, analysing, interpreting and reporting data in research investigations, (Creswell & Plano, 2007:58). The procedure for collecting and analysing data, and how the study question will be answered, are all outlined in the research design (Gray, 2014:36). Research design represents planning of the methods to be used in data collection and the techniques to be utilised in the analysis, taking into account the resources available, time, and research objectives (Akhtar, 2016:71). Robson (*as cited by* Lelissa, 2017:98) went on to say that there are three different types of research designs:

1. Exploratory
2. Descriptive, and
3. Explanatory.

3.2.1 Exploratory research entails a researcher delving further into the study questions rather than providing definitive answers to the topic at hand. It is also defined as preliminary research that serves as the foundation for more conclusive research (Singh, 2007:64). It can even aid in the selection of a research design, sample strategy, and data collection method. It is utilised to answer novel research challenges for which no or little prior study has been done (Brown, 2006:43). Unstructured interviews are the most common main data gathering approach for this type of investigation (Dudovskiy, 2020).

3.2.2 Descriptive research focuses on answering the how, what, when and where questions, rather than the why question, to explain a population, situation, or event (Lelissa, 2017:98). Ethridge (2004:24) mentioned that descriptive research is a statement of the situation, with the researcher having no control over the variables. It is also known as statistical research, and it describes phenomena as they are. It is utilised to find out about the characteristics of a specific issue, such as a community, people or group (Akhtar, 2016:75). According to Fox and Bayat (2007:45), the purpose of descriptive research is to draw attention to present concerns through a data-gathering approach that allows the researcher to explain the situation more fully than would be feasible otherwise. Observation, case studies and questionnaires are common approaches for gathering data in descriptive research (Dudovskiy, 2020). Descriptive research's primary purpose is to characterise settings, phenomena and happenings. Since descriptive research is based on scientific observation, it is believed to be more accurate and precise than casual research (Akhtar, 2016: 77). However, data acquired qualitatively in this type of study can be analysed statistically in the form of percentages, averages, frequencies and other statistical analyses to determine relationships. When qualitative data is thoroughly examined first to identify key themes and concepts and then converted into numerical data for further comparison and evaluation, qualitative inputs to quantitative outputs occur (Nassaji, 2015:130).

3.2.3 Explanatory research is a type of study that aims to account for and explain descriptive data (Gray, 2014:36). Explanatory research is used to determine the magnitude and nature of cause-and-effect interactions. Explanatory study (also known as incidental research) can be used to determine the effects of certain modifications on existing norms and processes (Dudovskiy,

2018). While descriptive studies are more concerned with addressing 'what' questions, as described above, explanatory studies attempt to answer 'why' and 'how' questions, according to Gray (2014:36). In other words, its power stems from the fact that it builds on descriptive and exploratory research and explains why a phenomenon occurred. Explanatory research's major goal is to uncover the causes and reasons for a given occurrence and produce evidence to support or refute an explanation. Explanatory research is conducted to discover and report certain connections between or among various components of the event under investigation (Gray, 2014:36).

The primary goal of this study, as stated in paragraph 1.4.1 of chapter 1, is to investigate the changing role of KPIs in South African technology and project management companies, as well as how they are used to create strategic competitive advantages. The findings of the formed relationship will be discussed in chapter 4, which will include a qualitative examination of the quantitative results gathered from the research, as well as justifications. The relevant research design for this study is an explanatory kind, which response to both how and why, the part of the core research question and objectives. The argument for using an explanatory research design in this study is further supported by the philosophical attitude section and the study's purpose.

3.3 PHILOSOPHICAL STANCE/PARADIGMS

Philosophical assumptions/paradigms are a set of beliefs that govern how research should be conducted, what should be examined, and how the results should be analysed and interpreted (Bryman, 2008:14). Creswell (2018:15) explained that these are the researcher's general perspectives on the world. "A paradigm includes the researcher's assumptions about how an investigation should be conducted, i.e. (methodology), as well as his or her definition of truth and reality, i.e. (ontology), and how the investigator comes to know that truth or reality, i.e. (epistemology)" (Lincoln & Guba, 1985:44). A researcher's methodological choice is influenced by philosophical views about ontology and epistemology (Collis & Hussey, 2003:87). Carnahan (2013) further states that the philosophical assumptions are beliefs and theories that guide the work of researchers.

There are mainly four philosophical assumptions which comprise of:

- Ontological assumptions;

- Epistemological assumptions;
- Rhetorical assumptions; and
- Methodological assumptions. (Creswell, 2018: 20)

3.3.1 Ontological assumptions

Ontology, according to Saunders *et al.*, (2007:110), is a study of the nature of reality and the assumptions scholars have about the way the world operates, as well as the commitment held to a specific view. Ontology is also a study of determining whether or not things exist, as well as the classification of existence. It attempts to prove that abstract concepts are real (Ritchie & Lewis, 2003:22). Ontology is Concerned with the nature and characteristics of reality. Researchers embrace the concept of multiple realities and report on them by examining various forms of evidence from various individuals' perspectives and experiences (Carnahan, 2013). Ontology is divided into two schools of thought: objectivism and constructionism. Objectivism believes that there is an independent reality, whereas constructivism believes that truth is the result of social processes (Tuli, 2010:99).

Truth and reality, nevertheless, are dynamic and change with time. The origins and context of KPIs were centered on compliance evaluations. As technology and economic environments evolved, KPIs became more about adding value by improving alignment with business strategy, being used as tools for leading and managing businesses, developing an integrated view of the customer, and addressing the problem of employee engagement with the organisation (Kiron & Schrage, 2018b).

3.3.2 Epistemological assumptions

Epistemology is the study or theory of the nature and the foundations of knowledge, particularly in terms of their boundaries and validity. It also explains how the researcher will interact with the research. Epistemology focuses on the process of obtaining information to generate new and better models and ideas (Grix, 2002:177). Collis and Hussey (2003:88) maintained that epistemology is concerned with what we regard the fact as a study of knowledge (Collis & Hussey, 2003:88). Researchers attempt to get as close to the participants being studied as possible. Individual perspectives from field research are used to compile subjective evidence (Carnahan, 2013). According to Grix (2004:83), there are two kinds of epistemological assumptions: etic and emic. An etic epistemology asserts that research is done objectively, with no influence from the researcher or links to realism, but an emic epistemology is linked to a relativism ontology. The sort of ontology indicated in paragraph 3.3.1 determines the epistemological presupposition.

3.3.3 Rhetorical assumptions

The language used in research is referred to as rhetorical assumptions. It is used to measure attitudes, opinions, behaviours and other specific factors, as well as to extrapolate results from a broader sample population (Creswell, 2018:21). The researcher frequently writes in a conversational style with few definitions, a qualitative tone, and a distinct voice (Lincoln & Guba, 1985:45). The researcher mainly uses passive voice.

3.3.4 Methodological assumptions

The methodical exploration and analysis of knowledge are referred to as methodology (Creswell, 2018:21). According to Leedy & Ormrod (2001:14), methodology refers to the researcher's overall study strategy. Quantitative research will be used in this study, as explained in paragraph 3.5. As a result, there are various methods for collecting quantitative research data, including structured interviews, polls, questionnaires and surveys, as well as modifying pre-existing statistical data using computer approaches (Creswell, 2018:21). In this study, the data collecting, and measurement methodology is a questionnaire. Paragraphs 3.6.1 to 3.6.2 explain the specifics of the questionnaire and data collection process.

Participants will be required to complete the questionnaire covering questions drawn from the research objectives and literature to assist the sampler when doing data analysis. Since this research will focus on respondents at strategic and managerial levels, a non-probability sampling method will be used to select individuals working in technology and project management companies whose availability and capacity are compatible with the study.

Finally, using ratio analysis, to critically analyse the information gathered from both literature and empirical research and put together a method for determining the existence of KPIs and their changing role in creating organisational strategic competitive advantages for technology and project management entities in South Africa.

3.4 OBJECTIVES OF EMPIRICAL STUDY

Crotty (1998) defined what determines research design selection as depending on the study aims to answer the questions in a research challenge. The majority of the time, the research challenge is a problem that must be resolved.

As previously said, the primary goal of this research is to investigate the changing role of KPIs and how they contribute to organisations strategic competitive advantages in the South African environment. The secondary objectives play the following roles:

- To determine the existence and use of KPIs in the organisations researched;

- To investigate the changing role of KPIs and their contribution in creating strategic competitive strategies by aligning the entire organisation, development of customer integrated focus, enhancing employees' engagement with the organisation, and being used as tools for leading and managing entities.

Chapter two focused on analysing the literature of which the following major aspects were covered:

- The general overview of KPIs
- The value of KPIs
- The changing role of KPIs
- The changing role of KPIs in enhancing organisational strategic competitive advantages through organisational alignment, employee engagement, customer engagement, and being used as tools for leading and managing entities.

The research methodology will be followed, which gives a detailed comparison of the empirical results of the research with analysis from the literature review.

3.5 RESEARCH APPROACH

The research methodology is described by Creswell (2009) as the methods and plans for conducting research. This includes all necessary processes taken during research, from general assumptions through data collection methods, data processing and data interpretation. According to the University of the Witwatersrand (2021), research methodology refers to procedures used to identify, select, analyse and process specific topic information. There are three types of research approaches or methods: qualitative, quantitative, and mixed methods (Creswell, 2003:153). A quantitative technique is used to solve the research objectives because this study entails gathering and analysing numerical data. The following is an explanation of the approach selection:

3.5.1 Quantitative research

Quantitative research, according to Creswell (2003:153), is the process of collecting numerical data so that information may be quantified and statistically treated to either confirm or refute alternative knowledge claims. The researcher uses inquiry tactics such as experiments and surveys to collect data on preset instruments that provide statistical data in this methodology. One of the key advantages of quantitative research, according to Lelissa (2017:107), is that its methodologies produce trustworthy and numerical data that may be generalised to a broad population. The quantitative technique will be used to confirm or disprove the major research objective of investigating the changing role of KPIs in South Africa's technology and project management entities,

as well as other distinct research questions. Because of the nature of the study and preceding literature, the central research question necessitates a quantitative response.

3.6 RESEARCH METHODS

Research methodologies are tactics, processes, or techniques utilised in collecting data for analysis to better understand or uncover new facts about a topic (Jovancic, 2019). According to Bajpai (2011), research methodologies, are a systematic and scientific procedure for data collection, compilation, analysis, and interpretation. There is a plethora of categories that can be used to categorise various research approaches, which could be, amongst others, the general classification, the purpose of the study, the nature of the study, and according to the research design (Dudovskiy, 2018).

As previously said, the study's goal is to uncover facts and provide conclusive and definitive answers concerning the changing role of KPIs and how they aid in the creation of strategic competitive advantages in technology and project management companies. This section explains the considerations for data collection and handling that will be employed in the study. The data for this study will be obtained via a questionnaire because it will be a quantitative study. The data collection technique comprises two parts, each of which represents a different aspect of the data collection process. The first section offers details on the questionnaire's development, while the second section contains details about data collecting, the target population, and an explanation of how the data will be analysed.

3.6.1 Development of a questionnaire

The questionnaire will be developed from the study objectives and a literature review done on the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa. This instrument contains questions and items relevant to the initial research problem in paragraph 1.3 of chapter one. All questions or items of a similar nature that seek to gather the same information are categorised together.

The following layout of the analytical categories relevant to the research problem and literature review will be used:

Section A: General information of participants

Section B: The existence and utilisation of KPIs in technology and project management entities

Section C: Changing role of KPIs in enhancing customer experience

Section D: Changing role of KPIs in enhancing employees' engagement

Section E: The changing role of KPIs in aligning organisational goals and objectives

Section F: The changing role of KPIs in being used as tools for leading and managing entities.

The four-point Likert scale will be used to measure responses in Sections A, B, C, D E and F. This scale will have a range that describes from “Not at all” with a value of one, to “Greater extent” with a value of four. The strength of a Likert scale is that it gives a consistent measure of the actual position of the respondent, instead of indicating only whether the respondent was favourably inclined to the topic or not.

3.6.2 Data collection

Data collection is defined as the process of acquiring and measuring information on variables of interest in a systematic manner that allows one to respond to queries, research questions, and evaluate outcomes (Jovancic, 2019).

3.6.2.1 Quantitative Data

Jovancic (2019) states that quantitative data is usually expressed in numerical form and can reflect the size, length, duration, amount, price, and ratios, among other things. Quantitative research makes use of numerical data to answer questions like who, when, where, what, and how many. In a quantitative survey, the questions are typically closed-ended and constructed following the study objectives, allowing the answers to be easily transformed into statistics, charts, graphs, and tables (Jovancic, 2019). Because quantitative methods of gathering data are generally based on numerical calculations, Bryman and Bell (2015: 160), claims that adopting quantitative ways of acquiring data is usually considered more objective and reliable than qualitative ones. Surveys and questionnaires are some of the most common quantitative data collection techniques which utilise closed-ended questions.

This study will gather quantitative data as it will utilise quantitative research due to the objectivity and positivity a researcher has towards this study, as stated in paragraph 1.7.1 of chapter 1. A new questionnaire will be developed to cover this study’s data gathering process and will be guided by the literature and objectives of this study. The questionnaire will consist of a set of questions which will be used to gather a range of responses to measure the existence of KPIs and their changing role in creating strategic competitive advantages through strategic alignment, development of customer integrated focus, enhancing employee engagement, being tools for leading and managing of different organisations.

A web-based questionnaire will be distributed by using a link to a research tool to different respondents working in selected technology and project management entities in various capacities. The strategy to be used is to contact identified strategic, managerial and supervisory participants

in the technology and project management industry players through LinkedIn and email. These participants will be requested to participate in the survey by completing a questionnaire. The respondents will fill in numerical responses by indicating whether they agree or not with the statement and the extent of their agreement or disagreement on a four-point Likert scale. All completed questionnaires will be collected immediately in an automated way by electronic means, and the identities of all participants will remain confidential.

3.6.2.3 Target population

The researcher's target population is the group of people from whom he or she intends to collect data (Glen, 2019). Respondents working at supervisory, managerial, and executive levels in South African technology and project management firms will be the primary target. People are expected to have exposure to KPIs and strategy formulation as part of their various responsibilities at the businesses where they work. The non-probability sampling (snowballing sampling) approach will be used to select samples (entities and individuals) from the above-mentioned targeted population. Snowballing sampling is commonly regarded as the primary data collection strategy in business studies, in which the researcher first identifies a small number of individuals in a target company (Dudovskiy, 2018). Since these individuals are expected to be uncommon and difficult to find, a non-probability sampling technique is deemed appropriate for this study. This will necessitate chain-referral, in which primary data providers will refer or recommend other primary data sources who may be interested in participating in the study. To be more specific, non-discriminative exponential snowball sampling will be used.

A researcher will select a few individuals from technology and project management firms with whom he maintains professional relationships and will use them as primary data sources. These initial volunteers will be recruited, and they will be asked to refer a number of additional participants. Each new referral must provide additional referrals until the sample size is reached. These individuals will be sent a questionnaire to complete, and they will also be asked to forward the same questionnaire to their colleagues who work in the same or similar technology and project management entities. This study will not request any contact information from respondents in order to protect their private information. However, it will rely on primary targets to forward or recommend the questionnaire to other potential respondents.

3.6.2.4 Data analysis

The data for this study will be analysed using descriptive statistics based on the responses of the participants after they have completed the questionnaire. This task will be carried out with the assistance of North-West University's statistics department. Since the study employs quantitative

research, data from each category of the web-based questionnaire will be analyzed using ratio analysis. This will allow the researcher to draw conclusions about the respondents' responses to the questions posed.

3.7 METHODOLOGY RIGOR

The researcher's responsibility for ensuring that relevant processes have been followed and that conflicting matters have been eliminated to provide credible study results is referred to as methodological rigor. Reliability and validity are used to assess methodological rigor (Golafshani, 2003:604).

Since the researcher will approach the study objectively and positively, it is believed that the quality of the work will not be compromised, i.e., it will be reliable. Wilson (2010) claimed that the only time reliability difficulties arise is when the researcher takes a subjective approach to the research. The researcher will also ensure that the scientific prerequisites for obtaining research findings are met to maintain the validity of the research. This is based on Oliver (2010), who claimed that all sorts of studies should adhere to validity standards. All survey respondents will answer the same questions; this will be done to gain a different understanding of the same questions from all respondents who will participate in the study. The survey responses will be stored in a controlled environment held by Google drive to which the researcher will have sole access.

3.8 ETHICAL CONSIDERATIONS

The public's support for research is gained with the help of ethical principles. For various reasons, a researcher must follow a thorough process for ethical research. Firstly, these techniques help researchers achieve their aims of knowledge, truth and mistake prevention. Secondly, research necessitates cross-institutional collaboration, and the principles promote qualities essential for teamwork, such as trust, accountability, justice, and mutual respect. These ideals ensure that if it is proven that the researcher is undertaking unethical research, he will be held accountable. Finally, according to Resnik (2015:2), maintaining ethical research standards supports other essential moral and societal ideals such as legal compliance, human even animal rights.

This study will seek ethical clearance approval from North-West University's Ethics in Commerce Scientific Committee. The goals and values of research that are critical for working with teams from different backgrounds and compliance with laws and regulations will be vital. The ethical norms will be complied with using the confidentiality agreement with research participants by treating participants with respect and by complying with all applicable laws and regulations throughout the research process.

All participants will be asked to indicate whether or not they are willing to participate in and cooperate with the requests of filling in the questionnaires. Participants will be given the highest level of confidence regarding the confidentiality of the information that will be collected from them, and their identities will be kept anonymous because the results will only be used for research reasons.

3.9 SUMMARY

The main aim of this chapter was to identify and present the appropriate research methodology that will be followed to address the objectives of this study as elaborated in chapter one. This chapter also discussed the research paradigm underlying this study, as well as the associated ontological and epistemological assumptions. The three main research approaches were discussed, including the research approach selected for this study, namely quantitative research. The chapter discussion also followed a research approach to address the research question from the problem statement. The non-probability sampling method will be utilised to identify primary respondents from the technology and project management industries, as elaborated upon in paragraph 3.6.2.3. Data will be collected through an electronic questionnaire, using a set of close-ended questions.

A fixed number of questions in each category of the objectives will be asked regarding the changing role of KPIs in creating organisational strategic competitiveness in the South African environment. Since the study uses quantitative research, data will be analysed by using ratio analysis based on responses in each category of the questions from the web-based questionnaire. Finally, the ethical research norms will be presented and followed so that the goals of the research study will be achieved and good relations with all involved in the research will be maintained.

The next chapter will detail the findings from the empirical study and analysis from the literature.

CHAPTER 4

RESULTS OF THE STUDY

4.1 INTRODUCTION

The purpose of this chapter is to address the third secondary objective: discuss and analyse the findings of the results obtained from responses of the completed questionnaire received, and understand the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa.

The questionnaire developed and used for this study was compiled after the literature review in chapter 3 had been done and with guidance from the research objectives from chapter 1. The findings obtained from the questionnaire will be discussed in the rest of chapter 4. The discussion will therefore contain the data collection, approach to the scoring, the interpretation of the measuring instrument, and the statistical analysis.

4.2 DATA GATHERING

As mentioned in paragraph 3.4.3, a web-based questionnaire was developed and distributed, using a link of a research tool to different respondents working in technology and project management entities in different capacities. The technique which was used to distribute the questionnaire included email and LinkedIn by attaching the link of the research tool.

The first section requested the information to help with the statistical analysis of the data for comparisons among different groups of participants. This section consisted of questions designed to collect information about participants' knowledge, experience, and their current position within the industry to determine the reliance that could be placed on the information they provided.

The second section of the questionnaire focused on the extent to which participants used KPIs and if they agree that the role of KPIs has transformed in their entities. The objective of this section was to gain an understanding of the reliance on KPIs by these entities on their operation and executive duties. The third section of the questionnaire inquired about the extent to which participants are using KPIs to understand customers in their organisations fully. It aimed to understand their dependence on using KPIs to develop an integrated view of the customers. Furthermore, the fourth section focused on how participants utilised KPIs to lead and manage their entities. This was aimed at understanding the changing role of KPIs in enhancing entities to develop leading and management strategies vital for the creation of strategic competitive advantages.

The next section of the questionnaire was aimed at probing participants 'organisations' use of KPIs in aligning processes and people towards overall organisational purpose. The objective was to

determine the effectiveness of KPIs role in formulating the integrated resource plan to support the organisation's overall goals and objectives. Finally, the sixth section focused on participants' organisation's use of KPIs in enhancing employee engagement towards overall organisational purpose. Its main aim was to get an understanding of the KPI's role in helping teams of employees to get connected to the organisational goals and objectives.

The study targeted a population of 80 respondents from technology and project management entities working mainly at senior levels. However, 85 responses were returned, which is better than the expected number.

Statistical analysis for sections B to F was performed by the Statistical Consulting Services of the North-West University using SPSS, and below are the results in every category:

4.3 GENERAL INFORMATION OF PARTICIPANTS

As stated above in paragraph 4.2, this section of the questionnaire consisted of questions designed for information collection to understand participants' experience, the number of years they have been in the industry, the qualification levels they have obtained, and their current position within the industry. This was aimed at determining the reliance that could be placed on the quality of information they provided.

4.3.1 Highest academic qualification of respondents

- **The question purposes**

The purpose of question A1, in Section A of the questionnaire (Appendix 1), was to determine the respondent's academic qualifications.

- **Results obtained**

Table 4.1 below presents the highest academic qualifications of all participants that responded to the survey.

Table 4.1: Highest academic qualification

Academic qualification	Frequency	Valid per cent
Up to matric (grade 12)	2	2.4%
Up to Diploma	2	2.4%
Up to Undergraduate degree	18	21.2%
Postgraduate degree and above	63	74.1%
Total	85	100.0%

Source: Own research

Table 4.1 above indicates that 63 respondents represent the largest categories in this review with post-graduate degrees (74.1%), followed by 18 respondents with degrees (21.2%). Respondents with degrees and post-graduate degrees constitute 81 (95.2%) of the total respondents to the survey. There were two (2.4%) respondents with grade 12 and only two (2.4%) respondents who obtained diplomas as their highest level of qualification. This was expected since the survey targeted respondents at managerial levels and above as they were expected to have relevant exposure and experience to the study topic.

4.3.2 Number of years worked at this organisation by each respondent

- **The question purposes**

The purpose of question A2, in Section A of the questionnaire (Appendix 1), was to determine the number of years the respondents have worked at their respective organisations.

- **Results obtained**

Table 4.2 below represents the number of years participants have worked at their respective organisations of all participants that responded to the survey.

Table 4.2: Number of years worked at the organisation

Level in the organisation	Frequency	Valid per cent
0 - 3 years	23	27.1%
4 - 7 years	29	34.1%
8 – 10 years	13	15.3%
11+ years	19	22.4%
Total	85	100.0%

Source: Own research

Table 4.2 above indicates that the second-highest number of the sample, namely 23, have been working 0-3 years at the organisation (27.1%) and the highest proportion, 29, have been working 4-7 years (34.1%). The smallest proportion, 13, have been working 8-10 years (15.3%) and the second smallest proportion of the sample, 19, have been working 11+ years (22.4%).

4.3.3 Level in the organisation where respondents work

- **Purpose of the question**

The purpose of question A3, in Section A of the questionnaire (Appendix 1), was to determine the level within the organisation at which the respondents have been working.

- **Results obtained**

Table 4.3 below presents the levels at which every respondent has been working in the organisation.

Table 4.3: Level in the organisation

Level in the organisation	Frequency	Valid per cent
Experienced	18	21.2%
Middle management	33	38.8%
Senior management	23	27.1%
Executive	11	12.9%
Total	85	100.0%

Source: Own research

Table 4.3 above indicates that 23 (27.1%) of the respondents have been working at the senior management level, 11 (12.9%) at the executive level, 33 (38.8%) at the middle management level, and the remaining 18 (21.2%) at the experienced level.

4.3.4 Respondents' number of years appointed as responsible person

- **Purpose of the question**

The purpose of question A4, in section A of the questionnaire (Appendix 1), was to determine the number of years respondents have been appointed as responsible persons.

- **Results obtained**

Table 4.4 below represents the number of years participants have been appointed as responsible persons of all that responded to the survey.

Table 4.4: Number of years authorised as responsible person

Years Appointed as responsible person	Frequency	Valid per cent
Less than one (1) year	5	6%
1 – 3 years	22	25.8%
4 – 9 years	39	45.8%
10 – years and above	19	22.4%
Total	85	100.0%

Source: Own research

Table 4.4 above indicates that 39 (45.8%) of the respondents have been appointed as responsible persons for four to nine years, while 19 (22.4%) have been appointed as responsible persons for ten years and above. It also indicates that there are 22 (25.8%) respondents who have been appointed as responsible persons for a period between one and three years. Lastly, only five (6%) respondents have been appointed as responsible persons for less than a year.

4.3.5 Participants’ general information results: summary

A total of 85 participants took part in the survey. The breakdown indicates that 58 (68%) and 62 (73%) respondents have respectively been appointed as responsible persons at their respective entities for four years and above. Similarly, 67 (79%) respondents indicated that they have occupied managerial and executive levels. A similar response rate was also obtained when 81 (95%) respondents indicated that they have obtained a degree or higher. It is evident that the level of education, number of years of experience in the technology and project management industry, and the levels at which respondents have worked in their organisations are adequate for the study.

4.4 SECTION B TO F KPIS QUESTIONNAIRE INDEX

There were 25 questions in sections B to F that contained a four-point Likert scale of not at all, lesser extent, medium extent, and greater extent of which not at all had a lower value of 1 and the greater extent had a higher value of 4. Participants selected their respective answers using a four-point scale. Respondents who scored higher on 25 questions received a higher index score, and respondents who scored lower received a lower index score, as stipulated on the four-point Likert scale. The study calculated the scores for each of the 25 questions and found their respective frequencies, means, standard deviations as well as Cronbach’s alpha reliability coefficients.

4.5 ORGANISATIONAL USE OF KPIS AND THEIR CHANGING ROLE (SECTION B)

The following nine questions focused on the organisation's use of KPIS and the extent to which they agree or disagree that KPIS’ role has changed.

Figure 4.5: Organisational use of KPIS and their change’s role

No	Statement	Not at all	To a lesser extent	To a medium extent	To a great extent	Mean	Standard deviation
B1	To what extent is your entity using KPIS to measure organisational competitiveness,	2 (2.4%)	12 (14.1%)	26 (30.6%)	45 (52.9%)	3.34	0.81

	effectiveness and performance?						
B2	To what extent do you trust the reliability and accuracy of your organisational KPIs?	2 (2.4%)	12 (14.1%)	34 (40.0%)	37 (43.5%)	3.25	0.79
B3	To what extent do you support the statement: The role of KPIs has evolved from compliance-oriented metrics to data-driven growth measures?	2 (2.4%)	4 (4.7%)	33 (38.8%)	46 (54.1%)	3.45	0.70
B4	To what extent do you support this statement: KPIs built around reviewing past performance are less valuable than KPIs that enable your organisation to take advantage of predictive insight?	0 (0%)	8 (9.4%)	29 (34.1%)	48 (56.47%)	3.47	0.67
B5	To what extent do you see KPIs as tools for transformation?	2 (2.4%)	10 (11.8%)	21 (24.7%)	52 (61.2%)	3.45	0.79
B6	To what degree do you agree that modern businesses focus on connecting KPIs to the organisational broader vision?	1 (1.2%)	10 (11.8%)	29 (34.1%)	45 (52.9%)	3.39	0.74
B7	To what extent do you view KPIs as data input for machine learning?	6 (7.1%)	19 (22.35%)	32 (37.65%)	28 (32.9%)	2.96	0.92
B8	To what extent do you look to KPIs in finding new growth opportunities for your company?	3 (3.5%)	19 (22.4%)	22 (25.9%)	41 (48.2%)	3.19	0.91

B9	To what extent do you agree that KPIs create strategic competitive advantages?	2 (2.3%)	11 (12.9%)	24 (28.2%)	48 (56.5%)	3.39	0.80
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Source: SPSS (Northwest University Statistics Department)

The lowest mean of Section B, "Organisational use of KPIs and their changing role", was reported for statement B7 ", To what extent do you view KPIs as data input for machine learning?" (mean = 2.96, SD = 0.92), indicating that respondents on average indicated to a medium extent. The highest mean of this section was reported for statement B4 that reflects on the respondents' support for "KPIs built around reviewing past performance are less valuable than KPIs that enable your organisation to take advantage of predictive insight" (mean = 3.47 SD =0.67) indicating that respondents on average affirmed from a medium to a greater extent that their entities use KPIs and their role has changed. This is also affirmed by a low standard deviation of 0.67 which indicates that the respondents' values are clustered close to the mean.

Section B findings demonstrate that KPIs are still well recognised and used in technology and project management entities. Not only that, but they also indicate a growing recognition that the role of KPIs has evolved from initially being used as compliance measures of assessing performance to the new role as data inputs for machine learning and as tools for transformation. These findings also suggest that KPIs do enjoy special status as performance measures, enablers, creators of strategic competitive advantages and drivers of change in technology and project management companies. Finally, the findings also indicate that the majority of respondents look to KPIs in finding new growth opportunities and connecting various functions to the organisational broader vision for their entities. The above explanations are well supported by the response rate affirmations for all questions which largely ranged from medium to greater extent. This is in line with the findings of the literature review, which demonstrated a global trend in which most executives use KPIs to get strategic insights that aid in strategic decision making.

4.6 KPIs INCREASINGLY FOCUSED ON THE CUSTOMER EXPERIENCE

The following four questions in section C focused on the organisations' use of KPIs in enhancing customer experience.

Table 4.6: KPIs increasingly focused on customer experience

No	Statement	Not at all	To a less extent	To a medium extent	To a great extent	Mean	Standard deviation
C1	To what extent do you use KPIs to develop a single, integrated view of the customer?	4 (4.7%)	20 (23.5%)	37 (43.5%)	24 (28.2%)	2.95	0.844
C2	To what degree do you place much emphasis on customer focused KPIs?	2 (2.4%)	12 (14.1%)	32 (37.6%)	39 (45.9%)	3.27	0.793
C3	To what extent do you prioritise or elevate customer focused KPIs in relation to other types of KPIs?	2 (2.4%)	14 (16.5%)	35 (41.2%)	34 (40%)	3.18	0.794
C4	To what extent do you use KPIs to fully understand customer behaviour?	4 (4.7%)	20 (23.5%)	33 (38.8%)	28 (32.9%)	3.00	0.873
C5	To what extent do you use KPIs to understand the customers' journey?	7 (8.2%)	23 (27.1%)	26 (30.6%)	29 (34.1%)	2.91	0.971

Source: SPSS (Northwest University Statistics Department)

The lowest mean of Section C, "increasingly focused on customer experience", was reported for statement C5 "To what extent do you use KPIs to understand customers' journey?" (mean = 2.91, SD = 0.97), indicating that respondents on average indicated to a medium extent. The highest mean of this section was reported for statement C2 that reflects on the respondents' support for "To what degree do you place much emphasis on customer focused KPIs?" (mean = 3.27, SD = 0.79), indicating that respondents on average indicated medium to a great extent of support. This is also affirmed by a low standard deviation of 0.79 which indicates that the respondents' values are clustered close to the mean.

To summarise section C findings, it is evident that more entities are using KPIs in enhancing customer experience. Many participants who took part in the survey have shown that they achieve this by using KPIs to holistically understand their targeted customers and elevating customer focused KPIs. Surveyed participants affirmed that they use KPIs to help them to develop a more holistic view of their target customers, as indicated by the response rates, which largely ranged from medium to

a greater extent. This indicates that an integrated customer view remains an aspiration for many projects management and technology entities. Furthermore, most participants indicated their efforts to understand the entire customer journey, which covers many elements customers experience when they interact with entities' brands. This shows that many technologies and project companies are worried about KPIs which are concerned with how consumers interact with their products, services, and brands. Finally, this section's findings capture a growing recognition that KPIs must align internal processes with external customer behaviours. This is consistent with the literature review, which revealed a global trend in which most leaders use KPIs to gain strategic insights and enhance customers experience.

4.7 USE OF KPIS TO LEAD AS WELL AS MANAGE THE ENTERPRISES

The following four questions in section D focused on the participants' use of KPIs in leading and managing their entities.

Table 4.7: Use of KPIs to lead as well as manage the enterprises

No	Statement	Not at all	To a less extent	To a medium extent	To a great extent	Mean	Standard deviation
D1	To what extent does your organisation use KPIs as tools for leading and managing people, processes and entities as a whole?	3 (3.5%)	15 (17.6%)	29 (34.1%)	38 (44.7%)	3.20	0.856
D2	To what extent does your organisation use both leading and lagging KPIs?	5 (5.9%)	17 (20%)	37 (43.5%)	26 (30.6%)	2.99	0.866
D3	To what extent does your organisation use leading KPIs to formulate strategies?	6 (7.1%)	15 (17.6%)	29 (34.1%)	35 (41.2%)	3.09	0.934
D4	To what extent do you believe that KPIs guide organisational decision making?	0	8 (9.4%)	32 (37.6%)	45 (52.9%)	3.44	0.663

Source: SPSS (Northwest University Statistics Department)

The lowest mean of Section D " Use of KPIs to lead as well as manage the enterprises " was reported for statement D2 "To what extent does your organisation use both leading and lagging KPIs?" (mean = 2.99, SD = 0.87), indicating that respondents on average indicated to a medium extent. The highest mean of this section was reported for statement D4 that reflects on the respondents' support for "To what extent do you believe that KPIs guide organisational decision making?" (mean = 3.47, SD = 0.67), indicating that respondents on average indicated medium to a great extent of support. This is also affirmed by a low standard deviation of 0.67 which indicates that the respondents' values are clustered close to the mean.

To summarise section D's findings from the respondents surveyed, most of them are using KPIs to lead and manage people, processes and their entities. They also indicated that KPIs guide their decision making and formulation of their entities' strategies. Furthermore, respondents also affirmed that their entities are using both leading and lagging indicators. This is supported by the above response rates, which mainly ranged from medium to a greater extent in the four questions asked. These findings indicate that KPIs do enjoy special status as either enablers or drivers of change in many technologies and project management entities. This also suggests the best practice about using KPIs in leading and managing technology and project management entities surveyed. The above findings might also imply that respondents are largely using KPIs for value-added insight, unlike in the past, where they were used for compliance evaluation. This is consistent with the findings of the literature review, which revealed a global trend in which most leaders not only use KPIs for compliance evaluation but also to manage and lead their organisations.

4.8 USE OF KPIs TO ALIGN THE ORGANISATION

The following four questions of Section E investigated the survey participants' use of KPIs in aligning processes, functions and people towards overall organisational purpose. The response results are shown in the Table 4.8 breakdown below.

Table 4.8: Use of KPIs to align the organisations

No	Statement	Not at all	To a less extent	To a medium extent	To a great extent	Mean	Standard deviation
E1	To what extent does your organisation use KPIs to effectively align people and internal processes with external customer behaviours?	7 (8.2%)	16 (18.8%)	34 (40%)	28 (32.9%)	2.98	0.926

E2	To what extent do you believe your functions' KPIs are directly aligned to your organisation's strategic goals and business outcomes?	3 (3.5%)	10 (11.8%)	34 (40%)	38 (44.7%)	3.26	0.804
E3	To what extent do you believe that KPIs play a major role in ensuring that teams and functions understand the company's broader mission and objectives?	4 (4.7%)	8 (9.4%)	27 (31.8%)	46 (54.1%)	3.35	0.841
E4	To what extent do KPIs help you in communicating organisational strategy between management and lower-level employees?	4 (4.7%)	11 (12.9%)	29 (34.1%)	41 (48.2%)	3.26	0.861

Source: SPSS (Northwest University Statistics Department)

The lowest mean of Section E, " Use of KPIs to align the organisations ", was reported for statement E1 " To what extent does your organisation use KPIs to effectively align people and internal processes with external customer behaviours? " (mean = 2.98, SD = 0.93), indicating that respondents on average indicated to a medium extent. The highest mean of this section was reported for statement E3 that reflects on the respondents' support for " To what extent do you believe that KPIs plays a major role of ensuring that teams and functions understand the company's broader mission and objectives? " (mean = 3.35, SD = 0.84), indicating that respondents on average indicated medium to a great extent of support. This is also affirmed by a low standard deviation of 0.84 which indicates that the respondents' values are clustered close to the mean.

Figure 4.8 above indicated that survey respondents use KPIs to align people and internal processes with external customer behaviours. This was also affirmed by their belief that their entities' functional KPIs are directly aligned to the overall organisation's strategic goals and business outcomes. Not only that, but surveyed respondents believe that KPIs play a significant role in ensuring that teams and functions understand the company's broader mission and objectives. Finally, surveyed respondents also believe that KPIs help them to communicate organisational strategy between management and lower-level employees, as indicated by response rates which mainly ranged from

medium to a greater extent in all questions asked. This highlights a growing trend in many entities of using KPIs in aligning functional and strategic goals. This is in line with the findings of the literature research, which demonstrated a global trend in which most organisations also utilise KPIs to align functional and strategic goals in addition to evaluating compliance.

4.9 THE USE OF KPIs TO SOLVE THE PROBLEM OF EMPLOYEE ENGAGEMENT

The following four questions in Section F investigated the survey participants' use of KPIs in enhancing employee engagement towards overall organisational purpose.

Table 4.9: The use of KPIs to solve the problem of employee engagement

No	Statement	Not at all	To a less extent	To a medium extent	To a great extent	Mean	Standard deviation
F1	To what extent do KPIs help connecting employees to your organisational purpose?	4 (4.7%)	15 (17.6%)	29 (34.1%)	37 (43.5%)	3.16	0.884
F2	To what extent do KPIs help employees understand organisational strategic direction?	2 (2.4%)	17 (20%)	24 (28.2%)	42 (49.4%)	3.25	0.858
F3	To what degree do KPIs strengthen employees' morale or motivation?	5 (5.9%)	15 (17.6%)	33 (38.8%)	32 (37.6%)	3.08	0.889
F4	To what extent does KPIs enhances teams reaching their organisational key goals?	2 (2.4%)	11 (12.9%)	31 (36.5%)	41 (48.2%)	3.31	0.787

Source: SPSS (Northwest University Statistics Department)

The lowest mean of Section F " The use of KPIs to solve the problem of employee engagement " was reported for statement F3 " To what degree do KPIs strengthen employee's morale or

motivation? " (mean = 3.08, SD = 0.889), indicating that respondents on average indicated to a medium extent. The highest mean of this section was reported for statement F4 that reflects on the respondents' support for "To what extent do KPIs enhance teams reaching their organisational key goals? " (mean = 3.31, SD = 0.787), indicating that respondents on average indicated medium to a great extent of support. This is also affirmed by a low standard deviation of 0.787 which indicates that the respondents' values are clustered close to the mean.

To summarise the findings of Section F, surveyed respondents believe that KPIs help connect employees to the organisational purpose. They also believe that KPIs help employees to understand their organisational strategic direction. Furthermore, surveyed respondents assert that KPIs strengthen employees' motivation in their entities. Finally, they also affirm that KPIs enhance teams reaching their organisational key goals as indicated by response rates, which mainly ranged from medium to a greater extent in all questions asked. The above findings also imply that respondents are largely using KPIs for value-added activities such as enhancing employee engagement towards their organisational goals, unlike in the past, where KPIs were only used for compliance evaluation. This is consistent with the findings of the literature review, which revealed a global trend in which most companies also use KPIs to enhance employee engagement towards their organisational goals.

4.10 RELIABILITY

Reliability (Cronbach's alpha) measures if a questionnaire and its underlying factors are consistently reflecting what it is measuring. This means that:

- A person completing the questionnaire on two different points in time should get the same score for each of the constructs each time they complete the questionnaire, all other things being equal.
- Two people who are the same in terms of the constructs being measured by the questionnaire should both get the same scores for these constructs.

The Cronbach's alpha reliability coefficient was used to test each of the sections (section B, C, D, E and F).

Table 4.10: Reliability

Factor	Questions	Cronbach's alpha	Mean	SD
Organisational use of KPIs and their changing role	B1 - B9	0.82	3.32	0.51
Increasingly focused on customer experience	C1 - C5	0.87	3.06	0.70
Use of KPIs to lead as well as manage the enterprises	D1 - D4	0.82	3.18	0.67

Use of KPIs to align the organisations	E1 - E4	0.81	3.21	0.69
The use of KPIs to solve the problem of employee engagement	F1 - F4	0.91	3.20	0.76

Source: SPSS (Northwest University Statistics Department)

All the reported Cronbach alpha values (0.81 - 0.91) were well above the guideline value of 0,7, which indicates that the resulting factors are reliable. The means ranged between 3.06 (SD = 0.70) 3.32 (SD = 0.51); therefore, respondents on average, indicated a medium to a great extent for all questions in these sections. This implies that research results affirm that the role of KPIs has changed from initially being used as compliance measures for evaluating historical performance to recently being used in creating strategic competitive advantages for technology and project management entities. This is achieved by using KPIs to enhance the customer experience in leading and managing enterprises in aligning functions towards organisational purpose and solving the problem of employee engagement.

4.11 DISCUSSIONS

The study was undertaken to investigate the changing role of KPIs in technology and project management entities in South Africa by using a survey questionnaire. Results obtained confirm that more organisations use KPIs to measure organisational competitiveness, effectiveness and performance.

However, research findings reveal that the role of KPIs has changed from being historically used as compliance measures for evaluating past performance to recently being used in creating strategic competitive advantages for technology and project management entities in South Africa. The evidence suggests that this is done through KPIs enhancement in aligning the functions to organisational purpose, development of customer integrated focus, improvement in employees' engagement to the organisation purpose, performance measurements, and tools for leading and managing entities.

The study also revealed that research participants do not put much value on KPIs built around reviewing past performance but more on KPIs that enable organisations to take advantage of predictive insight. This is in line with the literature review, which highlighted the global trend where most of the leaders use KPIs in gaining strategic insights, which are valuable for making strategic decisions. To add to this, the findings of the study also indicated that KPIs are now viewed and used as tools of transformation by leaders in technology and project management entities in South Africa.

Nevertheless, the study results also highlighted the growing recognition that modern entities focus

on connecting KPIs to their organisational broader vision. They do this to make sure that the functions of KPIs are directly aligned to their organisation's strategic goals and business outcomes. On the same note, it was also observed that the participants of the study use KPIs in clearly articulating their organisational vision, and this plays a major role in ensuring that teams and functions understand the companies' broader mission and objectives. In addition, these findings also indicated that technology and project management leaders in South Africa use KPIs in helping them to communicate organisational strategy from management to lower-level employees. Therefore, this study also highlighted the interesting results which indicate that technology and project management entities use KPIs as tools for leading and managing people, processes and entities as a whole. It is therefore clear that these participants use KPIs in guiding them to make their organisational decision.

Furthermore, this study also revealed a growing global trend that more organisations elevate customer focused KPIs to other types of KPIs to enhance customer experience and entity growth. This was further highlighted by these entities increasing the use of KPIs to fully understand customer behaviour. In addition, the participants affirmed that the role of KPIs has evolved from compliance-oriented metrics to data-driven growth measures.

Finally, this study also found that the affirmations are stronger for all variables as indicated by the above reliability, descriptive and frequency results in indicating that the role of KPIs has now changed and has incorporated the creation of strategic competitive advantages for technology and project management entities in South Africa. Hence, this study does not reject the hypothesis that the role of KPIs has changed from originally used in compliance evaluation to also recently being used as tools of transformation and value creation. As states above, these findings are in line with the perception of literature regarding the purpose, roles, goals and functions of KPIs.

4.12 SUMMARY

In this chapter, the approach to gathering the data was discussed, and the research results were discussed and reported. The chapter also reported reliability coefficient, frequency and descriptive statistics as the measuring instruments. The study results and their respective reliabilities indicate the changing roles of KPIs in creating strategic competitive advantages through enhancement in employee engagement with the organisation, development of customer integrated view and alignment of all systems to organisation purpose. As highlighted in section B, the research findings have shown that the role of KPIs has evolved from being compliance-based in measuring historical performance to creating strategic competitive advantages for technology and project management entities in South Africa. The sections B to F findings also indicate that KPIs have evolved from initially used for compliance evaluation to recently used as tools of transformation and value addition, as

indicated by the reliability of the above results.

In conclusion, the main aim of this research was to answer the empirical study objectives, which this study has done. The next chapter will draw conclusive remarks regarding the literature findings and results of the empirical study. It will also discuss the limitations of this research and recommendations for the study will be proposed. The proposal for future research will be presented as well.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The objective of this chapter, as outlined in paragraph 1.4.2.2.3 of chapter one, is to address the final secondary objective of providing recommendations on the changing role of KPIs for technology and project management entities in creating strategic competitive advantages in South Africa. The main objective of this study was to investigate the changing role of KPIs in creating strategic competitive advantages in technology and project management entities. This objective was supported by the following secondary objectives outlined in paragraph 1.4.2.1.1 of chapter one:

- Investigate the changing role of KPIs in creating entities' strategic competitive advantages. This will present in-depth knowledge about the existence and use of KPIs from the organisations researched.
- Investigate whether KPIs contribute to the broader strategic alignment of the organisation and are used as tools for leading and managing the entities for strategic competitive advantage.
- Investigate how KPIs contribute to enhancing employee engagement and the development of customers' integrated views for organisational strategic competitive advantage.

The study is comprised of both a literature review and an empirical study as specified in the research methodology described in paragraph 1.7 of chapter one. This chapter will comprise a summary of both the literature review (chapter 2) and the empirical study component (chapter 4). It will be followed by recommendations based on the findings of the study. The final sections will provide the limitations of the study, areas for future research, and conclusion.

5.2 LITERATURE REVIEW SUMMARY

Three themes that were crucial to this study were examined in the literature review. The first section of this chapter gave a thorough examination of organisational performance assessment, based on contributions from various theories and researchers. The content will give useful insight into the requirements of successful KPIs for measuring the overall performance of an organisation. The origins of KPIs and the value they add to performance monitoring and broader organisational goals were also discussed in the literature review.

Furthermore, the second part of the topic analysed the discussion about the changing role of KPIs. It was determined that the role of KPIs has been transformed from traditional characteristics of having a retrospective view of measuring past performance but offering little insight on how an entity's future performance is likely to be. However, the current role of KPIs is equipped with a futuristic view of

enhancing strategy formulation and implementation enhancement. Besides this, it was identified that the recent role of KPIs has been embedded with predictive power which has been helping entities in creating their strategic competitive advantages.

The third part of the literature review focused on how the changing role of KPIs contributes to strategic competitive advantages. This part started by analysing how KPIs are used to enhance strategic competitive advantages through dealing with elements such as customer services, leading and management, organisational alignment, employee engagement, and AI. It was determined that entities are increasingly using KPIs to fully understand their customers, thereby strategising about improving entities' offerings to meet customers' needs, creating strategic competitive advantages. Furthermore, mentioned entities in the literature review are not only using KPIs for the legacy role of compliance evaluation for assessing performance, but they are also using KPIs for leading and managing their entities. This was witnessed by increasing utilisation of the combination of both leading and lagging KPIs in formulating and executing their strategies.

The literature review also highlighted the fact how a growing number of entities are using KPIs to align various functions and activities of the organisation to the broader organisational goals and objectives. In addition to the above-mentioned new functions of KPIs, it was revealed that more companies are using KPIs to solve the global problem of non-employee engagement. The reason for this change is because entities' performance is determined by employees, and it makes sense to enhance employee's engagement to organisational goals. Therefore, organisations have to identify appropriate ways to correctly use KPIs for incentivising teams of employees. On that note, it was also established that successful entities use KPIs as instruments for organisational learning and adaptation necessary for the creation of stakeholders' long-term value. This section finally established that KPIs are used as inputs for machine learning/AI. The combination of KPIs and AI is shaping entities' formulation of strategies in most digital-born and some transformative legacy entities. This in turn has enhanced entities' agility and their ability to create strategic competitive advantages.

5.3 EMPIRICAL STUDY SUMMARY

Quantitative data was collected through a questionnaire that contained closed-ended questions. Tools such as LinkedIn, WhatsApp and emails were used to send an electronic questionnaire. Non-probability sampling was used to select participants from technology and project management entities which mainly comprised of managers to senior executives who are involved in setting and implementing KPIs as well as strategies in their entities. The questionnaire was designed by the researcher based on the information obtained from the literature review and the research

methodology.

Section A: Demographic information

Section B: The existence and utilisation of KPIs in technology and project management entities

Section C: The changing role of KPIs in enhancing customer engagement

Section D: The changing role of KPIs in enhancing employees' engagement

Section E: The role of KPIs in aligning organisational goals and objectives

Section F: The changing role of KPIs being used as tools for leading and managing entities.

The first section of the questionnaire was designed to ensure that the data collected was of supreme quality so that the research findings can be relied on. This was confirmed by the industry experience of most research participants who had more than ten years of industry knowledge and experience and can be considered industry specialists.

Sections B to F were aimed at investigating the views of participants on the role which KPIs play in their entities and the way they are utilising them in creating strategic competitive advantages. It was clear from the data obtained that most participants are using KPIs in their organisations. These participants also recognised that the role of KPIs has changed from originally being used for compliance evaluation for assessing performance and having a retrospective view, to an integrated functionality which includes understanding customers, aligning organisational functions to broader organisational objectives and goals, leading and managing the entities, and enhancing employees' engagement.

The next conclusion of section B was based on the results of the existence, utilisation, and changing role of KPIs in technology and project management entities. It was observed that more than 95% of participants who took part in the research recognised the existence of KPIs in their entities and also affirmed that they are actively utilising them for performance evaluation and strategy formulation. Similar results were also obtained where about 97% of respondents acknowledged that the role of KPIs has changed. Most of them affirmed that they are now using KPIs as data inputs for machine learning, which in turn helps to provide predictive insight into strategic decision-makers. Furthermore, most of the participants in section C agreed that KPIs are not only used for a compliance evaluation but are also increasingly used to fully understand the customers, which aid the entities to develop an integrated view of their customers. This enhances their entities' ability to provide customer offerings in line with their requirements strategically. The data from section D affirm that KPIs are also used to enhance the employees' engagement in the organisation. This is necessary because organisational performance is influenced by individuals and therefore, the alignment of employees to the organisational values and goals is essential for any organisation to achieve any level of

success. A similar conclusion was made in section E where participants indicated that KPIs are increasingly used to align several organisational functions and activities to the broader organisational goals and objectives. The responses to section F further supported this by highlighting that more respondents from the technology and project management entities are using KPIs in managing and leading their entities.

5.4 RECOMMENDATIONS

The findings mentioned above of the survey suggest that a consensus has emerged about the use of KPIs; there is strong evidence that most technology and project management entities in South Africa have transformed the use of KPIs. For example, nearly 98% of respondents from question B3 indicated that the role of KPIs has changed from compliance-based monitoring and assessing performance to guiding and driving performance improvements. This is also supported by responses to question B4, which have shown that 100% of the respondents believed that KPIs built around reviewing past performance are less valuable than KPIs that enable their organisations to take advantage of predictive insight. The same results were obtained from question B5, where 97% of respondents indicated that they viewed KPIs as transformation tools. Responses to B9 also support this discussion in that almost 98% of all survey respondents agreed that KPIs create strategic competitive advantages.

Based on these findings, it is recommended that KPIs should constantly be evolving to meet the dynamics of the operating environment and should not only be used as conventional measures for them to be effective. The outcomes of this study imply that entities intending to acquire strategic competitive advantages and obtain more value from their KPI investments must change their use of KPIs.

Furthermore, based on the findings of the study, decision-makers must emphasise integrating KPIs with machine learning and AI. It has been observed that about 93% of survey respondents from question B7 indicated that they are using KPIs as data input for machine learning.

In addition, it is also recommended that for KPIs to be effective, there is a need for proper alignment between the functional and organisational KPIs to ensure that all functions, activities and teams are aligned towards the organisational purpose. This is based on study findings from questions E1 to E4, which show that these respondents are using KPIs to promote cross-functional organisational alignment. The responses from these questions indicate that over 91% of the surveyed respondents agreed that they are using KPIs to align their entire organisations.

It is also recommended that entities should start using KPIs to align internal processes with external customer behaviours to enhance customer experience. This will help them to develop a more holistic view of their target customers as indicated by the findings of the study. Many participants who took part in the survey (mainly from questions C1 to C5) indicated that they are using KPIs to enhance customers' experience. They achieve this by using KPIs to holistically understand their targeted customers, developing a customer-integrated view, fully understanding the customer journey, and by elevating the customer focused KPIs. These results have shown that data-driven and customer focused entities use KPIs to transform their entities in gaining strategic competitive advantages. These entities have proven to be better positioned to adapt, evolve, and compete.

Nevertheless, it is also recommended that decision-makers should consolidate both leading and lagging KPIs in leading and managing people, processes and their entities. By doing this, KPIs will guide entities' decision making and formulation of their strategies, as indicated in this study's findings. This is based on responses to D1 to D4, which indicated that more than 92% of survey participants affirmed that they are using KPIs as tools for leading and managing entities, formulation of business strategies and decision making.

Finally, it is also recommended that organisations should adopt the use of KPIs in enhancing employees' engagement in the organisation's purpose, helping employees understand organisational strategic direction, strengthening employees' motivation and enhancing employees reaching key organisational goals. This recommendation is based on the study's findings, mainly from responses to questions F1 to F4, which indicated that more than 93% of surveyed respondents had adapted their KPIs by utilising them for employee engagement towards organisational purposes.

5.5 FUTURE RESEARCH

According to the findings highlighted above, it is clear that technology and project management entities have adapted to the changing role of KPIs. However, much research is still to be done to broaden the understanding by including other industries in the study to ensure that proper generalisations can be applied to the observed findings; this warrants consideration for future research. Broader research should also be conducted regarding the impact of KPIs as data inputs for AI in shaping entities strategies.

5.6 CONCLUSION

The main objective of this study was to investigate the changing role of KPIs in creating strategic competitive advantages for technology and project management entities in South Africa. It was evident from the study that the role of KPIs has changed from compliance-based to being tools of transformation and value creation. The results of the study also indicate that KPIs create strategic

competitive advantages through measurements of entities' performance, creating customer integrated views, enhancing employee engagements in the organisation, being tools for leading and managing entities, and enhancing the alignment of different functions of the teams with the overall organisation. There is sufficient evidence that the improvement in performance in many organisations researched is attributed to the changing role of KPIs as well as how they are used by these organisations. The way these organisations embrace the changing role of KPIs from compliance-based to being tools of transformation and value creation determines the level of success which they harness from the KPIs.

The main conclusion drawn from the study is that organisations should aspire to broaden the role of KPIs; they should not only have a narrow view of them as measurement tools but also as tools for developing competitive strategies by corporates, especially in the current uncertain environments.

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APPENDIX 1: QUESTIONNAIRE

Instructions for completion:

1. Please answer the questions as objectively and honestly as possible.
2. Place a cross (x) in the space provided at each question which reflects your answer the most accurately.
3. Please answer all the questions, as this will provide more information for this research that will help in accurate analysis and interpretation of data.

Thank you for your time and co-operation. I hope you will find the questionnaire very interesting.

SECTION A: Questions seeking general information of participants

The following information is needed to help with the statistical analysis of the data for comparisons among different groups of participants. This section consisted of questions designed for information collection about participants' knowledge, experience, and their current position within the industry to determine the reliance that could be placed on the information they provided.

Mark the applicable block with an X.

A1	Indicate your highest academic qualification.	
	Up to matric (grade 12)	(01)
	Up to Diploma	(02)
	Up to Undergraduate degree	(03)
	Postgraduate degree and above	(04)

A2	Indicate the number of years you have worked for this organisation.	
	0 - 3 years	(01)
	4 - 7 years	(02)
	8 – 10 years	(03)
	11+ years	(04)

A3	Indicate at which level of the organisation are you employed.	
	Experienced	(01)
	Middle management	(02)

Senior management	(03)
Executives	(04)

A4	Indicate the number of years that you have been appointed as the Responsible Person.	
	Less than one (1) year	(01)
	1 – 3 years	(02)
	4 – 9 years	(03)
	10 – years and above	(04)

Please indicate by using the following scale how you agree or disagree with statements contained in sections B to G.

1	Not at all
2	To a lesser extent
3	To a medium extent
4	To a greater extent

SECTION B: Organisational use of KPIs and their changing role

		Not at all	To a lesser extent	To a medium extent	To a greater extent
B1	To what extent is the entity using KPIs to measure organisational competitiveness, effectiveness, and performance?	1	2	3	4
B2	To what extent do you trust the reliability and accuracy of the organisation's KPIs?	1	2	3	4
B3	To what extent do you support the statement: The role of KPIs has evolved from compliance-oriented metrics to data-driven growth measures.	1	2	3	4
B4	To what extent do you support this statement: KPIs built around reviewing past performance are less valuable than KPIs that enable the organisation to take advantage of predictive insight.	1	2	3	4

B5	To what extent do you see KPIs as tools for transformation	1	2	3	4
B6	To what degree do you agree that modern businesses focus on connecting KPIs to the organisational broader vision?	1	2	3	4
B7	To what extent do you view KPIs as data inputs for machine learning?	1	2	3	4
B8	To what extent do you look to KPIs in finding new growth opportunities for the company?	1	2	3	4
B9	To what extent do you agree that KPIs create strategic competitive advantages?	1	2	3	4

SECTION C: Increasingly Focused on the Customer Experience

		Not at all	To a lesser extent	To a medium extent	To a greater extent
C1	To what extent do you use KPIs to develop a single, integrated view of the customer?	1	2	3	4
C2	To what extent do you prioritise or elevate customer focused KPIs to other types of KPIs?	1	2	3	4
C3	To what extent do you use KPIs to understand customer behaviour fully?	1	2	3	4
C4	To what extent do you use KPIs to understand customers' journey?	1	2	3	4

SECTION D: Use of KPIs to Lead, as well as Manage, the Enterprise

		Not at all	To a lesser extent	To a medium extent	To a greater extent
D1	To what extent do your organisation use KPIs as tools for leading and managing people, processes, and entities as a whole?	1	2	3	4
D2	To what extent do your organisation use both leading and lagging KPIs?	1	2	3	4
D3	To what extent do your organisation use leading KPIs to frame strategies?	1	2	3	4
D4	To what extent do you believe that KPIs guide organisational decision-making?	1	2	3	4

SECTION E: Use of KPIs to Align the Organisation

		Not at all	To a lesser extent	To a medium extent	To a greater extent
E1	To what extent does the organisation use KPIs to effectively align people and internal processes with external customer behaviours?	1	2	3	4
E2	To what extent do you believe your function's KPIs are directly aligned to the organisation's strategic goals and business outcomes?	1	2	3	4
E3	To what extent do you believe that KPIs play a significant role in ensuring that teams and functions understand the company's broader mission and objectives?	1	2	3	4
E4	To what extent do KPIs help you in communicating organisational strategy between management and lower-level employees?	1	2	3	4

SECTION F: The use of KPIs to solve the problem of employee engagement

		Not at all	To a lesser extent	To a medium extent	To a greater extent
F1	To what extent do KPIs help connecting employees to the organisational purpose?	1	2	3	4
F2	To what extent do KPIs help employees understand the organisational strategic direction?	1	2	3	4
F3	To what degree do KPIs enhance in strengthening employees' motivation?	1	2	3	4
F4	To what extent do KPIs enhance teams reaching their organisational key goals?	1	2	3	4

APPENDIX 2: Letters of consent to all research participants

Dear Participant,

Invitation to partake in master's degree research project

Title of research study: Investigating the changing role of key performance indicators for technology and project management entities

My name is James Sibanda, and you are invited to take part in a research study entitled "Investigating the changing role of key performance indicators for technology and project management entities". Your participation in this study will help me complete my dissertation requirements for the Master in Management Accounting degree at The North-West University.

The purpose of this study is to investigate the changing role of Key Performance Indicators in creating strategic competitive advantages for entities in technology and project management. The potential benefits of this research include understanding how to correctly use KPIs for creating and increasing organisational strategic competitive advantages. This will also debunk the legacy retrospective role of using KPIs in reviewing past performance.

Your participation in this study is voluntary and intended to be anonymous and confidential. I do not have access to any of your personal identifying information, and you may end your participation in this study at any time without a penalty. Should you choose to assist me in this research, your participation will consist of approximately 8-minutes of your time. The survey will guide you through the process, collect your responses, and completed survey data will be forwarded to me. I offer no monetary compensation for your participation. Your survey responses will contain no personal identifying information and will remain anonymous.

If you have any questions about this survey, please contact me or my supervisor.

Mr James Sibanda

Primary researcher
North-West University
078 645 7352
jsibanda8@gmail.com

Prof Danie Schutte

Empirical research study's supervisor
North-West University
(018) 299 1436
Danie.Schutte@nwu.ac.za

I _____(Name of employee or representative), hereby give my permission to be interviewed for the above-mentioned study. I hereby also give you permission to audio record the interview.

Signature

Place

Date

APPENDIX 3: Ethical clearance certificate

Private Bag X6001, Potchefstroom South Africa 2520
Tel: 018 299-1111/2222 Web: <http://www.nwu.ac.za>
Economic and Management Sciences Research Ethics Committee (EMS-REC)

Prof D Schutte

Per e-mail

14 June 2021

Dear Prof Schutte

EMS-REC FEEDBACK: 28052021 (Round Robin)

Student: Sibanda, J (36958026) (NWU-00039-21-A4)

Applicant: Prof D Schutte – MCom in Management Accountancy

Your ethics application on, *Investigating the changing role of key performance indicators for technology and project management entities*, which served Round Robin, refers.

Outcome:

Approved as a minimal risk study. A number **NWU-00039-21-A4** is given for one year of ethics clearance.

Please note that the ethics approval of this application is subject to the Covid-19 protocols.

Kind regards,

Prof Mark Rathbone

Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC)

DATE

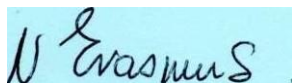
21 October 2021

oxxrmxrrAe
LANGUAGR81ERIEE

Phone: 0825666839
nelmaerasmus@gmail.com

WHOM IT MAY CONCERN

It provides me great pleasure to testify that I edited Mr Sibanda's mini research proposal submitted in fulfilment of the requirements for the degree *Ma.st<ns oJ6oinin<rce* in *Managcment Ac'cciinlancy* at the North-West University, with Prof. D Schutte as supervisor.

A handwritten signature in black ink on a light blue rectangular background. The signature reads "N Erasmus".

NM Erasmus

Accredited Language Practitioner (MA in Language Practice,
University of the Free State)

APPENDIX 5: FREQUENCY TABLE

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Matric	2	2.4	2.4	2.4
	Diploma	2	2.4	2.4	4.7
	Undergraduate degree	18	21.2	21.2	25.9
	Postgraduate degree	63	74.1	74.1	100.0
	Total	85	100.0	100.0	

Years Worked

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3 years	23	27.1	27.1	27.1
	4-7 years	29	34.1	34.1	61.2
	8-10 years	13	15.3	15.3	76.5
	11+ years	20	23.5	23.5	100.0
Total		85	100.0		

Level Employed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Experienced level	18	21.2	21.2	21.2
	Middle management	33	38.8	38.8	60.0
	Senior management	23	27.1	27.1	87.1
	Executive	11	12.9	12.9	100.0
	Total	85	100.0	100.0	

Years Responsible Person

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	5	5.9	5.9	5.9
	1-3 years	22	25.9	25.9	31.8
	4-9 years	39	45.9	45.9	77.6
	10 years and above	19	22.4	22.4	100.0
Total		85	100.0	100.0	

B1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	12	14.1	14.1	16.5
	To a medium extent	26	30.6	30.6	47.1
	To a great extent	45	52.9	52.9	100.0
	Total	85	100.0	100.0	

B2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	12	14.1	14.1	16.5
	To a medium extent	34	40.0	40.0	56.5
	To a great extent	37	43.5	43.5	100.0
	Total	85	100.0	100.0	

B3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	4	4.7	4.7	7.1
	To a medium extent	33	38.8	38.8	45.9
	To a great extent	46	54.1	54.1	100.0
	Total	85	100.0	100.0	

B4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To a less extent	8	9.4	9.4	9.4
	To a medium extent	29	34.1	34.1	43.5
	To a great extent	48	56.5	56.5	100.0
	Total	85	100.0	100.0	

B5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	10	11.8	11.8	14.1
	To a medium extent	21	24.7	24.7	38.8
	To a great extent	52	61.2	61.2	100.0
	Total	85	100.0	100.0	

B6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	1.2	1.2	1.2
	To a less extent	10	11.8	11.8	12.9
	To a medium extent	29	34.1	34.1	47.1
	To a great extent	45	52.9	52.9	100.0
	Total	85	100.0	100.0	

B7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	6	7.1	7.1	7.1
	To a less extent	19	22.4	22.4	29.4
	To a medium extent	32	37.6	37.6	67.1
	To a great extent	28	32.9	32.9	100.0
	Total	85	100.0	100.0	

B8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	3	3.5	3.5	3.5
	To a less extent	19	22.4	22.4	25.9
	To a medium extent	22	25.9	25.9	51.8
	To a great extent	41	48.2	48.2	100.0
	Total	85	100.0	100.0	

B9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4

	To a less extent	11	12.9	12.9	15.3
	To a medium extent	24	28.2	28.2	43.5
	To a great extent	48	56.5	56.5	100.0
	Total	85	100.0	100.0	

C1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	4	4.7	4.7	4.7
	To a less extent	20	23.5	23.5	28.2
	To a medium extent	37	43.5	43.5	71.8
	To a great extent	24	28.2	28.2	100.0
	Total	85	100.0	100.0	

C2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	12	14.1	14.1	16.5
	To a medium extent	32	37.6	37.6	54.1
	To a great extent	39	45.9	45.9	100.0
	Total	85	100.0	100.0	

C3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	14	16.5	16.7	19.0
	To a medium extent	35	41.2	41.7	60.7
	To a great extent	33	38.8	39.3	100.0
	Total	84	98.8	100.0	
Missing	System	1	1.2		
Total		85	100.0		

C4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	4	4.7	4.7	4.7
	To a less extent	20	23.5	23.5	28.2

	To a medium extent	33	38.8	38.8	67.1
	To a great extent	28	32.9	32.9	100.0
	Total	85	100.0	100.0	

C5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	7	8.2	8.2	8.2
	To a less extent	23	27.1	27.1	35.3
	To a medium extent	26	30.6	30.6	65.9
	To a great extent	29	34.1	34.1	100.0
	Total	85	100.0	100.0	

D1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	3	3.5	3.5	3.5
	To a less extent	15	17.6	17.6	21.2
	To a medium extent	29	34.1	34.1	55.3
	To a great extent	38	44.7	44.7	100.0
	Total	85	100.0	100.0	

D2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	5	5.9	5.9	5.9
	To a less extent	17	20.0	20.0	25.9
	To a medium extent	37	43.5	43.5	69.4
	To a great extent	26	30.6	30.6	100.0
	Total	85	100.0	100.0	

D3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	6	7.1	7.1	7.1
	To a less extent	15	17.6	17.6	24.7
	To a medium extent	29	34.1	34.1	58.8
	To a great extent	35	41.2	41.2	100.0
	Total	85	100.0	100.0	

D4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To a less extent	8	9.4	9.4	9.4
	To a medium extent	32	37.6	37.6	47.1
	To a great extent	45	52.9	52.9	100.0
	Total	85	100.0	100.0	

E1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	7	8.2	8.2	8.2
	To a less extent	16	18.8	18.8	27.1
	To a medium extent	34	40.0	40.0	67.1
	To a great extent	28	32.9	32.9	100.0
	Total	85	100.0	100.0	

E2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	3	3.5	3.5	3.5
	To a less extent	10	11.8	11.8	15.3
	To a medium extent	34	40.0	40.0	55.3
	To a great extent	38	44.7	44.7	100.0
	Total	85	100.0	100.0	

E3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	4	4.7	4.7	4.7
	To a less extent	8	9.4	9.4	14.1
	To a medium extent	27	31.8	31.8	45.9
	To a great extent	46	54.1	54.1	100.0
	Total	85	100.0	100.0	

E4

		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Not at all	4	4.7	4.7	4.7
	To a less extent	11	12.9	12.9	17.6
	To a medium extent	29	34.1	34.1	51.8
	To a great extent	41	48.2	48.2	100.0
	Total	85	100.0	100.0	

F1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	4	4.7	4.7	4.7
	To a less extent	15	17.6	17.6	22.4
	To a medium extent	29	34.1	34.1	56.5
	To a great extent	37	43.5	43.5	100.0
	Total	85	100.0	100.0	

F2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	17	20.0	20.0	22.4
	To a medium extent	24	28.2	28.2	50.6
	To a great extent	42	49.4	49.4	100.0
	Total	85	100.0	100.0	

F3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	5	5.9	5.9	5.9
	To a less extent	15	17.6	17.6	23.5
	To a medium extent	33	38.8	38.8	62.4
	To a great extent	32	37.6	37.6	100.0
	Total	85	100.0	100.0	

F4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	2.4	2.4	2.4
	To a less extent	11	12.9	12.9	15.3
	To a medium extent	31	36.5	36.5	51.8

	To a great extent	41	48.2	48.2	100.0
	Total	85	100.0	100.0	

APPENDIX 4: DESCRIPTIVE STATISTIC

	N	Minimum	Maximum	Mean	Std. Deviation
B1	85	1	4	3.34	0.810
B2	85	1	4	3.25	0.785
B3	85	1	4	3.45	0.699
B4	85	2	4	3.47	0.665
B5	85	1	4	3.45	0.794
B6	85	1	4	3.39	0.742
B7	85	1	4	2.96	0.919
B8	85	1	4	3.19	0.906
B9	85	1	4	3.39	0.803
C1	85	1	4	2.95	0.844
C2	85	1	4	3.27	0.793
C3	84	1	4	3.18	0.794
C4	85	1	4	3.00	0.873
C5	85	1	4	2.91	0.971
D1	85	1	4	3.20	0.856
D2	85	1	4	2.99	0.866
D3	85	1	4	3.09	0.934
D4	85	2	4	3.44	0.663
E1	85	1	4	2.98	0.926
E2	85	1	4	3.26	0.804
E3	85	1	4	3.35	0.841
E4	85	1	4	3.26	0.861
F1	85	1	4	3.16	0.884
F2	85	1	4	3.25	0.858
F3	85	1	4	3.08	0.889
F4	85	1	4	3.31	0.787
Valid N (listwise)	85				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SecB_mean	85	1.89	4.00	3.3203	0.50958
SecC_mean	85	1.00	4.00	3.0606	0.69514

SecD_mean	85	1.50	4.00	3.1794	0.67437
SecE_mean	85	1.00	4.00	3.2118	0.68520
SecF_mean	85	1.00	4.00	3.2000	0.75868
Valid N (listwise)	85				

APPENDIX 5: Reliability

Factor	Questions	Cronbach's Alpha	Mean	SD
Organisational use of KPIs and their changing role	B1 - B9	0.82	3.32	0.51
Increasingly focused on the Customer experience	C1 - C5	0.87	3.06	0.70
Use of KPIs to lead as well as manage the enterprises	D1 - D4	0.82	3.18	0.67
Use of KPIs to align the organisations	E1 - E4	0.81	3.21	0.69
The use of KPIs to solve the problem of employee engagement	F1 - F4	0.91	3.20	0.76