

CRANFIELD UNIVERSITY

NOUF MARI ALQARNI

DEVELOPING A FRAMEWORK TO FACILITATE RADICAL
INNOVATION CULTURE IN MATURE MANUFACTURING
ORGANISATIONS

THE SCHOOL OF AEROSPACE, TRANSPORT AND
MANUFACTURING

PhD

Academic Year: 2018 - 2022

Supervisor: Dr Patrick McLaughlin
June 2022

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This thesis is submitted in partial fulfilment of the requirements for
the degree of PhD

ABSTRACT

The main purpose of this project was to investigate the impact of organisational culture and leadership practices on radical innovation enhancement in mature manufacturing organisations. The project is intended to advance understating of the key role played by these factors in this vital sector. This study was exploratory and interpretative in nature, and a social constructivist approach using inductive design was found appropriate for achieving its major goals. A qualitative approach was adopted. The study seeks to provide data that will help address the research gap. This data was gathered using a combination of semi-structured interviews, focus groups, and observation. A theoretical framework was designed to address the research questions and objectives.

The research data was collected through the use of in-depth focus interviews. Participants were recruited from 18 large mature manufacturing organisations. After 21 interviews, a saturation point was reached. The findings of the study presented a variety of factors in the domains of culture, values, and setting that were identified as significant in affecting leadership performance.

The results of this study proposed a framework with recommended interventions to facilitate a culture of radical innovation in mature manufacturing organisations. The emerged themes of the study played a key role in developing this framework.

The findings should make a major contribution to the field of leadership and radical innovation and the process of change management, by providing empirical data on the significance of leadership's crucial role in creating a culture of radical innovation in the mature manufacturing sector in general.

Keywords:

Leadership, culture, radical innovation, mature manufacturing sector, change management

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LIST OF ABBREVIATIONS

D&I	Diversity and Inclusion
GT	Ground Theory
IT	Information Technology
MMC	Mature Manufacturing Sector
MMO	Mature Manufacturing Organisations

1 INTRODUCTION

1.1 Background and Motivation

The area of innovation is widely becoming the bedrock of an organisation's success and continuous improvement, and contributes to the building of new opportunities for any organisation (O'Connor & Euchner, 2017; Bessant et al., 2014). In addition, innovation is one of the cornerstones of continued growth and sustainable competitive advantage in large global firms (Doz et al., 2001; Santos & Williamson, 2001). Similarly, in an earlier study, Littler and Sweeting (2000) have claimed that radical innovation is important for any company aiming to maintain dynamic growth. It may be particularly appropriate for companies approaching maturity (Littler & Sweeting, 1985; Sandberg & Aarikka-Stenroos, 2014).

In recent studies investigating the challenges faced by firms in the manufacturing sector, Mumford and Hemlin (2017) and Jaiswal et al. (2015) claim that new challenges have recently arisen that have increased pressure on global competition for firms across the world. These challenges relate to producing a new generation of competitive products and services (Jaiswal & Dhar, 2015; Rampa & Agogu  , 2021). Hence, firms are starting to apply greater creativity and innovation to their products and services, in order to improve their ability to compete in the changing market (Mumford & Hemlin, 2017).

There is a growing body of literature that recognises the importance of leadership and organisational culture in enhancing innovation and creativity. For instance, Abderraouf et al. (2017) and Dom  nguez-Escrig et al. (2019) argue that to develop an environment for creativity, organisations must have a flexible type of structure that allows for a culture that can facilitate radical innovation. In line with this, Naranjo-Valencia et al. (2017) suggest that organisational culture is a key factor in firm innovation, in that it can advance change, but is more likely to represent an obstacle against innovation practices. This is consistent with Kanter (1988) and Girma (2016), who suggest that culture is likely to have a considerable influence on the propensity of an organisation to face up to innovation challenges.

Recently, a number of authors have indicated that radical innovation is now considered to be a serious challenge for organisations, and an issue that needs to be predicted or managed. For instance, Le et al. (2020), Story et al. (2014), point out that radical innovation tends to have a higher failure rate compared with other forms of innovation, due to both internal and external factors. In line with this, Bessant (2014) and McLaughlin et al. (2018) stress that radical innovation involves higher levels of uncertainty. Similarly, Valencia and Valle (2017) and Rampa and Agogue (2021) point to the important relationship between organisational culture, employee innovative behaviour, and the level of radicalness in product innovation, but they also suggest that this relationship is more complex than initially expected.

In their study, Lin et al. (2012) reported that leaders need to focus further on creating a culture of innovation that can lead to the generation of radical innovations. The suggestion is that leaders need to raise their awareness about the increasing impact of leadership and organisational culture on innovation practices (O'Connor & Euchner, 2017a). In line with this, Farson and Keyes (2002) argue that leadership practices and aspects of culture have a key influence in relation to innovation. It has also been argued that leadership style plays an essential role in fostering innovation (Jia et al., 2018; Farson & Keyes, 2002).

Leaders nowadays need to pay attention to how to go about creating a culture that facilitates innovation practices and that can ultimately lead to the generation of radical innovations (Sarooghi et al., 2015; Rampa & Agogue, 2021). They need to be aware of the fundamental influence of leadership and organisation culture on innovation creation (Dodge et al., 2017b; Bass & Avolio, 1994). The research gap lies in the intersection of these dimensions, and can be expressed as the need to explore the culture of radical innovation in the context of leadership in mature manufacturing organisations. Hence, this research seeks to obtain data which will help to address this research gap.

1.2 Significance of this Research

This study aims to contribute to this growing area of research by exploring the impact of leadership and organisational culture on radical innovation in MMOs. Determining the influence of organisational culture and leadership practices on the effectiveness of innovation is important for the future of firms in this sector (O'Connor, 2017). However, the literature in this field reveals that there is a lack of understanding of how to manage radical innovation compared to incremental innovation, especially in mature manufacturing firms (Pellegrino, 2018a). In line with this, McLaughlin et al (2018) have stated: "Whilst a large proportion of the existing empirical research has concentrated on incremental innovation or innovation management in general, there is little known about the specific aspects of organisational culture that facilitate radical innovation" (p. 5). This indicates a need to understand the impact that different perceptions of organisational culture and leadership practice can have on radical innovation (Domínguez Escrig et al., 2019; Sadovnikova et al., 2016). Moreover, O'Connor and Euchner (2017) have shown that mature manufacturing organisations face challenges to promote a culture that continuously improves the quality of services, innovation, creativity and compassion in this vital sector.

With this in mind, this study seeks to investigate the impact of applying a framework to facilitate a radical innovation culture in mature manufacturing organisations. An important extension of this study will be to examine, more empirically, the multiple dimensions of leadership, organisation culture and radical innovation, with the aim of understanding how the relationship between these areas can help mature manufacturing organisations to create a greater culture of radical innovation. Developing such a framework would add great value to MMOs and thus be very useful to them, and would also fill the gap that has been identified in the literature review.

1.3 Research Problem

Several essential questions remain about the nature of radical innovation, and how leadership style can create a culture that facilitates implementation (Lin et al., 2012; O'Connor & Euchner, 2017). Overall, the studies discussed above

highlight the need for further research to investigate in adequate depth how leaders promote innovation activities among employees, and how they can create a culture that enables radical innovation within their organisation (Hodges, 2016; Mohammadi et al., 2017a). In a six-year longitudinal study of 12 radical innovation projects in ten large mature companies, O'Connor and Ayers (2017) found that "there is a gap between the firm's knowledge base and radical innovation projects". In the same study, the authors argue that there is increasing evidence of the importance of radical or breakthrough innovation to long-term firm success in today's competitive marketplace. Although this recognition has permeated many established companies, there is uncertainty about how to accomplish such innovation (O'Connor & Euchner, 2017). This study, therefore, sets out to assess the effect of leadership practices and organisational culture on radical innovation enhancement in mature manufacturing firms.

1.4 Aim, Objectives, and the Research Questions

The aim of this study was to develop a framework to facilitate a culture of radical innovation in mature manufacturing organisations. Its purpose was to understand this relatively new area of leadership research by building a theory based on data, rather than allowing the extant literature to lead and determine the findings of the research.

This study aimed to address the following research questions:

What are the critical success factors of leadership that can create a culture that enhances radical innovation in mature manufacturing organisations?

How can these factors be applied successfully in mature manufacturing organisations?

This was accomplished by carrying out the following tasks:

- 1- Identifying the best practices of radical innovation leadership and culture in manufacturing organisations, via an extensive literature review.
- 2- Analysing through a field study the leadership enablers and inhibitors and the cultural factors that affect radical innovation in manufacturing organisations.

3- Developing a framework that can be implemented to create and enhance radical innovation in mature manufacturing organisations.

4- Validating this framework via expert evaluations.

1.5 Structure of the Thesis

The overall structure of the study takes the form of seven chapters, including this introductory chapter. This section introduces the layout of the thesis, which is divided up as follows:

Chapter One: Provides the general background to the research, followed by the aims, objectives and questions.

Chapter Two: Critically evaluates the literature on culture, leadership, change management and innovation, and defines the main theoretical foundations of the research.

Chapter Three: Sets out and describes the research methodology, giving first an overview of the philosophical assumptions of the study and then discussing the nature of qualitative and quantitative research. The structure of the research is described.

Chapter Four: Presents the findings of the research, focusing on the key themes to emerge from the analysis process.

Chapter Five: Sets out and describes the targeted framework development of the study.

Chapter Six: Draws together the themes of the thesis by describing in detail how the research questions have been answered, and linking them to the literature. Both results and discussion are included in this chapter, since integrating these elements gives the reader a better understanding of the overall findings and their place within the current state of knowledge.

Chapter Seven: Provides a general conclusion and summary, and also covers contributions, limitations, and possibilities for further research. Finally, there is a brief survey and critique of the findings.

2 LITERATURE REVIEW

In this chapter, the literature associated with the context and research areas related to this study is reviewed in order to reveal any research gaps and to develop a better understanding of the area under investigation. The significance of any research and its findings always needs to be judged in relation to other studies (Saunders et al., 2012). Thus, it is essential for researchers to critically examine the current state of knowledge in their fields and to demonstrate how their particular study fits into the wider body of literature (Gill & Johnson, 2010). The chapter is divided into six main parts.

The first part focuses on exploring the concept of leadership, including definitions of leadership and the main theories of leadership. The second part of the chapter discusses the link between leadership performance and organisational culture. This section addresses the concept of culture in depth by discussing its definition, levels, and nature and examining a number of cultural dimension models. The third part reviews the concept of innovation and its different elements. The fourth part discusses change management theories and the processes for delivering successful change. The fifth section investigates the relationship between leadership functions and radical innovation in mature manufacturing practices. The final part identifies and describes the research gap.

2.1 Overview of Leadership

This part of the literature review is divided into three sections. First, the review seeks to provide an answer to the question of what leadership is. The second section briefly reviews the main schools of thought regarding theories of leadership, and in the third section, leadership studies are examined from a cultural perspective.

The literature on leadership contains a huge variety of definitions of leadership, and argues that any definition of leadership is by its very nature a subjective one (Yukl, 2012, pp. 5–6), as are many other constructs in the social sciences. The literature shows that some definitions are easier to understand and make use of than others, and that there is no single correct definition of the concept (Beddoes-

Jones, 2013). For instance, Yukl (2012) defines leadership as "the process of influencing others to understand and agree about what needs to be done and to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives" (p. 8). Similarly, Kaye (2006) describes it as "the ability to inspire other people to achieve goals" (p. 23), while Maxwell (2007) goes so far as to say that "leadership is influence, nothing more, nothing less" (p. 3). A second perspective defines leadership from a process point of view. For instance, Northouse (2017) states that "leadership is a process whereby an individual influences a group so as to achieve a common goal" (p. 3). Going a bit further than this, Rowe (2006) argues that leadership is primarily a system of interrelationships rather than an issue of individual behaviour or competency. A third perspective defines leadership a team construct, which is often expressed simply as "organizing a group of people to achieve a common goal" (Busby & Iszatt-White, 2014, p. 23). Although there are multiple definitions of leadership, Northouse (2021) argues that there are four basic components which comprise the foundations of the leadership construct. Firstly, leadership is a process; secondly, it involves influence; thirdly, it is a group construct; and fourthly, it involves shared goals. More understanding of the concept of the leadership phenomenon is provided in the next section, which seeks to examine the main theories in leadership studies (Northouse, 2021).

Table 1 Definitions of leadership

Author	Definition
Lussier and Achua (2007)	The influencing process between leader and follower to achieve organisational objectives through change.
Yukl (2012)	Leadership includes influencing task objectives and strategies, influencing group maintenance and influencing the culture of an organisation.
Marshall and Hooley (2006)	The ability to guide others, whether they are colleagues, peers, clients, or patients, toward desired outcomes.
Gold (2003)	Leading people towards the achievement of a common goal.
Northouse (2017)	Characteristics or talents that differentiate the individuals who have them from others.
Doyle and Smith (2001)	Having a clear idea, as leader, of what one wants to achieve and why.

2.1.1 Leadership Theories

This section will briefly examine the key schools of thought in leadership theory from a historical perspective. According to Northouse (2021) and Girma (2016), current leadership theories emphasise not only the leader's characteristics or types of behaviour, but also other factors that affect leadership practices, such as followers, work context, and culture.

The literature on leadership theories shows a number of main schools of thought that have contributed to our understanding of this phenomenon. According to Yukl (2012), leadership can be grouped into five types of approaches, namely; 1) the trait approach; 2) the behaviour approach; 3) the power–influence approach; 4) the situational approach; and 5) the integrative approach.

The Great Man hypothesis, developed in the 1840s, was one of the original philosophies of leadership (Ghasabeh et al., 2015). The Great Man theory claims

that leadership traits are intrinsic (Hunt & Fedynich, 2021; Dulewicz & Malcolm, 2003), and similarly, that exceptional leaders are born leaders (Garrick, 2006). The key assumption of this theory is that certain people are born with particular qualities and attributes that make them natural leaders (Beddoes-Jones, 2013; Vroom & Jago, 2007). Thomas Carlyle, the Scottish essayist and philosopher, originally addressed this idea in his 1841 book, *On Heroes, Hero-Worship, and the Heroic in History*.

According to the Great Man theory, outstanding people (heroes) have influenced the masses throughout history by displaying exceptional attributes and character, and superior qualities (Walumbwa et al., 2008; Avolio & Gardner, 2005; Ololube et al., 2015; Garrick, 2006). However, this concept has been criticised for a number of reasons, including the lack of evidence-based study to back it up, and the claim that individuals are made (not born) heroes, through society and circumstance (Walumbwa et al., 2008; Organ, 1996; Mhatre & Riggio, 2014). It has been claimed that a basic understanding of leadership theory is required in order to comprehend the nuances of distinct leadership styles (Northouse, 2017; Dugan, 2017).

According to Bolden et al. (2003), the importance of leadership emerged after the Industrial Revolution, when the foundation of the economy moved from agriculture to manufacturing. It has been claimed that a basic understanding of leadership theory is required in order to comprehend the nuances of distinct leadership styles (Northouse, 2017; Dugan, 2017). The literature on leadership provides many different options and approaches, including extolling the virtues of certain attributes in leaders, such as specific leadership traits, skills or styles (Bolden, 2011; Allio, 2012). However, leadership theory can be divided into four broad categories: trait-based, transformational, situational, and path-goal oriented (Northouse, 2017; Dugan, 2017).

There are various key areas of the literature that explore the interaction between leaders and teams, including power dynamics between leaders and followers, as well as servant leadership. In terms of this aspect of leadership, power and context are critical considerations. For instance, Crawford (2014) claims that

“Three different aspects of leadership—the person, the place and the policy context—make up a narrative that is woven together over time” (p. 4).

As a result, context is a critical issue for leaders because leadership is intimately linked to a firm's culture and structure. Leaders need to bear this in mind when dealing with individuals and policies (Schein, 2004; Priest & Gass, 2017). Power is also contextual; it relates to what individuals believe and the way some people can affect and influence others (Morgeson et al., 2010; Hodges, 2016). This chapter explores theories about personality traits, charisma, transformation, situation, contingency, and path goals.

Traits and Charisma in Leadership Theories

Attempts to formulate leadership theory first centred on the features or personal characteristics of leaders, essentially looking at specific inborn characteristics that helped constitute effective leaders (Tejeda et al., 2001; Dulewicz & Malcolm, 2003; Antonakis & Day, 2017). These so-called Great Man philosophies considered intelligence, self-confidence, determination, integrity, and sociability as necessary qualities for effective leadership (Yukl, 2008; Bernard & Ruth, 2008; Northouse, 2017). This hypothesis assumes that only certain people are born with the unique qualities and attributes required, making them natural leaders (Hunt & Fedynich, 2019; Walumbwa et al., 2008). One of the primary flaws of this early way of thinking was that it was entirely centred on the leaders. It has since been shown that followers –and their characteristics – have a big impact on leadership (Higgs, 2003; Hosking, 2007; Antonakis & Day, 2017).

The Great Man view of leadership predominated until the Trait theory emerged in the 1930s as one of the first systematic studies of leadership. This theory argues that people are born with traits and characteristics which mark them for leadership roles (Gandolfi & Stone, 2018; France, 2008). R. M. Stogdill for example, in 1948, identified a set of traits, which are typical of leaders, such as intelligence, alertness, insight, responsibility, initiative, persistence, self-confidence and sociability (Northouse, 2017). Although the trait approach now has almost a century of research to back it up, the list of traits which has emerged is seemingly endless, as each study involved lists different traits (Hunt & Fedynich, 2019;

Northouse, 2021). Another criticism of trait theory is that it fails to consider cultural or situational factors affecting leadership; for instance, Judge et al. (2009) argue that leader emergence and leadership effectiveness may depend on context.

Researchers studying charismatic leadership, on the other hand, employ a similar approach to trait leadership researchers, but with a more specific characteristic in mind. According to Bass and Riggio (2006), "charismatic and inspirational leaders instil faith in a better future for the followers in terms of their self-expression, self-evaluation, and self-consistency" (p. 39). Proponents of charismatic leadership place a high importance on persons who can instil a strong sense of loyalty and camaraderie in their followers through a combination of charm and friendliness (Burns, 1978; Dulewicz & Malcolm, 2003; Antonakis & Day, 2017). This type of leadership can be really effective (Conger & Kanungo, 1988; Northouse, 2021; Holt et al., 2003).

Transformational and Transactional Leadership

Much of the literature on leadership styles has focused on the two basic patterns of leadership, transactional and transformational leadership (Daniëls et al., 2019; Zareen et al., 2015). In discussing the nature of transformational leadership, Bass (1985) argues that it involves "Moving the follower beyond immediate self-interests by idealised influence (charisma), inspiration, intellectual stimulation, or personalised consideration," (p. 11). In line with this, a number of authors (Yukl et al., 2019; Posner & Kouzes, 1993; Yukl, 2002) claim that transformational leadership is a collection of observable and learnable techniques used to influence employee attitudes and assumptions, as well as to increase employee commitment to the organisation's mission (Yukl, 2012; Girma, 2016; Jaskyte, 2004).

In management research, transformational leadership theory has become a popular topic (Ndiga et al., 2014; Mhatre and Riggio, 2014). Adopting either transformational or transactional leadership behaviour can help an organisation succeed, according to Yukl et al. (2019) and Laohavichien and Fredendall (2009).

Transformational leaders are those who can change, inspire and transform their followers through their charismatic personality (Bass, 1985). Transformational leadership is usually contrasted with the transactional style of leadership. It is a type of leadership, according to Bolden (2004), that emphasises the leader's ability to motivate and empower his or her followers, as well as the moral side of leadership. Similarly, in an earlier study, Franco et al. (2002) pointed out the importance of transformational leadership in shaping organisational culture and inspiring organisational loyalty.

Transformational leadership focuses on a leader's ability to establish effective leadership by combining strongly held ideas with the application of particular principles, such as justice and integrity (Burns, 1978; Dulewicz & Malcolm, 2003; Jyoti & Bhau, 2015). It was Burns (1978) who first introduced the concept of transformational leadership theory (Bass, 1985), which was then further extended by Bass (see Burns, 2010), in work that made a significant contribution to the theory's development (Jyoti & Bhau, 2015).

Idealized influence (charisma), inspiring motivation (vision and purpose), individualised concern, and intellectual stimulation have been highlighted as four fundamental pillars of transformative leadership (Hackman & Johnson, 2013; Charkhabi & Naami, 2014). These four ideals have a huge impact on followers when demonstrated in a leader, and when combined, can result in exceptionally effective leadership (Bass & Avolio, 1994; Hayati, 2014).

Transformational leaders are also able to recognise and explain an organisation's vision, foster an intellectually stimulating culture, and provide support and opportunities for personal development to individual employees (Sun & Leithwood, 2012; Morgeson et al., 2010). This is because transformational leadership is closely linked to employee emotions and the leader-subordinate relationship (Lambrecht et al., 2020; Jyoti & Bhau, 2015). As a result, transformational leaders frequently advocate for a bottom-up strategy (Burawat, 2019; Jyoti & Bhau, 2015). In their study, Jyoti and Bhau (2015) stress that "A transformational leader alters the followers' thinking in such a way that they adopt the organization's vision as if sustainability of that vision were their own" (p. 2).

This shift motivates employees to put their personal interests aside and work together (Bass & Riggio, 2006).

Furthermore, transformational leadership is viewed as the type of leadership required to bring about radical change, whereas transactional leadership is seen as the type of leadership required to bring about gradual progress (Bass & Avolio, 1994).

One of the strengths of transformational leadership is its emphasis on followers' needs, values, and morals (Northouse, 2021). However, researchers have not yet been able to establish whether or not transformational leaders are actually able to transform individuals and organisations (Bass & Avolio, 1994). Additionally, Yukl (2012) points out that in transformational leadership, qualities that make a transformational leader can also lead to unethical actions, such as the leader abusively influencing their followers to commit crimes.

Transactional leadership, in contrast, refers to the exchange relationship between leaders and followers that allows them to meet their own self-interests (Bass, 1999). Transactional leadership (also known as instructional leadership) takes on two forms: contingent reward and active management-by-exception (Zareen et al., 2015; Bass, 1999). Instructional leaders also aim to assist staff members in achieving a predetermined set of goals, but not necessarily in order to create a common vision among staff. Transactional leadership is an exchange process.

Significantly, Hartog et al. (1997) emphasise the importance of transactional leadership because it specifies objectives and the methods for achieving them. One kind of transactional leadership theory is path-goal leadership theory (House, 1971). The path-goal model is a theory that states that in order to achieve a goal, a leader's style or behaviour must be tailored to the person and work environment (House, et al., 1974; Northouse, 2017).

However, both transformational leadership and transactional leadership can help in predicting subordinates' satisfaction with their leaders (Denti & Hemlin, 2012; Bennett, 2009; Girma, 2016).

Situation, Contingency, and Path–Goal Theories

The main idea of situational leadership theory focuses on how a leader handles social events and happenings in the day-to-day operations of an organisation (Northouse, 2015; Dugan, 2017). Effective leaders, according to Day (2011), should be perceived as part of the system itself, establishing the best ways to lead as the situation dictates and cultivating strong interdependency between themselves and their followers. This can enable a situational leader to exert influence over both their own and others' experiences (Northouse, 2015; Kotter, 1995).

One popular example of situation theory is the contingency theory of leadership, as put forward by Fiedler (1967). According to this theory, a leader's impact on performance is influenced by a number of situational elements, including leader–member relationships, task–structure clarification, and the leader's power position (Miner, 2015; Villoria, 2016). The hypothesis, however, has a fault, in that it assumes that a leader's leadership style is rigid (Miner, 2015).

One of the most important duties of a leader, according to the path–goal theory, is to set goals and paths that team members can readily follow and comprehend (Yukl, 2008; Northouse, 2017). The path–goal theory focuses on this aspect of leadership, identifying four distinct types of behaviour that leaders should use in different situations: directive (leader commands followers), supportive (leader attends to followers' needs), participative (leader includes followers in decision-making processes), and achievement-oriented (leader sets high expectations for followers to meet) (Yukl, 2002). This theory demonstrates the importance of structuring the relationship between effective leaders and their colleagues or team members.

According to Northouse (2021), the path–goal theory may best be thought of as a process in which leaders select specific behaviours that are best matched to the needs of employees and the working environment, in order to best guide employees through their path in achieving their daily work objectives.

Table 2 Overview of leadership theories

Great man theories	Based on the belief that leaders are exceptional people, born with innate qualities, destined to lead. The use of the term man was intentional since until the latter part of the twentieth century leadership was thought of as a concept which is primarily male, military and Western.
Trait theories	The lists of traits or qualities associated with leadership exist in abundance and continue to be produced. They draw on practically all the adjectives in the dictionary to describe a positive or virtuous attribute.
Behaviourist theories	These concentrate on what leaders actually do rather than on their qualities. Different patterns of behaviour are observed and categorised as 'styles of leadership'. This area has probably attracted the most attention from practising managers.
Situational leadership	This approach sees leadership as specific to the situation in which it is being exercised. It also proposes that there may be differences in required leadership styles at different levels in the same organisation.
Transactional theory	This approach emphasises the importance of the relationship between leader and followers, focusing on mutual benefits attained from a form of contract through which the leader delivers reward and recognition in return for the commitment or loyalty of the followers.

Transformational theory	The central concept being change and the role of leadership in envisioning and implementing the transformation of organisational performance.
The Theory of Contingencies	According to the contingency hypothesis, there is no one right way to run an organisation. Determining the optimal strategy for leading an organisation to achieve depends on both internal and external considerations. The right candidate should fit the correct scenario, according to the contingency theory.
Path-goal theory	A process in which leaders select specific behaviours that are best matched to the needs of employees and the working environment, in order to best guide employees through their path in achieving their daily work objectives.

2.2 Culture and Leadership

Many studies have been conducted to investigate the impact of organisational culture and leadership on businesses (McLaughlin, 2018). Scholars have argued, for example, that organisational culture helps to provide opportunity and scope for the for the development of the technical and behavioural abilities of an organisation's human resources (Hofstede et al., 2010; Hofstede, 1980; Hofstede & Bond, 1988). Similarly, Kotter (2012) believes that corporate culture has a long-term impact on an organisation's performance.

The literature investigating the relationship between organisational culture and leadership performance is extensive and varied (Uddin et al., 2019). For instance, Burnes (2009) remarked in his book, *Managing Change*, that "leadership is just one part of culture" (p. 214). Similarly, Ogbonna and Harris (2000) stressed that organisational culture and leadership are obviously related, in a study that aimed at providing empirical evidence of the connections involved. It has also been

argued that leaders' actions and followers' responses mirror each other's cultural values, attitudes, and behaviours (Dickson et al., 2012).

However, culture itself may be defined in a number of different ways. For instance, Armit et al. (2015) have defined organisational culture as “the values and beliefs that characterise organisations as transmitted by the socialisation experiences newcomers have, the decisions made by management, and the stories and myths people tell and re-tell about their organisations” (p. 16). Offering another point of view, Cummins (1989) spoke of organisation culture as a driving force, which recognises the efforts and contributions of organisational members, and provides a comprehensive awareness of what the company goals are, how they are interrelated, and how each employee can help to achieve them. As a third example, Hofstede (1981) has described culture as “the collective programming of the human mind that distinguishes members of one human group from those of another” (p. 260).

Schein (2004), in another organisational theory looking at the importance of culture, has claimed that culture is a set of underlying beliefs that a group has cultivated, discovered, or formed as it learns to deal with challenges of external adaptation and internal integration.

It is commonly stated that an organisation's culture reflects its employees' ideals (Engelbrecht et al., 2014). Employees utilise their beliefs to make judgments when they handle challenges, solve difficulties, and seek solutions, according to Hodges (2016). These underlying assumptions are the least visible part of the model. To comprehend a group's culture, one must first understand its common underlying beliefs (Schein, 1996). These assumptions, according to Schein (2004), are implicit ideas and habits of perception, as well as emotions and feelings that are rarely expressed. When a problem-solving solution works consistently, from Schein's point of view, it is taken for granted. Such assumptions become taught reactions that influence how people think, act, and feel (McLaughlin et al., 2005). Artefacts may be easy to see but difficult to understand, and values may just reflect rationalisations or desires, according to Schein's approach (Skar et al., 2014).

Similarly, O'Reilly (1989) claims that changing or managing a culture can be accomplished by defining the required attitudes and behaviours, recognising the norms or expectations that encourage or obstruct them, and then taking action to achieve the intended result. As a result, there is a school of thought that believes culture can be manipulated and modified (Adeyoyin, 2006; Hodges, 2016). The nature, direction, and impact of such manipulation are all thought to be dependent on the leader's skills and abilities (Ogbonna & Harris, 2000).

According to the findings of the literature research, there are several elements that can influence and change organisational culture. For example, Morgan (1987) explained that "managers can influence the evolution of culture by being aware of the symbolic consequences of their actions and by attempting to foster desired values, but they can never control culture in the way that many managements writers advocate" (p. 139). Because of this, it is critical for an organisation to ensure that any plans to modify its culture are compatible with the new system architecture before implementing them (Kotter, 2012). This can help it avoid employee resistance, which, if encountered, can lead to a failure of implementation (Korbi, 2015; Parmelli et al., 2011).

2.2.1 Cultural Dimensions Models

This section discusses a wide range of organisational culture models that seek to provide tools for understanding how culture affects an organisation's performance.

Schein's model

According to Schein (1996), culture is a set of implicit assumptions that people of an organisation hold in common and that determines how they see, think about, and react to things. To put it another way, it is 'how we do things around here'. Furthermore, an organisation's culture represents its particular ideals, in relation to such issues as quality, safety, productivity, survival, power, secrecy, justice, humanity, and so on. New employees learn the necessity of caring and safe practice if there are strong values of compassion and safety (Edgell et al., 2015; West et al., 2014). Schein's organisational culture model is depicted in Figure 1.

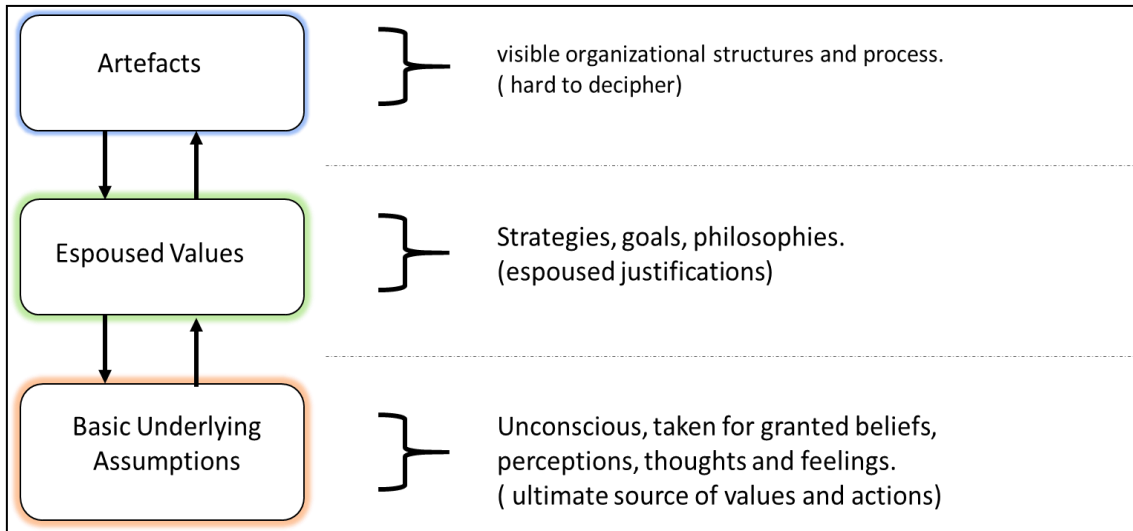


Figure 1 Schein's Model of Organisational Culture (Hogan & Coote, 2014)

The foundation of Schein's approach is the idea that before attempting to modify an organisation's culture, it is vital to first understand the nature of the existing culture and how it is sustained (Kritsonis, 2005). This, according to Schein, may be accomplished by examining the values that govern behaviour and exposing the underlying, sometimes unconscious, assumptions that shape how employees think, feel, and react (Burnes, 2009). The evolution of culture, according to Schein, has to be treated as an adaptive and tangible learning process (Kritsonis, 2005).

In his study, Burnes (2009), explaining the dynamic interplay between the different levels of this model, comments that "it demonstrates how assumptions are formed into values and how values drive behaviour" (p. 229). In addition, understanding the tools currently used to influence culture, and how new values and behaviours are learnt, is at the centre of this model (Schein, 2004).

According to Schein's theory, "artefacts" refers to an organisation's observable structures and operations. Written and spoken language, the physical space and layout of the organisation, and individuals' overt behaviour are all examples of these (Stokowski, 2002; Martin, 1992). The second level is about behaviour, which includes organisational rituals. The third and most fundamental level is the group's basic underlying assumptions, which are historically established

frameworks that guide members' interactions with the environment, reality, and other people (Kong, 2003). Values are the social ideas, aims, and standards that a culture holds to be intrinsically valuable (Schein, 2004). They define what matters to the organisation's members. Unwritten rules assist members of a culture to understand what is expected of them (Schein, 1996).

Kluckhohn and Strodtbeck's model

The Kluckhohn and Strodtbeck (1961) model is widely regarded as one of the first complete models attempting to explain cultural differences (Dickson et al., 2012). The writers of *Variations in Value Orientations* in the 1960s wanted to add to the anthropological study of culture by looking at variation within cultures. They hoped that by using this approach, academics would be able to grasp cultural change and complexity on a deeper level (Bryman & Bell, 2015).

Values Orientation		Variations	
Relation to Nature	Subjugation	Harmony	Mastery
Time Orientation	Past	Present	Future
Basic Human Nature	Evil	Neutral/Mixed	Good
Activity Orientation	Being	Controlling	Doing
Relationship among people	Individuals	Group	Hierarchical
Space Orientation	Private	Mixed	Public

Figure 2 Kluckhohn and Strodtbeck's Model (Bryman & Bell, 2015)

However, Hofstede (2011) points out that the model includes "classification of all sorts of social comparisons, without regard for their spatial restrictions, without addressing the influence of degrees of aggregation, and without empirical basis" (p. 4). Furthermore, its value orientations and variations are not well-defined (Pantelic & Pinter, 2016; Bhagat & Steers, 2009).

Hofstede's model

In another important philosophy of change management, Hofstede (1998) proposed a four-layered hierarchical model of culture, starting with ideals at the deepest level and progressing through rituals, heroes, and symbols at the surface level. The Hofstede model of culture is illustrated in Figure 3 below (Burnes, 2009).

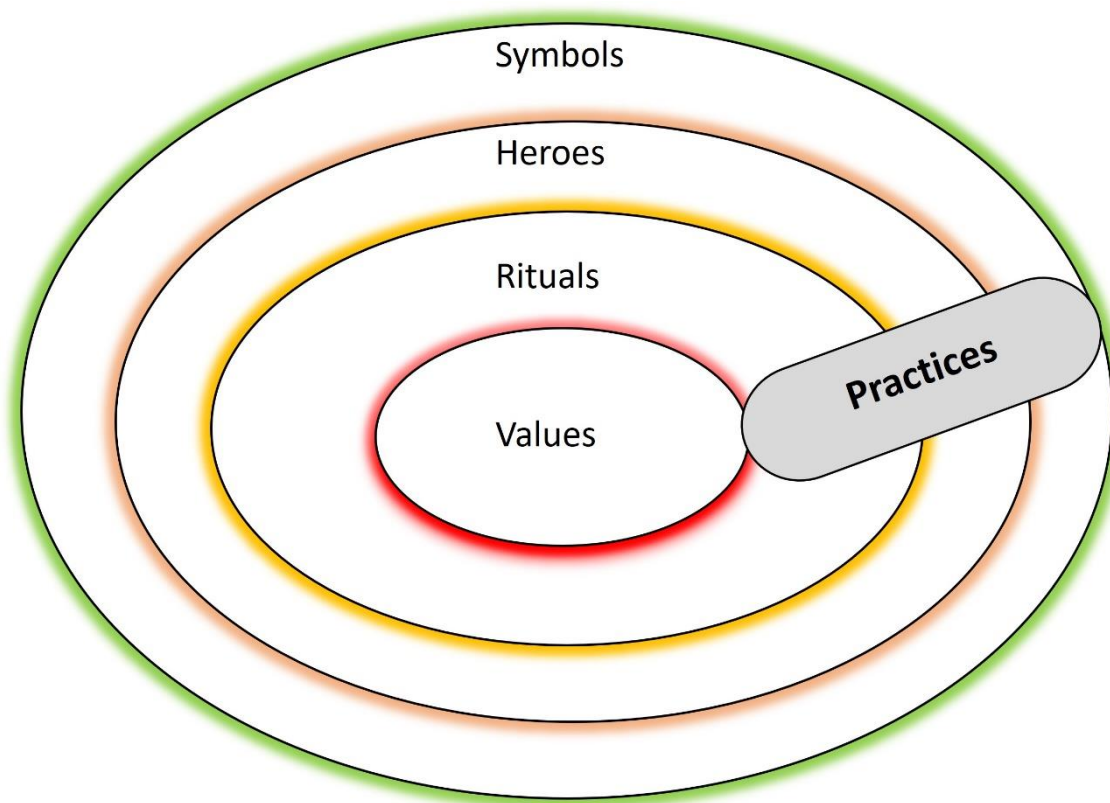


Figure 3 Hofstede's Model of Culture (Burnes, 2009)

Here, Hofstede (1998), an expert on organisational culture, indicated that both external (i.e., environmental) and internal (i.e., organisational) elements can influence organisational cultures. Taking this further, several external factors, such as country, market, industry, or work, might partially predetermine organisational culture (Kotter, 2012). Furthermore, organisational characteristics such as control systems and structure will also have a partial bearing on organisational culture (Hofstede et al., 2010). Hofstede (2001) has also demonstrated the importance of leaders' values, and the impact these can have on organisational culture. In similar terms, Bass and Avolio (1993) and Hayes

(2014) have stressed that leaders' values influence organisational culture, which in turn impacts on members' behaviours.

Hofstede's well-known model of cultural dimensions was based on data from IBM, a multinational corporation with employees from fifty different nations. He established four cultural dimensions at first, but then added a fifth based on the work of Chinese scholars. In 2010, a new dimension based on the World Values Survey was added (Hofstede, 2011). The six dimensions identified by Hofstede are as follows:

Power distance: This reflects the degree of power disparity between individuals (Wrong, 2017).

Uncertainty avoidance: This refers to how cultures deal with uncertain situations; individualism and collectivism, or how people see themselves in society (Hofstede, 2011);

Individualism vs. collectivism: A societal, not an individual, feature, referring to the degree to which persons in a society are integrated into groups (Hofstede, 2011).

Masculinity and femininity: This has to do with how supportive cultures are of one gender in relation to the other (Smith et al., 1996).

Long or short-term orientation: Refers to how cultures cope with the past, present, and future in their life decisions; in the business world, this is referred to as "(short term) regulating vs (long term) down to business" (Jones, 2007).

Indulgence versus restraint: Refers to how much a culture values the fulfilment of basic needs and desires, such as the desire to have fun and an appreciation for life (Kottler, 2017).

A large number of academics have endorsed Hofstede's model of 1980. Indeed, according to Chang et al. (2015), it has become the most prominent cultural framework in cross-cultural studies. It is also well-liked because it is simple to comprehend (Tung & Verbeke, 2010).

However, a number of researchers, such as Schwartz (2012), have criticised the Hofstede model, claiming that Hofstede's sampling of countries did not accurately reflect the whole range of national cultures. In addition, Baskerville identifies a number of limitations in his paper Hofstede Never Studied Culture (2003), arguing that Hofstede's work has been rejected by both anthropologists and sociologists, who believe there is no link between culture and nationality, a point on which Hofstede relies heavily.

Trompenaars's Model of Culture

The Trompenaars Cultural Dimensions Model, also known as The 7 Dimensions of Culture, can help businesses to work more effectively with people from different cultures (Bălan & Vreja, 2013). As Bălan & Vreja (2013) have explained, Trompenaars's Cultural Dimensions Model works by differentiating cultures based on their preferences in the following 7 dimensions:

1. Universalism vs. particularism.
2. Individualism vs. communitarianism.
3. Specific vs. diffuse.
4. Neutral vs. affective.
5. Achievement vs. ascription.
6. Sequential time vs. synchronous time.
7. Internal direction vs. external direction.

Trompenaars Cultural Dimensions

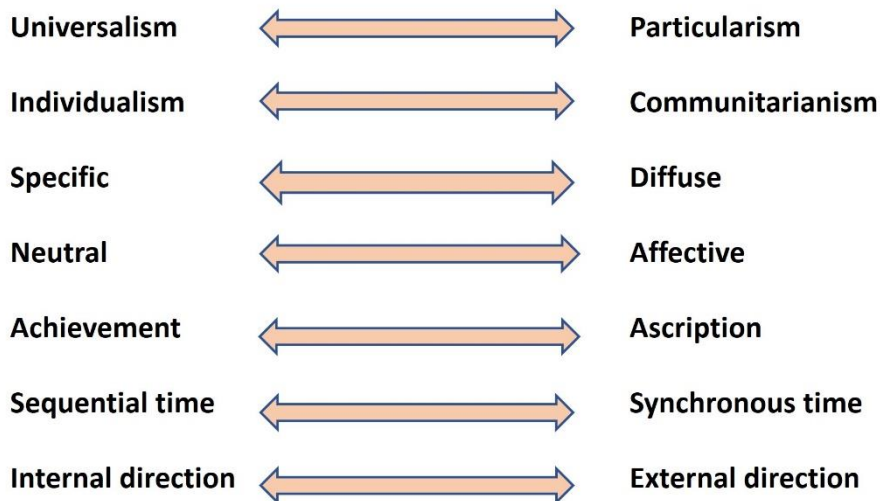


Figure 4 Trompenaars's Model of Culture (Bălan & Vreja, 2013)

Cummings and Huse's model of culture

Cummings and Huse (1989) developed a composite model of culture based on an investigation of diverse definitions of culture. This model consists of four major parts that exist at different levels of awareness. Cummings and Huse defined four major strata of culture, which are depicted in Figure 5:

Cummings and Huse's Model of Organisational Culture	
Basic Assumptions	explains how we think and feel.
Values	tells us what is important.
Norms	unwritten rules of behavior.
Artefacts	physical things representing culture.

Figure 5 Cummings and Huse's Model of Organisational Culture (Cummings & Huse, 1989)

1. Basic assumptions – At the most fundamental level of cultural awareness, there are unconscious, taken-for-granted assumptions about how to tackle organisational challenges.
2. Values – The next level of knowledge involves values about what organisations should be like.
3. Norms – Just under the surface of cultural awareness are norms that guide members' behaviour in specific situations.
4. Artefacts – The artefacts and creations that are visible manifestations of the other levels of cultural elements are found at the greatest level of cultural awareness. These include observable member behaviours, as well as the organisation's structures, processes, procedures, rules, and physical elements.

|Handy's Model of Culture

Charles B. Handy (1996) put forward a model of organisational culture, illustrated in Figure 6 below, which suggests that there are four different types of culture which organisations follow: **Power**, **Role**, **Task**, and **Person**.

According to this model, Power distribution is all about the extent to which the top of an organisation (the management or owner) is open to working with either a bottom-up or top-down approach. In case of a bottom-up approach, the power distribution is very high; employees are expected to take their own responsibility, determine their tasks and make independent decisions.

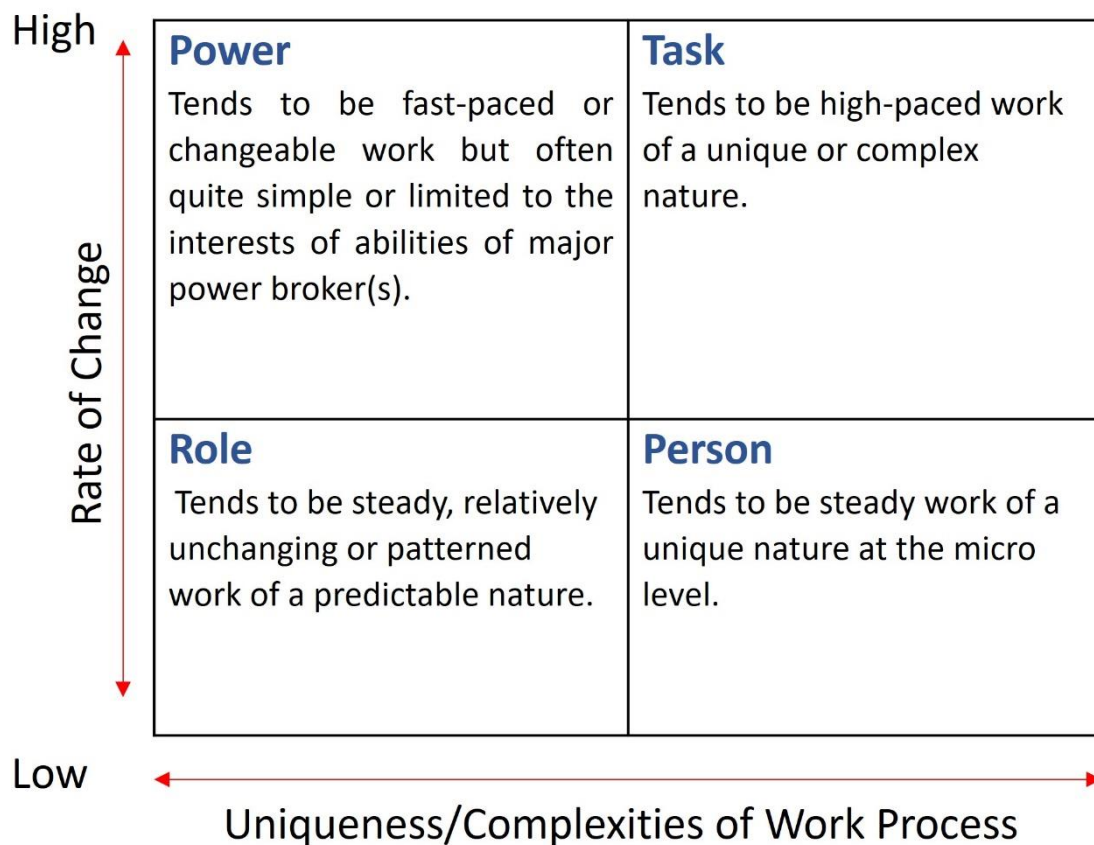


Figure 6 Hendy's Model of Organisational Culture (Heller, 2001)

Handy (1993) argues that each of the above types of culture can be useful, but sometimes, employees are often inflexible with regards to culture, meaning that they often believe in the myth that what works well in one organisation may also be successful in another (1993, p. 183). In addition, Handy adds that an employee who is successful in one type of culture may not always do well in another (p. 204; and see Heller, 2001). Moreover, it is up to the leadership of the organisation to handle all four cultures, to distinguish between them and to amalgamate them as necessary (Handy 1993, p. 216).

|Denison's Model of Culture

The four traits of the Denison Model – **Mission, Adaptability, Involvement, and Consistency** – measure the behaviours that are driven by the beliefs and assumptions that lie behind an organisation's culture (Ahmady et al., 2016a). As

Hosseini remarks (2014), these traits are organised by colour and are designed to help organisations answer key questions about their organisational culture.

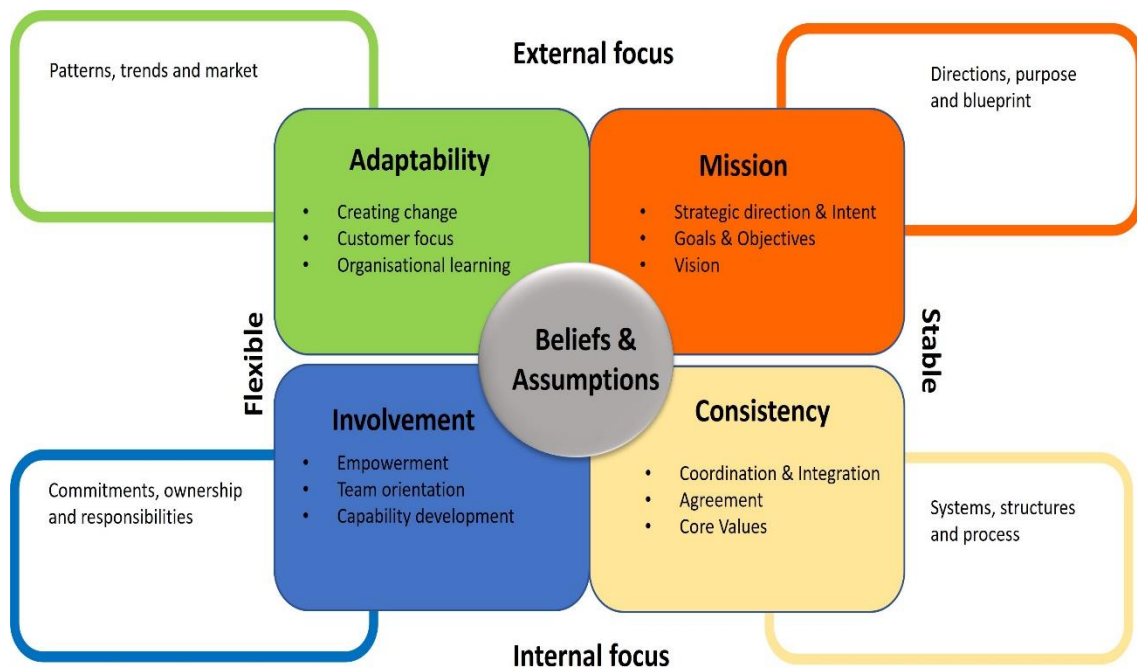


Figure 7 Denison's Model of Culture (Denison & Mishra, 1995)

Denison's organisational culture model has been tested with a sample of top executives from 764 organisations with different cultural characteristics to establish its effectiveness (Denison & Mishra, 1995). The Denison organisational culture survey provides a mechanism for enhancing organisational effectiveness by refining its corporate culture (Ahmady et al., 2016b). The model asserts that the four terms, mission, adaptability, involvement, and consistency, can be used to describe any organisational culture (Denison & Mishra, 1995).

The Denison organisational culture model was developed by Daniel Denison based on 25 years of research, and was completed in 1990 (Ahmady et al., 2016a). The model aims to create a balance between mission, adaptability, involvement, and consistency by helping organisations analyse their current state of affairs and fine-tune their corporate culture to synchronize all four characteristics effectively (Hosseini, 2014).

The Iceberg Model of Culture

In 1976, Edward T. Hall developed the iceberg analogy of culture. If the culture of a society is thought of as an iceberg, Hall reasoned, then some aspects of that culture will be visible, above the water, but there will be a larger portion hidden beneath the surface (Hanley, 2016).

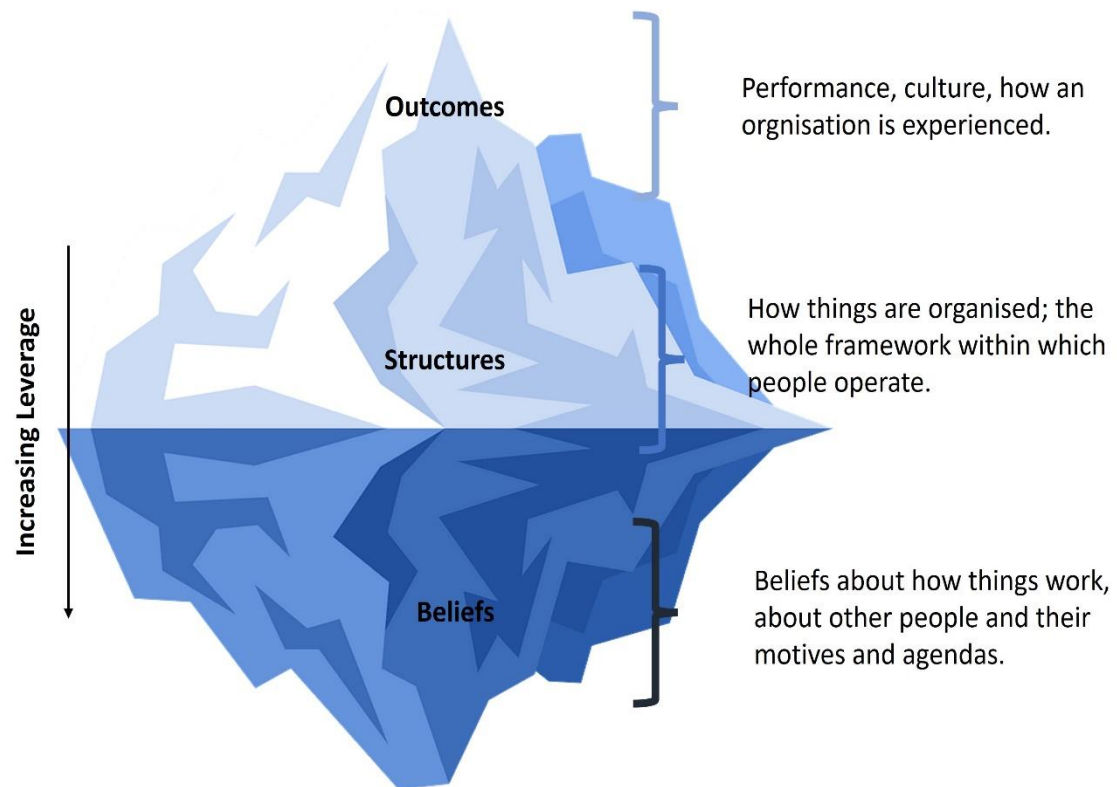


Figure 8 The Iceberg Model of Culture

According to this model, culture can be compared to an iceberg, because so much of it goes undetected. It thus passes unnoticed in everyday life and work. The influence of culture on the elements of communication needs to be explicitly explored rather than taken for granted or ignored (Hanley, 1999).

Table 3 Organisational Culture Models

Cultural Dimensions Models	Author	Definition
Schein's model	Edgar Schein	Is a method which aims at explaining the concept of culture and the way it affects organizations. It is a dynamic model of learning and group dynamics. It was introduced by Edgar Schein in 1980 to explain why people behave differently in various organizations. He observed that culture is always in the process of formation and change tends to cover all aspects of human functioning. The Schein's Model of Organizational Culture enables organizations to recompose its culture by applying the concepts proposed by the model. It highlights the different levels of each organizational culture and the concepts to consider.
Kluckhohn and Strodtbeck's model	Kluckhohn and Strodtbeck's	Proposes that all human societies must answer a limited number of universal problems, that the value-based solutions are limited in number and universally known, but that different cultures have different preferences among them. Suggested questions include humans' relations with time, nature, and each other, as well as basic human motives and the nature of human nature. Kluckhohn and Strobeck suggested alternate answers to all five, developed culture-specific measures of each.

Hofstede's model	Geert Hofstede	Is a framework used to understand the differences in culture across countries and to discern the ways that business is done across different cultures. In other words, the framework is used to distinguish between different national cultures, the dimensions of culture, and assess their impact on a business setting.
Trompenaars's Model of Culture	Fons Trompenaars and Charles Hampden-Turner.	The 7 Dimensions of Culture Model (Trompenaars Cultural Dimensions Model) works by differentiating cultures based on their preferences in the following 7 dimensions. This model of national culture differences has seven dimensions. There are five orientations covering the ways in which human beings deal with each other, one which deals with time, and one which deals with the environment.
Cummings and Huse's model of culture	Cummings and Huse	This model consists of four major parts that exist at different levels of awareness. At the most fundamental level of cultural awareness Basic assumptions. The next level of knowledge involves values, just under the surface of cultural awareness are norms that guide members' behaviors in specific situations. The artefacts and creations that are visible manifestations of the other levels of cultural elements are found at the greatest level of cultural awareness
Lewis's Model of Culture	Richard D. Lewis	The Lewis Model of Cross-Cultural Communication was developed by Richard D. Lewis. The core of the model classifies cultural

		norms into Linear-Active, Multi-Active and Re-Active, or some combination.
Handy's Model of Culture	Charles Handy	Framework which links categorizations of organisational culture to evidence in the form of organizational structure. Handy believed that there are four main types of organizational culture which can be identified by the extent to which an organisation is both formalized and centralized. The model attributes to four types of cultures, including task, role, person, and power cultures.
Denison's Model of Culture	Daniel Denison	Highlights four key traits that an organization should master to be effective. At the center of the model are the organization's "Beliefs and Assumptions." These are the deeply held aspects of organization's identity that are often hard to access. The four traits of the Denison Model, Mission, Adaptability, Involvement and Consistency, measure the behaviors driven by these beliefs and assumptions that create an organization's culture. These traits are organized by color and are designed to help you answer key questions about your organization.
The Iceberg Model of Culture	Edward T Hall	Explained that organizational culture is like an iceberg that's found in polar seas. What you see is just the tip of the iceberg. Underneath lies an enormous, invisible mass, which holds everything together strongly. examines a culture in the context of an iceberg, which implies that the unseen aspects of a society's culture are the driving forces between the creation and

		continuation of the external aspects of culture. The iceberg concept of culture encourages anthropologists and others to look beyond the appearance of a culture (material culture, customs, actions) and ascertain what beliefs and movements in society have affected the formation of these external expressions.
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2.3 Innovation

As mentioned at the start, the area of innovation is widely becoming the bedrock of an organisation's success and continuous improvement, and contributes to the building of new opportunities for any organisation (Bessant, Öberg, & Trifilova, 2014). According to Bessant et al. (2014), innovation involves three key elements – search, selection, and implementation (p. 1285). A number of authors have indicated that the main challenge in managing innovation is finding ways of carrying out these activities within the context of a particular organisation, so that, over time, these patterns of behaviour become learned and 'routinised' (embedded in structures and processes), making the firm able to 'repeat the trick' (Nelson & Winter, 1982; Tidd & Bessant, 2011).

In addition, innovation is one of the cornerstones of continued growth and sustainable competitive advantage in large global firms (Azeem et al., 2021; Doz et al., 2001). Indeed, as Tidd and Bessant (2011) have argued, innovation is a key factor in allowing a company to survive and grow in the long run. In an earlier study, Marnix Assink (2006) described innovation as "the process of successfully creating something new that has significant value to the relevant unit of adoption" (p. 216). The object of innovation can be classified as things (products and services), or as changes in the way in which products and services are created and delivered (processes) (Assink, 2006). In line with this, Alblooshi et al. (2020) have described innovation as the application of new or totally different ideas that bring value to customers and consequently enhance organisational growth. An earlier definition by Urabe et al. (1988) suggested that: "Innovation consists of the generation of a new idea and its implementation into a new product, process

or service, leading to the dynamic growth of the national economy and the increase of employment as well as to a creation of pure profit for the innovative business enterprise. Innovation is never a one-time phenomenon, but a long and cumulative process of a great number of organisational decision-making process, ranging from the phase of generation of a new idea to its implementation phase. New idea refers to the perception of a new customer need or a new way to produce. It is generated in the cumulative process of information-gathering, coupled with an ever-challenging entrepreneurial vision. Through the implementation process the new idea is developed and commercialized into a new marketable product or a new process with attendant cost reduction and increased productivity” (p. 3).

The rest of this section will discuss the concept of innovation and its various forms.

2.3.1 Radical Innovation and Incremental Innovation

Behrens (2005) defines a radical invention as one that is (1) novel, (2) distinctive, and (3) has a significant impact on future technology. From another perspective, radical innovation has been linked to breakthrough ideas (Gunday et al., 2011; O'Connor & Rice, 2001) and the development of new business or product lines based on new ideas or technologies, as well as to significant cost savings that revolutionise a company's profitability (Leifer et al., 2001).

In their study, O'Connor & Ayers (2017) made the point that "radical innovations can fit within a current line of business, but they can also occur in the so-called “white spaces” between current lines of business. Or they can be leveraged by “multi-aligned” or “grey space” opportunities that could benefit multiple lines of business (p. 24).

According to Dewar and Dutton (1986), “the distinction between radical and incremental innovations is easier to intuit than to describe or assess” (p. 27). Innovation itself can be viewed as a continuum, ranging from incremental innovation (what a company strives to do better or more of) to radical innovation (what is unique to a company or industry) (Nord & Tucker, 1987; Christensen &

Overdorf, 2000; McDermott & Connor, 2002). However, according to Norman and Verganti (2014), 'an incremental technical innovation builds directly upon the established knowledge base employed by incumbent enterprises, and it continuously improves the processes or materials used to meet the firm's purpose of economically satisfying customer wants' (p. 88). A radical technical innovation, on the other hand, involves procedures and materials that are new to incumbent enterprises (Ringberg et al., 2019; Roy & Sarkar, 2016; Bergeck et al., 2013;).

In line with this, incremental innovation implies a process that involves a predictable change in routines, based on a logical extension of the existing knowledge and technological base (Henderson, 1993; Migdadi, 2021). For all these reasons, this type of innovation is associated with continuous improvement strategies that, through methods or routines already in use, provide small improvements as a result of ongoing efforts (Carpinetti & Martins, 2001; Chapman & Hyland, 1997; González-Sánchez et al., 2020; Marín-García et al., 2008).

Delbecq et al. (1985) distinguished radical innovation from incremental innovation on the basis that incremental innovation causes a smaller amount of disturbance. O'Connor and McDermott (2004) suggested that radical innovation requires organisations to venture into uncharted areas and to experiment with novel processes that are essentially unsystematized. Rose-Anderssen et al. (2005), who put forward complexity theory as a lens for examining innovation, have endorsed this viewpoint. They claim that gradual improvements are sensible expansions of the present situation, whereas dramatic advancements necessitate a bold leap into the unknown (Rose-Anderssen et al., 2005).

The radical innovation project is distinguished by discontinuities, gaps, crucial transitions, and leverage points. In this climate, traditional management practices may not be appropriate for radical innovation projects (Leifer et al., 2000). This explains why the business procedures of some larger established organisations hinder radical innovation, since the systems and processes that ensure continuity and success (the incremental improvements) actually become barriers to innovation (Tushman et al., 1986; Ahuja et al., 2001). Along similar lines,

O'Connor and Euchner (2017) have asserted that radical innovation is critical for any business seeking to continue dynamic growth. It may be especially useful for companies that are approaching maturity.

In this context, many studies consider that radical innovations are the better option for companies because, while incremental innovations can allow large companies to remain competitive in the short term, only radical innovations can change the rules of the game, leading the way in the long term (Leifer et al., 2000).

Table 4 Characteristics of innovation

← Incremental Radical →		
• Formalized • Centralized • Systematic	Procedures	• Contingent • Decentralized • Loosely structured
• Functional • Efficiency oriented	Structure	• Facilitating knowledge gathering • Supporting risk taking and experimentation
• Homogeneous • Older and Experienced	People	• Heterogeneous • Younger and Entrepreneurial • Technical • Questioning
• Mature • High Inertia • Focus on efficiency • Focus on team-working • Continuous Improvement	Characteristics of the organisation	• Entrepreneurial • Focus on discovery • Individual co-operation • Frame-breaking improvement
• Cost reduction • Feature addition • Efficiency improvement	Focus	• New methods and technologies • Experimentation • New ideas • Creation

• Mostly existing	Products / Technologies	• Mostly new
• Exploitation	Management	• Exploration

2.3.2 Disruptive Innovation

Christensen's famous book, *The Innovator's Dilemma* (1997), first introduced the disruptive innovation hypothesis. When he first outlined why dominating incumbents in the hard disk drive business failed when competing with new entrants, he used the term "disruptive technology". This mostly referred to types of technology that were inferior in the main attributes that consumers of mainstream technology valued, but focused instead on some previously neglected attributes (Si & Chen, 2020). In its initial version, Christensen's theory (1997) concentrated on technological innovation and disruptive technologies, looking at how new technologies overtake supposedly superior technologies in a market. The same theory has been applied to a number of disruptive inventions over the years (Si & Chen, 2020).

Disruptive technical advances inevitably come to dominate the market, according to Christensen's research (Martínez-Vergara & Valls-Pasola, 2020). Thus Christensen et al., (2003) comment, "Disruption is a process, not an event", and they note as well that, "it may take decades for the forces to work their way through an industry, but [they] are always at work" (p. 69). Similarly, Govindarajan (et al., 2011) summarised existing disruptive innovation theory by stating, "disruptive innovations tend to be connected with the displacement of incumbents by entrants" (p. 247). If this is true, it has major implications for incumbent firms: the only way to deal with disruption is to embrace it and then find methods to profit from it (Christensen & Raynor 2003).

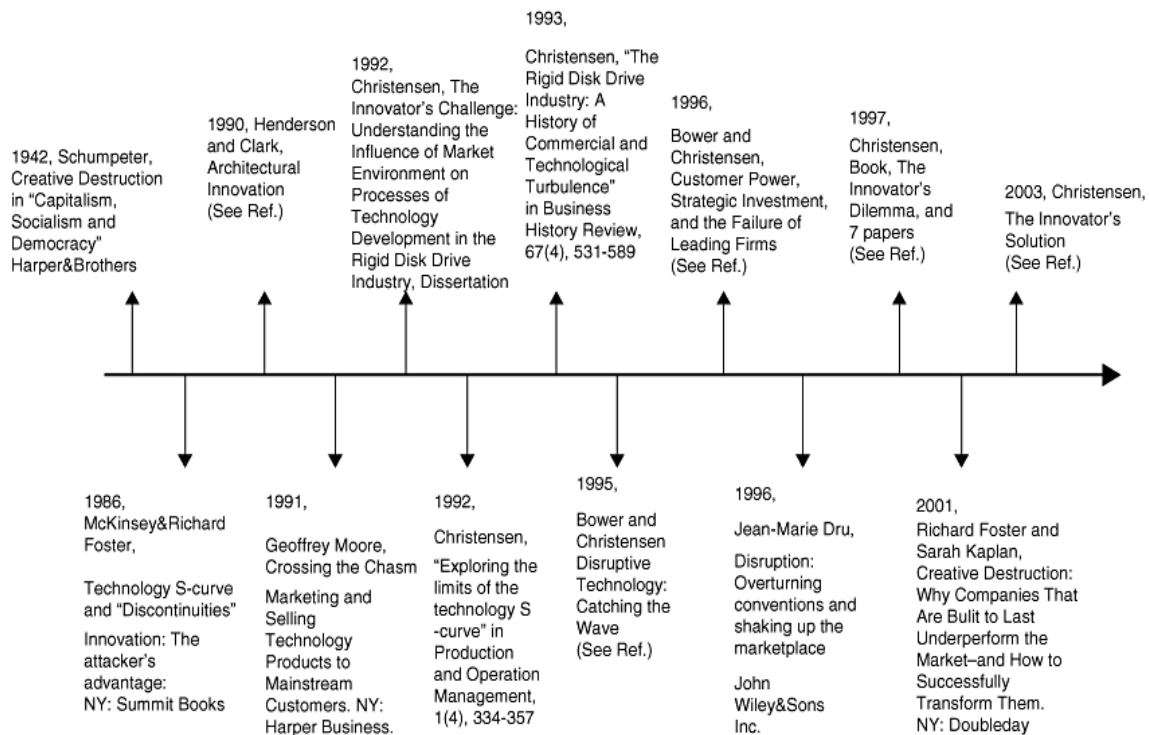


Figure 9 Timeline of the Evolution of Disruptive Innovation Theory (Martínez-Vergara & Valls-Pasola, 2020)

Researchers and practitioners are increasingly recognising and discussing disruptive innovation. However, since Christensen only gave a broad definition of the term (Tellis, 2006; Weeks, 2015; Christensen et al., 2018) the concept of disruptive innovation has been open to being interpreted and judged subjectively (Si et al., 2020). As a result, it is not always clear what disruptive innovation entails – what exactly is going to be disrupted, and who will be disrupting it (Dogru et al., 2019; Nagy et al., 2016; Kuokkanen et al., 2018).

Definition and Characteristics

One approach to defining disruptive innovation is to look at four distinct types of innovation activity. The first is disruptive business model innovation (Gilbert & Bower, 2002; Markides, 2006), which focuses on creating a new activity system in which new partners and activities are organised in a novel way in comparison to existing business models (Dentchev et al., 2018). It upends conventional models and redefines what it means to create and acquire value (Cozzolino et al., 2018).

The idea of the developing process is the second way of defining disruptive innovation (Dentchev et al., 2018). Many studies have examined this issue, emphasising that disruptive innovation is a complete and progressive process (Ansari et al., 2016; Kumaraswamy et al., 2018; Christensen, 2006; Govindarajan et al., 2011; Hang et al., 2011; Schmidt & Druehl, 2008). In their work, Govindarajan et al. (2011) stress that the core tenet of this concept is that disruptive innovation produces products or services that are initially inferior in the performance aspects desired by current mainstream customers, which means that incumbents frequently underestimate and overlook them; however, such products or services perform better in other areas that are overlooked by mainstream customers and incumbent corporations, but are valued by other client groups.

Because of this, these new customer segments would be attracted to these items or services (Martínez-Vergara & Valls-Pasola, 2020). Then, when the attributes of the disruptive products or services improve over time, they will eventually appeal to mainstream customers, and will gradually take over or even replace the incumbents' dominant position in the mainstream market (Guttentag, 2015; Guttentag & Smith, 2017; Lindsay & Hopkins, 2010; Schmidt and Druehl, 2008).

The effects of disruptive innovation offer a third perspective on its definition (Si et al., 2020). The concepts associated with this approach are often quite disparate and difficult to organise or combine in a systematic manner (Si & Chen, 2020; Martínez-Vergara & Valls-Pasola, 2020). According to Christensen and Bower (1996) and Ruan et al. (2014), for example, disruptive innovation is defined as an innovation that disrupts an industry's established trajectory of performance improvement or that reshapes the meaning of performance. In line with this idea, Kamuriwo et al. (2017) and Baden-Fuller et al. (2006) have identified disruptive innovation as a type of new business that directly competes with established incumbents by allowing new entrants to provide lower-cost products or services. They then go on to broaden this definition to encompass all innovations that have the potential to affect the stock values of current companies (Cozzolino et al., 2018; Guttentag & Smith, 2017)

Disruptive innovation, in the view of Ramani and Mukherjee (2014), involves a new product, technique, or business model that has the potential to drastically alter an industry. Similarly, Wan et al. (2015) have argued that disruptive innovations are those that question the market's existing value propositions or business models. According to Kostoff et al. (2004), disruptive innovation is an approach that results in considerable improvements and delivers superior unit performance. Consistent with this description, Orlikowski (1993) and Sherif et al. (2006) have referred to disruptive innovation as a novel idea or action. Dentchev et al. (2018) and Snihur et al. (2018), meanwhile, have described disruptive innovation as a mechanism by which a small start-up with little resources can successfully compete with a large corporation.

The final element in the definition is based on disruptive innovation's essential key traits (Christensen et al., 2015; Pandit et al., 2018). According to Christensen et al. (2000), disruptive innovation has the following characteristics: (1) locking customers to the product or business in a new way; (2) lowering gross profit (usually); (3) not following the traditional trajectory of improving performance valued by mainstream consumers; and (4) introducing a new performance trajectory and improving performance along parameters other than the traditional ones. Christensen and Raynor (2003) present a set of guidelines to aid in the identification of potentially disruptive developments. They argue that if an innovation's product is inferior in the traits valued by mainstream customers when it is first presented, but contains new features that are valued, it will succeed. According to Nagy et al., (2016), disruptive innovation is "an innovation that changes the performance metrics, or consumer expectations, of a market by providing radically new functionality, discontinuous technical standards, or new forms of ownership by providing radically new functionality, discontinuous technical standards, or new forms of ownership" (p. 121).

Govindarajan and Kopalle (2006) list four criteria for disruptive innovation: (1) poor performance in attributes valued by mainstream consumers; (2) the creation of a new value proposition to attract new customer segments or customers who are more price sensitive; (3) selling at lower prices; and (4) penetrating from a

niche market into the mainstream market (p. 16). For Andrew et al. (2015), the four key elements of disruptive innovation theory are: (1) existing market incumbents are improving along a trajectory of sustaining innovation; (2) incumbents overshoot customers' needs; (3) incumbents believe they can deal with the disruptive threat; and (4) incumbents eventually face a struggle as result.

From the above discussion, we can see that there are various definitions of disruptive innovation due to the various different approaches taken.

2.3.3 Innovation and Leadership

Leaders that are devoted to the process of innovation and are unwilling to rely on past performance are found in organisations that are driven by innovation (Humphreys et al., 2005). As a tool for influencing and developing organisational culture, leadership plays a significant role (O'Connor & Euchner, 2017a).

Many conceptions of culture recognise the concept of leadership as a fundamental component (Yukl, 2008; Schein, 1992). Leadership shapes culture in a company (Selznick, 1984; Schein, 1992), helping to generate and promote it. Moreover, a strong leader's influence can transform or entrench culture to the point where it persists after the leader has left (Bierly & Spender, 1995). Culture and strategy, according to Weick (1987), are interchangeable, but asymmetrically so, in that culture may more easily substitute for strategic plans than plans can substitute for culture. In line with this idea, Kotter (1998) has stated, "only through leadership can one truly develop and nurture culture that is adaptive to change" (p. 166).

A corporation with an innovation strategy and where innovation is a component of the vision is more likely to create superior innovation results (Bryman et al., 1992). Consequently, leadership has a similar impact on both the individual's and the organisation's ability to innovate (Hennessey & Amabile, 1998; Wan et al., 2015; Wan & Chng, 2003; Kanter, 1988; Cooper, 1999; Jassawalla & Sashittal, 2002).

In line with this, Chatman and Cha (2003: 32) contend that "developing and maintaining an effective culture is a leader's principal duty." At times, the

appropriate leadership required to support innovation can even appear to be at odds with the accepted best practice for running a business (Christensen et al., 2018; Farson & Keyes, 2002).

Recently, researchers have shown an increased interest in the key influence leadership style can have on driving organisational innovation, as leaders can influence organisational practices and create an innovation-supporting environment that promotes and facilitates the innovation process (Jia et al., 2018). In line with this, Amabile (1998) has pointed to the key role that leaders have in defining and shaping work contexts that contribute to organisational innovation.

In their study, O'Connor and Euchner (2017a) reported that leaders need to pay further attention to creating a culture of innovation that can lead to the generation of radical innovations. It can be argued from this that leaders need to raise their awareness about the increasing impact of leadership and organisational culture on innovation practices (O'Connor & Ayers, 2017; Bessant, Öberg, & Trifilova, 2014).

Leadership is a key element in both developing a radical innovation culture and sustaining it (Leifer et al., 2000). As Hodges (2016) has stressed, the role of radical innovation in accomplishing a company's long-term strategies and objectives must be clearly stated and reinforced at all levels. In a recent study, Alblooshi et al. (2020) have emphasised that leadership is one of the main determinants of organisational innovation, playing a vital role in determining the level of support dedicated to innovation in an organisation.

2.3.4 Innovation and Culture

Although the existing literature raises many questions, such as whether culture exists as a separate entity or as a characteristic of a group (Smircich, 1983; Fiol, 1991), or whether it exists in its own right or just as a social construction (Weisinger & Salipante, 2000), it is generally agreed that organisational culture has an impact on an organisation's ability to innovate (Kanter, 1988; McGourty, Tarshis, & Dominick, 1996; Ahmed, 1998; Tidd et al., 2001).

Despite the abundance of definitions and viewpoints in relation to organisational culture, there is no agreement on how to understand it (Smircich, 1983). The majority of authors think that organisational culture is something comprehensive, historically determined, linked to rituals and symbols, developed and perpetuated by the group, and nebulous and difficult to modify. The literature emphasises the importance of having the correct organisational culture in order to be able to innovate. According to Ahmed (1998), "culture is a fundamental determinant of creativity" (p. 31). Bart (1996) found that mission statements which include innovative behaviours have a significant impact on innovative practices and behaviour in organisations. Similarly, McGourty et al. (1996) show that specific management practices dealing with strategic direction, employee selection, rewards and recognition, employee deployment, support for idea generation, and multi-functional teaming can be used to change an organisation's culture to encourage innovative behaviour.

However, the idea that values are crucial in determining culture is widely accepted (Visnjic et al., 2016). Most businesses have some core beliefs that are shared by all employees (Chatman & Jehn, 1994). This idea is backed up by Bock et al. (2020) and Selznick (1984), as they argue that common values are essential for an organisation's survival because they bind it together and give it a particular identity. Culture is made up of many different beliefs, values, and assumptions (Schein, 1991).

Favourable circumstances need to combine to create an environment conducive to creativity and consequently invention. The culture that encourages radical innovation may differ from that which encourages incremental product development and introduction. For each stage of product innovation and development, a variety of subcultures may be acceptable (Zien & Buckler, 1997). In line with this, a firm that wants to encourage radical innovation while also pursuing continuous improvement through incremental innovation may need to maintain two subcultures that don't get along – this is known as cultural ambidexterity (Delbecq & Mills, 1985; Anderson & Tushman, 1990; Leifer et al., 2000).

On the other hand, certain features of organisational culture limit creativity and, as a result, innovation (Amabile, 1998; Ahuja et al., 2001; Morrison & Milliken, 2000). According to the literature, bureaucracy, limited resources, limited independence, and ambiguous goals all act to impede innovative behaviour (Puhlmann & Gouy, 1999; Freel, 2000; Ogbonna & Harris, 2000; Perel, 2002). A culture that fosters creativity by allowing independence, is generous in resource allocation, sets clear goals, and has a collaborative management style supports innovation (Hervas-Oliver et al., 2014). Similarly, findings from previous studies show a strong and constant link between supportive, open, and trusting organisations (as opposed to bureaucratic and controlling organisations) and the production of innovative products (DeSalvo, 1999; Abu Talib & Senin, 2008; Jassawalla & Sashittal, 2002).

All this suggests that an appropriate organisational culture will greatly facilitate innovation (O'Connor & Euchner, 2017a). However, developing a culture of innovation also involves creating a situation in which innovation is a way of life, rather than just facilitating the occasional radical innovation breakthrough (Fatiroti et al., 2014).

2.3.5 Managing Innovation

An important role for managers is to stimulate innovation while also controlling and channelling their organisation's commercial needs (McDonough III & Leifer, 1996). Managing innovation has been addressed in the literature from a variety of perspectives (Bessant, Öberg, & Trifilova, 2014). Several authors have advised managing technological innovation using standard process management methodologies (Roberts, 1988; Rothwell, 1992; Tushman & Nadler, 1986). According to Popadiuk and Wei (2006), the concept of innovation management should be reframed as individuals executing new social processes. Much is known about innovation killers and how companies cope with them, but less is known about how to make companies more inventive (Pohlmann et al., 2005). Some authors claim that innovation is not a matter of organisation and that it cannot be carried out indefinitely, implying that innovation management is more

about creating managerial belief systems that are recognised by other actors (Pohlmann, 2005; Pohlmann et al., 2005).

According to Kumaraswamy et al. (2018), innovation necessitates change, and managing people in changing environments suggests that certain leadership styles might be more suitable than others, such as those that might be necessary for managing repetitive tasks with little variation or change. However, in any design context, good management leadership has a considerable impact on design strategy and thus on innovation propensity (Gill, 2010; Dodge et al., 2017b; Harborne & John, 2003). Furthermore, Bruneel et al. (2012) have argued that management of innovation must address four fundamental issues: (1) a human problem of focusing attention on the need to innovate, (2) a process problem of turning new ideas into good currency, (3) a structural problem of managing part-whole relationships, and (4) a strategic problem of institutional leadership. The management of innovation has been perceived to differ between incremental and radical innovations (Ettlie et al., 1984). Torres and Augusto (2019) pointed out that radical innovation frequently leads to failure, and the amount and timing of those failures can be very unexpected. When faced with such challenges, it is no surprise that executives opt for a gradual approach to innovation. Companies that succeed over time alternate between incremental and radical innovation (Leifer et al., 2000).

2.4 Change Management

There have been several attempts to describe change management. Simple definitions focus on the process of planning, controlling, and managing company change, whereas more detailed definitions go into greater detail about the many cultural and structural factors involved in change, as well as the necessity to overcome causes of resistance (Kotter, 2012).

The term is widely used to describe the process of managing a transition from one condition of operation to another. Moran and Brightman (2000) defined change management as "the process of continuously renewing an organization's direction, structure, and capabilities to suit the ever-changing needs of external and internal consumers" (p. 66). In his book, *Leading Change* (2012), Kotter

referred to change management as a method for moving individuals, teams, and organisations to a desired future state. Elwing (2005) and Carlström and Ekman (2012) found that a communicative culture and a sense of belonging to a group had a positive impact on transition readiness. What is fascinating about these different concepts is how they clearly link organisational change to culture and well-structured communication. Furthermore, in the words of Ferlie and Shortell (2001), "the importance of the organisation as a lever of change to increase quality resides in the organisation's ability to provide an overall climate and culture for change through its multiple decision-making systems, operating system, and human resources practises" (p. 287). Several studies have viewed change management as a systematic method for adapting to change from both an organisational and individual standpoint (Connor & Kilmann, 1986; Alvesson & Sveningsson, 2015). Change management, moreover, is generally considered to have at least three parts, including adapting to change, regulating change, and implementing change (Moran & Brightman, 2000). All three of these factors revolve around taking a proactive approach to dealing with change. However, the term can also refer to an organisation's process of designing and implementing procedures and/or technologies to deal with changes in the business environment and to capitalise on new possibilities (Green, 2007).

In his book, *Organization Change: Theory and Practice*, Burke (2017) has recently proposed that the more successfully one interacts with change, the more one is likely to achieve the intended transformation. As a result, according to Green (2007), adaptation may entail developing a structured methodology for responding to changes in the business environment, such as economic fluctuations or a threat from a competitor, as well as developing coping mechanisms for responding to changes in the workplace, such as new policies or technologies. Burke (2017) has suggested that change management involves the control and coordination of processes to transition to new structures of working and new ways of functioning. The goal of change management is thus to orchestrate or direct processes toward a desired or predetermined end (Burnes, 2009).

2.4.1 Change Management Models

A change management team or project leader follows a set of procedures or actions to apply change management to a project or circumstance (Abderraouf et al., 2017; Cameron & Green, 2015). Through a business-oriented method known as a change management framework, this process takes on the appearance of a modern science (Heracleous & Marshak, 2004; Cummings et al., 2016; Rothwell et al., 2016).

A variety of change models exist in the literature to guide and advise the implementation of change in organisations.

Kurt Lewin's Model

Kurt Lewin, universally perceived as the originator of change management, was responsible for the "changing in three steps" (CATS) model set out in Figure 10 (Cummings et al., 2016).

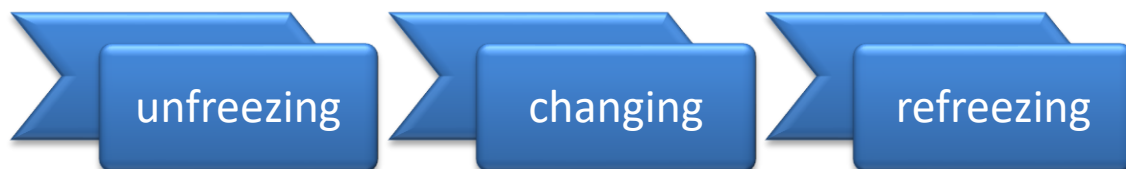


Figure 10 Kurt Lewin's Changing in Three Steps (CATS) Model (Cummings et al., 2015)

Lewin's model involves a three-step change: Unfreezing old behaviour, advancing to a new level of behaviour, and refreezing behaviour at the new intended level (Green, 2007; Cummings et al., 2016).

The third phase is crucial in the explanation of why something works or happens the way it does, because it reinforces the new patterns and makes a behaviour acceptable through formal and informal machines/methods/ways, including

policies and procedures (Robbins, 2003). In a study evaluating numerous change theories and assumptions about the nature of change, Kritsonis (2005) asserted that "Lewin's model is quite rational, goal- and plan-oriented" (p. 6). On the flip side, a change may appear to be appropriate on paper because it makes rational sense, but when put into practice, the lack of regard for human feelings and experiences might have harmful implications (Kritsonis, 2005). The basic premise behind this approach is that once the culture has changed, it will remain unchanged until the next shift occurs (Goldberg et al., 1992).

Kotter's Model of Change

One of the most popular models for transforming organisations is Kotter's (1995) eight-step change model (Mento et al., 2002). Kotter developed this model after conducting a study of over 100 organisations of various size and from various industries. The main aim of this study was to learn and find answers to the question, "Why Transformation efforts fail" (Kotter, 1995). Mento et al. (2002) have pointed to two key lessons Kotter learned from the model: that the change process goes through a series of phases, each lasting a considerable amount of time; and that critical mistakes in any of the phases can have a devastating impact on the momentum of the change process (p. 46).

In his pioneering book, *Leading Change*, Kotter (1996) stressed that successful transformations often begin, and begin well, when an organisation has a new and proactive leadership that sees the need for serious change.

Figure 11 below shows the different steps of Kotter's model.

Kotter's Model of Change



Figure 11 Kotter's Model of Change (Kotter, 1995)

The eight steps to transform an organisation (Appelbaum et al., 2012) are as follows, according to Kotter (1996):

1. Create a sense of urgency about the need for change – it is extremely difficult for people to change unless they recognise the need to do so;
2. Form a guiding coalition — assemble a group with enthusiasm, power, and organisational clout to lead the charge;
3. Develop a vision and strategy – create a vision for change, educate people about the need for change and how it will be achieved;
4. Communicate the change vision – inform others about the what, how, and why of the changes in any and all ways possible;
5. Motivate broad-based action – rather than analysing why individuals dislike changes and how to change their minds, encourage others to participate in the change effort and how to achieve it;
6. Generate short-term wins – because recognising changes and monitoring the work being done by people to achieve the change is tough, establishing short-term successes will be beneficial;

7. Consolidate gains and build momentum for change – build momentum for change on the backs of successes, motivate people through changes, and develop individuals as change agents; and finally
8. Support new approaches in the corporate culture – long-term success and change management are challenging. Failure to offer the proper support may mean that all of the hard work and effort put in to attain success has been for naught, because of people's proclivity to return to the old and simple methods of doing things (p. 766).

Cummings and Huse's Model

Prior to Kotter, Cummings and Huse (1989) identified the critical processes involved in the implementation of cultural transformation, as shown in Figure 12. Cummings and Huse argue in this action research model that a change plan should focus primarily on intended changes as a cyclical process involving cooperative actions. They also emphasise that a change model must include numerous steps that overlap and interact in practice. Finally, this paradigm emphasises data collection and diagnosis prior to action planning and implementation, as well as post-implementation evaluation (Cummings et al., 2016).

Cummings and Huse's Model of Organisational Culture	
Basic Assumptions	explains how we think and feel.
Values	tells us what is important.
Norms	unwritten rules of behavior.
Artefacts	physical things representing culture.

Figure 12 Steps to Successful Cultural Change (Cummings & Huse, 1989)

Importantly, developing a clear vision for the direction of the change process is another critical component for ensuring success (Goldberg et al., 1992; Klunk, 1997). Furthermore, determining whether or not the change process has

achieved its goal requires measuring and monitoring of the outcomes (Leatt et al., 1997; Connor & Kilmann, 1986).

Organisations, however, face a variety of hurdles in achieving a desired change. Smith (2005), for example, has emphasised how people, or an organisation's human resources, are both an important factor in organisational transformation and, at times, the most difficult obstacles to overcome (p. 408). This is in accordance with Appelbaum et al. (2012), who point out how resistance to change and lack of commitment to change can sabotage change projects.

Table 5 Overview of Change Management Models

Models	Characteristics and definition
Kurt Lewin's Model	This model involves a three-step change: Unfreezing old behaviour, advancing to a new level of behaviour, and refreezing behaviour at the new intended level. The bedrock of this approach is that once the culture has changed, it will remain unchanged until the next shift occurs.
Kotter's Model of Change	Kotter stressed that successful transformations often begin, and begin well, when an organisation has a new and proactive leadership that sees the need for serious change. The change process goes through a series of phases, each lasting a considerable amount of time; and that critical mistakes in any of the phases can have a devastating impact on the momentum of the change process
	Change plan should focus primarily on intended changes as a cyclical process involving cooperative actions. They also emphasise that a change model must include numerous steps that overlap and

Cummings and Huse's Model	interact in practice. This paradigm emphasises data collection and diagnosis prior to action planning and implementation, as well as post-implementation evaluation
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2.5 Innovation in Mature Manufacturing

A mature firm is a company that is well-established in its industry, with a well-known product and a loyal customer following (McLaughlin, 2018). Mature firms typically face steady competition and exhibit slow and steady growth (Engineers et al., 2016). In addition, mature companies also tend to pay dividends and can boost profits through cost cuts and efficiency improvements (O'Connor & Euchner, 2017a).

As mentioned earlier, recent studies have investigated the challenges faced by firms in the mature manufacturing sector. For instance, Mumford and Hemlin (2017) and Jaiswal et al. (2015) claim that new challenges have increased the pressure on the global competition for firms across the world. These challenges are related to producing a new generation of competitive products and services (O'Connor & Ayers, 2017). Although radical innovation is important to business growth, mature organisations are still avoiding it due to the risks associated with it (O'Connor & Euchner, 2017). However, while much of the previous empirical research has focused on incremental innovation or innovation management in general, little is known about the specific components of organisational culture that support radical innovation (McLaughlin et al., 2008; Dodge et al., 2017; O'Connor & Euchner, 2017a). The concept that small, entrepreneurial businesses are more likely to be the source of innovation is credited to Joseph Schumpeter (1961). On this subject, subsequent study has proved inconclusive (Pellegrino, 2018b). Larger organisations with access to appropriate resources appear to be better positioned to innovate (Ali, 1994; Leifer et al., 2000; Leifer, O'Connor, & Rice, 2001; Bommer & Jalajas, 2004).

On the other hand, though, large organisations are believed to be less adaptable than their smaller counterparts, making innovation more challenging (Dougherty & Heller, 1994). The typical activities of large corporations can stifle innovation

(Feldman & Pentland, 2003). Dougherty (2012) has emphasised that the structure and methods established over time foster functional fiefdoms and conservative decisions rather than cross-functional activity and risk taking. According to Bessant et al. (2004), radical innovation is exceedingly difficult to achieve, and as a high-risk, high-reward option, goes against larger or established organisations' innate risk aversion. It also requires a higher level of innovation and originality than is normally found in large organisations (Bessant & Tri, 2014).

The procedures and processes that assure continuity (the incremental improvements) in some bigger established organisations mitigate against radical innovation, since they themselves become obstacles to innovation (Tushman et al., 1986). In line with this, Chandy and Tellis (2000) suggest in their study that major incumbent corporations have introduced many incremental innovations since World War II. In addition, Wagner and Hansen (2005) discovered that, at least in the wood products business, the size of the company has an impact on the sort of innovation pursued.

2.6 Research Gap

In the last few decades, there has been a surge of interest in the effects of leadership practices and organisational culture on innovation (Dodge et al., 2017b; Tiberius, Schwarzer, 2021). Significantly, a literature review indicates a lack of research investigating the impact of leadership practices and organisational culture on radical innovation in mature manufacturing organisations (Alblooshi et al., 2020; Büschgens et al., 2013a; Kennedy et al., 2017; Naranjo-Valencia et al., 2017). Such work as there is suggests that mature organisations often lose their ability to innovate because the mechanisms that allow them to succeed become barriers to innovation (O'Connor & Euchner, 2017b; Cui, & O'Connor, G. 2012; Martins & Terblanche, 2003).

The focus of empirical investigation has been on incremental or general innovation (Leifer et al., 2000; Stringer, 2000; O'Connor & Euchner, 2017). As a result, there appears to be little research into the characteristics of organisational culture that promote radical innovation (Nguyen et al., 2019; O'Connor, G. 2022;

Nguyen et al., 2021). Furthermore, there is still a lot of debate regarding the relationship between the effectiveness of leadership performance and radical innovation practices (Victor , Schwarzer, 2021; Valencia & Valle, 2017a; Engineers et al., 2016). For instance, Dodge (2017) and Alblooshi et al., (2020), claimed that organisational culture and leadership clearly play a role in innovation effectiveness, but little work has been done to explore the exact nature of that relationship. Similarly, previous studies by Tiberius, Schwarzer, (2021), Lin et al. (2012) and O'Connor and Euchner (2017) indicate that a number of essential questions remain about the nature of radical innovation, and how leadership style can create a culture that facilitates radical innovation. Thus, this study seeks to obtain data which will help to address these research gaps. Table 6 below illustrates a number of previous studies that investigated the impact of organisational culture and the nature of leadership practices on the enhancement of radical innovation in the manufacturing sector.

Table 6 Relevent previous studies

Author	Findings
O'Connor and Euchner (2017)	Number of essential questions remain about the nature of radical innovation, and how leadership style can create a culture that facilitates radical innovation.
Tiberius, Schwarzer, (2021)	lack of research investigating the impact of leadership practices and organisational culture on radical innovation in mature manufacturing organisations.
Alblooshi et al., (2020)	Organisational culture and leadership clearly play a role in innovation effectiveness, but little work has been done to explore the exact nature of that relationship.
Nguyen et al., (2021)	little research into the characteristics of organisational culture that promote radical innovation.

Naranjo-Valencia et al., 2017	lack of research investigating the impact of leadership practices and organisational culture on radical innovation in mature manufacturing organisations.
Valencia & Valle, 2017a	There is still a lot of debate regarding the relationship between the effectiveness of leadership performance and radical innovation practices.
Victor , Schwarzer, 2021	There has been a surge of interest in the effects of leadership practices and organisational culture on innovation.
(Domínguez Escrig et al., 2019; Sadovnikova et al., 2016)	They indicate that there is a need to understand the impact that different perceptions of organisational culture and leadership practice can have on radical innovation.
McLaughlin et al (2018)	Whilst a large proportion of the existing empirical research has concentrated on incremental innovation or innovation management in general, there is little known about the specific aspects of organisational culture that facilitate radical innovation.

2.7 Chapter Summary

In conclusion, this chapter critically analysed and discussed the literature surrounding four main topics: theoretical concepts of culture, leadership, innovation, and approaches to change management. As a result of this exhaustive literature review, a research gap has been identified, as illustrated in Figure 13.

This research gap lies in the intersection of different dimensions and can be expressed as exploring a culture of radical innovation in the context of the leadership and organisational culture in mature manufacturing organisations.

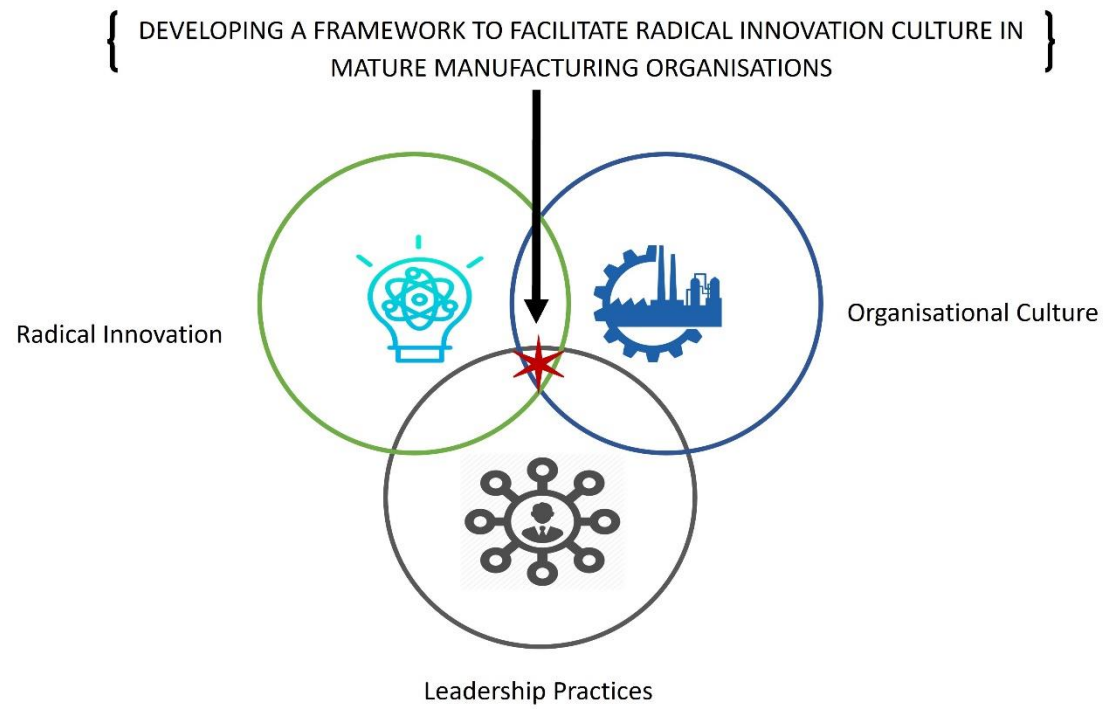


Figure 13 The Research Gap

3 RESEARCH METHODOLOGY AND DESIGN

3.1 Introduction

The third chapter is concerned with the methodology used for this study. This chapter discuss the research process and clarifies the paradigmatic assumptions which underlie the study. Research methodology refers to the general principle that guides the research questions (Jensen et al., 2011), which in this study are as follows: What are the critical success factors of leadership that can create a culture that enhances radical innovation in mature manufacturing organisations? How can these factors be applied successfully in mature manufacturing organisations?

To begin, it will be helpful to describe how this study's research and methodology have been shaped and formulated. Gorman and Clayton (2005) have described research as an inquiry process with clearly defined parameters, with the goal of discovering or creating knowledge, or theory building; teasing out, confirming, revising, and refuting knowledge and theory; and/or investigating problems for local decision making (p. 2).

Methodology, on the other hand, is what determines the research framework that will be used in practice (Johnson & Onwuegbuzie, 2004). Wellington (2000) has argued that methodology is the "activity or business of choosing, reflecting upon, evaluating and justifying the methods you use" (p. 22). Furthermore, in the social sciences, the term 'methodology' refers to the principles that guide the execution of a study. As a result, it can be used as a framework for all of the stages that make up any given research project. According to Witell et al. (2020), the research design is equally important in deciding which approach to use. An approach is chosen based on its suitability for answering certain research questions (Eriksson & Kovalainen, 2015).

This chapter will clarify the philosophical assumptions involved by outlining the ontological and epistemological viewpoints adopted, as well as the design techniques that lie behind the research project.

The methodology and procedures used in this study are explained and justified in this chapter. It begins with the reasons for selecting the study's paradigm. The study's research methodologies are discussed in the final section. This explains the methods used to gather and analysis data, as well as the procedures used to assure validity and reliability. It also shows how triangulation was used as a research methodology in this study.

3.2 Research Philosophy

Deciding upon the most appropriate research philosophy is crucial in social science, as this influences how the researcher thinks and acts, and is reflected in the research process (Klenke, 2008; Collis & Hussey, 2013). Additionally, understanding the philosophical position that underpins the research is critical for researchers, so they can select the most appropriate research strategy for their subject (Broad, 2014; Collins, 2017). This position helps to frame the structure of the study by explaining the relationship between data and theory (Easterby-Smith, 2021; Giacobbi et al., 2005). In line with this, Willis (2007) has defined the paradigm in social science research as a "comprehensive belief system, world view, or framework that guides research and practice in the field" (p8)

This section briefly discusses a number of basic research paradigms before examining the philosophical position of this research more deeply.

3.2.1 Research Paradigm

Many definitions of 'paradigm' in relation to research can be found in the literature of the social sciences, but they all impose constraints for this type of work. A paradigm, for example, is defined by Bogdan and Biklen (2007) as "a loose collection of logically related assumptions, notions, or assertions that orient thought and study" (p. 86). According to Schwandt (1997), however, a research paradigm is a collection of shared views and values among researchers in the same field.

Prior to Schwandt, Lincoln and Guba (1989) had defined 'paradigm' as "the underlying belief system or world view that leads the investigator, not merely in method choices, but in ontologically and epistemologically essential ways"

(p. 105). Significantly, Mackenzie and Knipe (2006) emphasise that "there is no basis for subsequent choices regarding methodology, methodologies, literature, or research design without first designating a paradigm" (p. 194). Furthermore, ontology and epistemology are two topics of philosophy that impact upon how people think about reality and hold beliefs about the world (Burrell, 1979; Broad, 2014).

Ontology

Ontology is concerned with the nature of the world, or what individuals see as 'reality', which, of course, contributes to their concept of what 'knowledge' is. It is mostly concerned with objectivism and constructivism. According to Greener (2008), "Objectivism states that social entities have an existence that is apart from the people in them" (p. 33). In a study investigating research methods, Mackenzie and Knipe (2006) stated that, "at the opposite extreme, constructivism claims that social phenomena and their meanings cannot be understood separately from the social elements currently in play" (p. 3). Furthermore, a constructivist approach assumes that reality "is formed in the minds of those who think about it" in order to pave the way toward the possibility of acquiring knowledge (Greener, 2008. p. 33). Mills et al. (2006a) assert in their study that "Constructivism is a research paradigm that denies the existence of an objective reality" (p. 2).

Golafshani (2003) claims that constructivism honours the multiple realities that people hold in their mind. From a social perspective, meanwhile, Crotty (1998) defines constructivism as "the view that all knowledge, and thus all meaningful reality as such, is contingent upon human practises, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (p. 42). Constructivists adopt a subjective approach to the universe, attempting to comprehend the processes by which reality is created (Haradhan, 2020; Lee, 2013; Crowther & Lancaster, 2012).

Epistemology

Epistemology examines the nature of what we may know or reveal as 'true', while also considering the nature of social structures such as organisations (Greener, 2008b; Padgett, 2016). Furthermore, this branch of philosophy is concerned with how we know reality and the researcher's relationship to what is known (Haradhan, 2020; Klenke, 2016).

Social science research reveals a number of different philosophical paradigms that are in use among researchers. Crowther and Lancaster (2012) identify four main paradigms here, positivism, interpretivism, pragmatism, and realism.

Positivists assume that one reality exists and it is the duty of the researcher to discover it (Klenke, 2016; Mertens, 2014). Data already exists in the world; the researcher takes note of it and uses it to 'find' theories. Furthermore, positivism is an epistemological position that considers the world to be objective, quantifiable, value-free, generalizable, and repeatable (Golafshani, 2003; Collis & Hussey, 2013). Similarly, according to Gaspar et al. (2015), "Positivists think that knowledge is objective, and that it is acquired by evaluating empirical evidence and testing hypotheses to find universal or fundamental laws" (p. 252).

Interpretivists, on the other hand, claim that there are multiple realities (Denzin & Lincoln, 2017). The interpretive point of view differs from the positivist position in that it acknowledges that the observer influences the observed, and argues that reality is a human creation (Alvesson & Sköldberg, 2017). Because of this, understanding a social phenomenon requires looking at it through the eyes of those who are directly involved in the actions being investigated (Glaser & Strauss, 1994; Basit, 2013).

Pragmatism emphasises finding new ways to solve problems, and focuses on their application (Shan & Shan, 2022; Creswell, 2012). **Realism**, or critical realism, focuses on reality and beliefs that already exist outside of the perceiving mind, i.e., reality in the environment (Green et al., 2007). This paradigm can be divided into two types. Direct realism asserts that what we perceive with our senses is the true world, whereas critical realism asserts that sense experience

is not the ultimate reality (Jia et al., 2018; Crowther & Lancaster, 2012; Collins, 2017).

Table 7 below describes these different philosophical paradigms.

Table 7 Research philosophy paradigm (Fontana et al., 1998; Merriam, 2014)

	Positivism	Post-positivism	Realism	Constructivism
Ontology	Objective point of view	The findings are probably objectively true	Both subjective and objective points of view	Subjective point of view
Epistemology	Reality is objective and apprehendable	Reality is objective, but only imperfectly knowable	Reality is merely virtual and is shaped by social, political, cultural and economic values	'Reality' is constructed from local, specific, constructed values

For research to be successful, it is critical to select the most appropriate methodology for the investigation (Collins, 2017; Anderson, 2010). Social constructivism has been adopted over other alternatives as the research paradigm for this study for three main reasons. Firstly, it reflects the researcher's view of the world. Secondly, a social constructivist researcher focuses on a specific context, which in this case is the mature manufacturing organisations culture in which people live and work. This helps to achieve an understanding of the historical and cultural setting of the participants (Buck & Williamson, 2022; Creswell, 2014). Thirdly, social constructivism serves the exploratory nature of this study and is the philosophy that is most congruent with the general research aim, i.e., to explore how leaders and followers in this vital sector perceive radical innovation culture in leadership practices (Creswell & Zhang, 2009). Social constructivism seeks to understand how people make sense of their reality as they act and interact in meaningful ways (Klenke, 2008). Constructivism assumes that the meaning of a construct is contextual and shared (Onwuegbuzie et al., 2014).

As the research question of this study concerns with the critical success factors of leadership that can create a culture that enhances radical innovation in mature manufacturing organisations, social constructivism is an appropriate approach, since it can shed light on the way in which radical innovation culture is constructed here. Thus, the researcher will “rely as much as possible on the participants’ view of the situation being studied” (Creswell, 2015, p. 8). Because this study is exploratory and interpretative in nature, a constructive–interpretive philosophical approach using a qualitative strategy is most appropriate. According to Sekaran and Bougie (2010), “an exploratory study is undertaken when not much is known about the situation at hand, or when no information is available on how similar problems or research issues have been solved in the past” (p. 120).

3.2.2 Research Approach

It is widely agreed that the best approach for a research project is determined by the nature of the research (Greener & Martelli, 2018). According to Mackenzie and Knipe (2006), “the most common definitions suggest that methodology is the overall approach to research linked to the paradigm or theoretical framework, whilst the method refers to systematic modes, procedures or tools used for collection and analysis of data” (p. 194).

There are three major “research paradigms”, according to Johnson et al. (2007): quantitative research, qualitative research, and mixed methods research (p. 112). The study question to be answered determines whether the researcher uses a quantitative or a qualitative paradigm (Bryman & Bell, 2015; O’Dwyer & Bernauer, 2013). As a result, selecting which one to use is primarily based on the philosophical assumptions that support the study’s objectives (Buck & Williamson, 2022). All three of these approaches will be addressed in the following sections.

Quantitative Research

A large body of work has attempted to investigate the nature of this research method. Quantitative research, according to O’Dwyer & Bernauer (2013) and Robson et al. (2016), is based on the collecting of numerical data. It is described

by Creswell (2003) as "research in which the investigator predominantly uses post-positivist claims for building knowledge" (p. 18), and in a later definition (Creswell, 2015), as "an approach for testing objective ideas by examining the relationship between variables" (p. 55). These variables can be monitored using a range of devices, allowing the numbered data to be analysed using statistical processes. In an earlier study, Sale et al. (2002) defined quantitative research as being numerical in character and founded on positivism, with empirical data serving as the paradigm's main component. Quantitative research is also concerned with existing variables and the techniques used to quantify them (Silverman, 2015). It is positivistic in nature, and is used in naturalistic situations for scientifically investigating a phenomenon and isolating it from its context (Johnson & Onwuegbuzie, 2004; Sale et al., 2002).

In the social sciences, any sort of quantitative research can be employed to investigate human phenomena, using standardised measures and examining the correlations between dependent and independent variables, regardless of underlying assumptions (Bloomfield & Fisher, 2019). Quantitative research can be classified into two forms, according to Creswell (2003): experiment and survey. The fundamental criticism of quantitative research is that it does not provide a comprehensive picture of the topic being studied and may not apply to specific local contexts, individuals, or circumstances (Sale et al., 2002; Salminen et al., 2020). It may also miss certain significant phenomena, and the presentation of the findings may be too general (Onwuegbuzie et al., 2014). Thus it may not accurately portray the entire picture of the subject under investigation (Onwuegbuzie et al., 2021; Buck & Williamson, 2022).

|Mixed Methods Research

In social science and educational research, mixed methods research is still a relatively new methodological paradigm (Mayoh & Onwuegbuzie, 2013). The use of qualitative and quantitative data in a single research project is referred to as 'mixed methods'. Several works have attempted to describe this study method. According to Johnson et al. (2007), "mixed methods research is an intellectual and practical synthesis based on qualitative and quantitative research" (p. 129).

In line with this, Teddlie and Tashakkori (2012) claim in their study that mixed methods researchers must be competent in a wide range of research methods and approaches in order to choose the optimum path for answering their research questions (p. 777).

There are, however, several disadvantages to using a mixed techniques approach. Given the absence of practical recommendations on how to achieve a meaningful integration of the information produced from both methodologies, one such obstacle is identifying at which stage interpretation should take place (Witell et al., 2020). Similarly, one of the most common criticisms of mixed methods research is that it is frequently used uncritically by researchers who overlook the fundamental differences between methodological approaches (Sale et al., 2002).

Qualitative Research

A number of authors have described qualitative research as being concerned with information that is not numerical Charmaz (2006); Charmaz & Belgrave, 2002). More specifically, in the words of Gorman and Clayton, (2005), qualitative research is "a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which events are embedded and the perspectives of those participating in the events, using induction to derive possible explanations based on observed phenomena" (p. 3).

The nature of the inquiry and its assumptions, which rely on interpretivism and constructivism, shape qualitative research (Holloway & Galvin, 2016). Qualitative research also focuses on human experiences and interactions within a specific setting, as well as on how people collaborate (Creswell, 2015).

Broadly defined, qualitative research is "any kind of research that produces findings that are not arrived at through statistical procedures or other means of quantification" (Corbin & Strauss, 1994, p. 17). Its results are derived, rather, from real-world settings where "phenomena of interest unfold naturally" (Patton, 2002, p. 39). Moreover, Cassell and Symon (1994) and Gorman and Clayton (2005) suggest that the qualitative method is more effective when the study subject

involves organisational processes. Qualitative research is also frequently helpful and effective in gaining an adequate knowledge of the participants' thinking and ideas on leadership (Lincoln & Denzin, 1994; Bryman & Bell, 2015).

According to O'Leary (2017), qualitative data is represented by words, pictures, or iconography, and is analysed through theme exploration, whereas quantitative data is represented by numbers and is analysed using statistics. Because the current study of social phenomena is exploratory and interpretative in character, qualitative methods (O'Leary, 2017; Denzin & Lincoln, 2017; Alvesson & Skoldberg, 2017) were deemed to offer the most suitable approach.

Accordingly, this study is inductive in nature, as it aims to build and develop a theory from the collected data, even though the research problem and question were generated from the literature.

3.3 Research Design

A research design is a plan for gathering and analysing data in order to answer the questions proposed by the study (Ragin, 2010). According to Creswell (2014), the research design provides a specific direction for the study procedures. Similarly, it should reflect the objectives of the research as well as the philosophical worldview of the researcher (Ibrahim, 2012a). In research design, significant decisions will be made, such as the choice of data collection methods and analysis techniques (Creswell, 2014). Silverman (2010) proposes that research in general can be considered as either quantitative or qualitative, or more specifically, when it comes to a case study, as grounded theory. The methodological position of the current research is broadly defined as exploratory and qualitative (Patton, 2002). Exploratory qualitative research was conducted in order to understand the concept of radical innovation culture in leadership from the points of view of both leaders and followers. Lincoln and Guba (1985) suggest that in exploratory research, the researcher should investigate social phenomena with a minimum of a priori expectations, in order to develop explanations of these phenomena (Bowen, 2005).

3.3.1 Data Collection Methods

The sources and instruments that the researcher uses to gather the required data are referred to as research methodologies (Denzin & Lincoln, 2017; Collins, 2017). Qualitative data-collecting approaches evolved, according to Nguyen et al. (2015), as researchers realised that standard quantitative data collection methods did not capture human feelings and emotions (Broad, 2014; Crabtree & Miller, 1999). In the view of a number of professionals in the industry, designing and analysing qualitative research requires more subjectivity than quantitative data. The paradigms are listed in Table 8, along with their key approaches and instruments.

Table 8 Paradigms, methods and tools (Mackenzie & Knipe, 2006)

Paradigm	Methods primarily employed	Data collection tools
Positivist/ Post-positivist	Quantitative: "Although qualitative methods can be used within this paradigm, quantitative methods tend to be predominant" (Mertens, 2014b)	Experiments Quasi-experiments Tests Scales
Interpretivist/ Constructivist	Qualitative methods predominate, although quantitative methods may accompany them.	Interviews Observations Document reviews Visual data analysis
Pragmatic	Qualitative and/or quantitative methods may be employed. Methods are matched to the specific questions and purpose of the research.	May include tools from both positivist and interpretivist paradigms: interviews, observations, testing and experiments.

Qualitative approaches can help identify and characterise the desired outcomes of a research project such as this one. Interpretivist/constructivist research methods are commonly acknowledged as attempting to comprehend the universe

of human experience (Bryman & Bell, 2015; Cohen & Manion, 1994). According to Greener and Martelli (2018), a qualitative method to research is likely to be connected with an inductive approach to produce theory.

3.3.2 Grounded Theory Approach

Glaser and Strauss, two American sociologists, introduced grounded theory in their important article in 1967 (Holton, 2009). They developed the GT technique after conducting research in an area that had never been studied before and failing to find an adequate study framework to help them (Glaser & Strauss, 1967). To properly understand the creation of GT, it is necessary first to understand the backgrounds of the two founders.

Glaser attended Columbia University, which is known for its quantitative and empirical research (Holton, 2008; Tillmann, 2003). Strauss, on the other hand, attended the University of Chicago, and was inspired by symbolic interactionism scholars (Holton, 2008; Ullah, 2012). According to symbolic interactionism, people react to their circumstances based on the meanings that they assign to them (Corbin & Strauss, 1990). Based on this information, it can be stated that Glaser was the driving force behind GT's continuum data comparisons (Corbin & Strauss, 1994), whereas Strauss promoted the use of respondents' ideas and values to produce concepts and theories.

The well-documented rupture in Glaser and Strauss' relationship began with the publication of *Basics of Qualitative Research* (Holton, 2008; Strauss & Corbin, 1990). GT makes it possible to comprehend social reality by allowing the data to express the story (Glaser & Strauss, 1967). Below, the concepts of GT will be covered in more detail. GT is meant to mirror reality and provide a clear knowledge of the phenomenon by providing a useful guide to action (Glaser et al., 1968, Corbin & Strauss, 2014).

The fundamental difference between GT and other approaches is that it is data-driven rather than theoretically driven (Fischer, 2005; Bryman & Bell, 2015). This focus is intended to improve the reflection of current events and to maintain a close connection between the theorised data and the complexities of the social

context (Charmaz et al., 2015; Strauss, 1987). Because of this, GT provides a deeper knowledge of the phenomena under consideration and, consequently, bridges the theoretical and practical divide.

To elicit the perceptions of the participants from the organisations, the current study used a grounded theory (GT) technique (Glaser, Strauss, & Strutzel, 1968). Both the selected interpretative paradigm and GT were found to be beneficial for this study because they allowed the researcher to use people's perceptions and meanings to investigate, explain, and characterise what was going on; they also allowed the researcher to build a theory based on the data collected (Corbin & Strauss, 2014). GT attempts to generate theory inductively from the data as it emerges rather than verifying prior theories on the basis of the collected data (Locke, 2001; Greener, 2008; Corbin & Strauss, 2014).

There are different sources of data that can be used for qualitative research, as shown in Table 9 below.

Table 9 The main sources and procedures in this study, related to the most popular qualitative methods (Yamagata-Lynch, 2010)

Methodology	Sources	Procedure
Document analysis	Reports, future plans, publications.	All materials and documents related to the research subject were read.
Interviews	Primary participants, Secondary participants.	Semi-structured interviews were audiotaped, and then transcribed for the participants to review.
Observations	Observations of participants' interactions.	Notes were taken.

These tools are mostly determined by their accessibility and usefulness for the research and research topics (Corbin & Strauss, 2014; Willig & Rogers, 2008).

The data for this study was gathered through interviews, casual conversations, field notes, journals/magazines, and observation. Potential data for qualitative research can come from a variety of sources, according to Padgett (2016), including formal and informal interviews, participant observation, and document analysis. In an inductive approach, adopting any of these sources can greatly assist the researcher in understanding the stories people tell, which are based on their own experiences (Mills et al., 2006b; Denzin & Lincoln, 2017).

According to Sackmann (1991), the most effective method for eliciting the factors that influence fieldwork performance is to focus on a specific issue. This encourages participants to concentrate on one task at a time. As Sackmann writes, "an issue focus facilitates both the uncovering of latent components of culture and comparisons across individuals and study settings" (p. 299).

In addition, an issue focus method creates a specific environment that forces participants to make use of their prior knowledge (McLaughlin et al., 2005). This method helps researchers to grasp the factors that influence an organisation's culture. Ensuring that the stories from the respondents represent the same cultural features across the organisation requires an issue focus (Sackmann, 1991). The current researcher was able to identify the tacit components that were defining the culture's values and acquire some understanding of the elements influencing the organisation's performance through its people, by adopting an issue focus.

This exploratory field study was conducted using a case-study approach, as shown in Table 10. According to Robson (2022), a case study is a research technique that incorporates an empirical investigation of a specific contemporary issue. It also allows researchers to investigate the system, process, and functions of both the organisation and the individual (Creswell, 2015).

Table 10 Research methodology

Paradigm	constructive–interpretive		
Research Approach	Field Study		
Research Strategy	Qualitative		
Research Methods	Interviews - Issue focus	Observation	Focus Groups
Analytical Framework	(Open Coding, Selective Coding, and Axial Coding) - Textual analysis		

3.3.3 Research Process

The following phases, as indicated in Figure 14 below, have been defined to help achieve the research goal and objectives.

Phase One: Exploring the Literature Review

Tasks:

This task involved conducting a comprehensive analysis of the literature in order to understand the various aspects of the research and to gain a thorough appreciation of the research issue, as well as other related subjects. This analysis covered concepts, definitions, models, and frameworks.

Methods:

These were: to conduct a review of the publications and documents in the literature; to attend conferences and meet with experts and peers to discuss the subject; and to identify all significant issues, the main authors and writers in the field, and any relevant specialist publications and organisations.

Phase Two: Carrying Out Pilot Studies

Tasks:

As an initial stage, to help clarify the concerns of the research problem and the key features of the field study to be undertaken, the researcher prepared and executed a pilot study in the United Kingdom. This research took place between March and April of 2019. Its goal was to investigate the existing enablers and obstacles that impact radical innovation in the UK's mature manufacturing industry, as well as the general features of that sector.

Methods:

The fieldwork of the first stage of the study consisted of nine semi-structured interviews with participants from different job positions/levels. The questions aimed to identify the factors that relate to performance level, as encouragers or inhibitors of radical innovation culture. Issue-focused interviews with selected interviewees from a number of well-known mature manufacturing enterprises were used in the study. To achieve this the following questions and protocol were designed:

This research will focus on the leadership factors that facilitate a radical innovation culture. The Interview is confidential, and No Individuals name is going to be used in this research.

On your perspective and experience on this subject.

- What are the leadership aspects that can facilitate radical innovation culture within the organisation?
- What's the inhibitor and exhibiter of Achieving Radical Innovation?
- What are the difficulties facing the leader in creating an environment for innovation?

Cranfield University provided ethical clearance before the fieldwork began. The pilot study's face-to-face interviews lasted between 45 and 92 minutes each. Prior to each interview, the interviewer attempted to establish a positive relationship

with the participants in order to make them feel as comfortable as possible. The participants were given a description of the study's purpose before data collection began.

The interviews were audiotaped and transcribed for all of the participants, resulting in a total of 515 minutes of speaking and over 187 pages of transcripts.

The interviews were recorded before being transcribed. The study's goal was to see how certain features of the field under investigation, as well as its culture, influence the performance of its top officers. The data were collected and then triangulated – semi-structured interviews were checked against a document review and the findings from a focus group discussion and direct observation.

Jick (1979) explains the term 'triangulation' as the use of multiple techniques of data collection and analysis to investigate the same phenomenon from different viewpoints. Verbatim quotations representative of the data were selected (McAlearney, 2006). However, the researcher allowed the data to tell their own story, without 'spinning' the material to cover a specific topic. The researcher wrote notes about each interview immediately after it had ended.

Following the completion of the first phase of interviews, the researcher began to analyse the data to identify the main themes, phenomena, and difficulties in the field, so that these could be focused on, explored, and better understood in subsequent phases. The researcher re-read the data multiple times after transcribing the recorded interviews and gathering the essential papers, to achieve a thorough understanding of the case study.

After this, the researcher coded the interviews and compared them to one another (theoretical sampling). The codes/concepts were divided into categories, which were then compared and confirmed. The data were read again to enrich and/or confirm the categories.

Phase Three: Collecting Data for the Main Study

Tasks:

This phase represented the primary body of research, carried out in a number of mature manufacturing companies in the UK. Substantial amounts of data were acquired from numerous sources. This stage confirmed the themes that emerged from the data analysis. Furthermore, it assisted in identifying key leadership characteristics, as well as the enablers and inhibitors that influence leadership performance.

Methods:

Executive managers, senior managers, and general staff were interviewed in order to assure objectivity in the data analysis of the results, and the data collected. Other qualitative methods, such as a focus group and observations, were considered essential at this stage in order to improve the validity of findings.

Between December 2019 and January 2020, a second round of personal interviews was conducted as part of the study's second stage. The interviewees were asked to contribute to the refinement of the factors that surfaced. Sixteen interviews were performed with participants of various ranks from the first round. Semi-structured interviews (issue-focused) were undertaken, and the interviews were preceded by a statement of the study's goal, as before.

During the interviews, the researcher collected field notes to document any new ideas. The participants agreed to have their interviews audio-recorded and transcribed prior to this additional data collection, resulting in about 832 minutes of speech and over 293 pages of transcripts. The data reduction and coding techniques were aided by the use of NVivo, a qualitative data analysis tool. This stage was carried out with constant comparisons with the literature and the acquired data, as well as iterative steps of data collection from the participants (Goulding, 2009).

Phase Four: Emergence of the Main Themes

Tasks:

The main goal of this stage of the data collection was to refine the emerging concepts, consolidate the codes into a smaller number of second-order concepts, and then categorise them into the main themes.

Methods:

Rosch's definition (1978) was used to direct engagement with the field research and the sorting of categories into primary themes, which was done using a collaborative workshop, thereby adding to the advantages of the data collection. The optimal strategy for this inquiry was determined to be open discussion in one location.

A selected group of research participants was invited to a workshop with the aim of attaining comments on the factors that emerged from the analysis of the first data gathering phase. This occurred in June of 2020. The goal of this session was to group the many elements into primary themes.

Phase Five: Framework Design and Validation

This is the stage at which the research was completed, and where the researcher presented the developed framework designed to create a culture of radical innovation in mature manufacturing organisations.

The framework comprises specific interventions to improve leadership performance in mature manufacturing organisations, with the aim of fostering a culture of radical innovation in the field. This phase revealed that the research aim and objectives had been met.

Following this, validation was carried out to confirm that the framework is usable. The research's final aim is to validate the created framework through expert evaluations.

Final Phase: Conclusion and Recommendations

The final conclusions and findings from the data collected are presented in this phase.

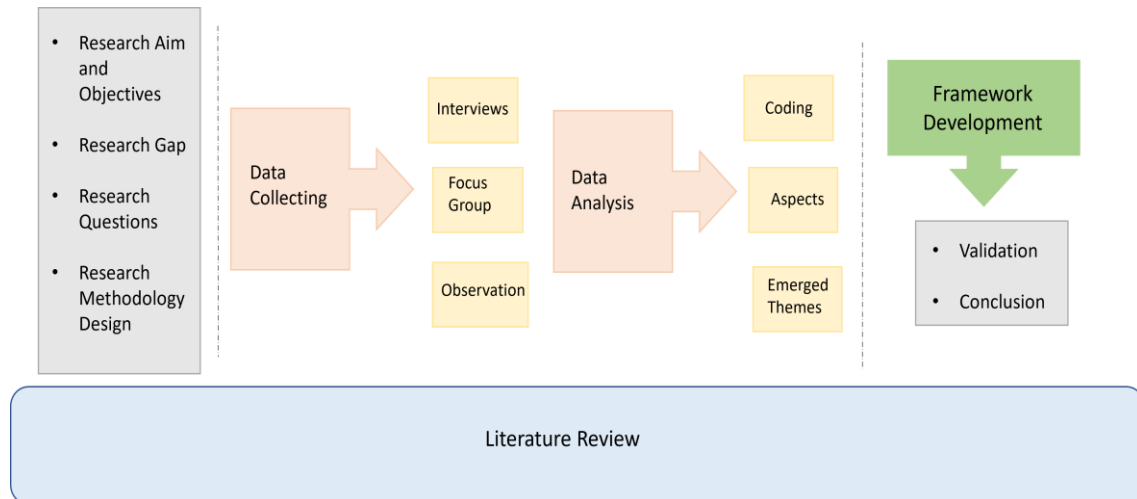


Figure 14 Research Process

A diagram representing the research journey is shown above in Figure 14.

Table 11 Firms investigated and their information (Sampling)

	Company Name	Level of Authority	Domain
1.	GKN Wheels & Structures	Supply Chain & Lean Director	The world's leading manufacturer of off-highway wheels and the major supplier of structural assemblies to global agricultural
2.	Sony Global Manufacturing & Operations Corporation	Director Professional Services	UK Technology centre

	Company Name	Level of Authority	Domain
3.	National Grid plc	GT Portfolio Planning Manager GT Engineering and Asset Management	A multinational electricity and gas utility company
4.	Hovis Bakery	Group Head of OpEx & Site Director, Avonmouth Bakery	Food Company
5.	NORDAM	Director of Supply Chain	Aerospace Component Manufacturing & Repair
6.	E.ON	Centre of Operational Excellence	Electric utility company
7.	Xaar plc	Product Engineering Manager	Company supplying industrial inkjet printheads
8.	Rolls-Royce Plc	Digital Manufacturing Manager	A British luxury automobile maker
9.	DPD group	Chief Operating Officer	International parcel delivery service

	Company Name	Level of Authority	Domain
10.	Alfa Lava Ltd	Operations Development Centre	Energy, Environment and Food
11.	PP Control & Automation	Chief Operating Officer	Complete Manufacturing solutions
12.	Cambridge Assessment	Production & Continuous Improvement Manager	Group Print and Operations
13.	SATRA Technology Centre	Chief Executive	A research and technology centre, employing over 180 scientific, technical, and support staff
14.	Hone-All Precision Ltd	Director	A specialist precision engineering company
15.	UCP ZELLER	EHST Manager	Plastic products supplier
16.	HandiCare Group	Group Executive Vice President, Operations	Healthcare equipment
17.	Linx Global	Customer Service Representative	Award winning industrial printing & coding solutions
18.	Siemens	Head of Factory Operations	Manufacturing in Action award, electronic machines

3.4 Rigour of the Research

In action research, rigour refers to the capacity to use the right research tool or method to achieve a specific research objective. Contextually, it refers to how data is collected, aggregated, analysed, and assessed, as well as how processes and situations are examined and interpreted.

In order to guarantee the quality of the study, action research must demonstrate rigour (Coughlan & Coughlan, 2002). Every piece of research should typically be defined by a narrative of the events and actions that led to the specific results. At this stage of the research, the following procedures were adopted, in accordance with the recommendations of Coughlan and Brannick (2001):

3.4.1 Action Research Learning Cycles

Action research learning cycles were exhibited in the recurrent refinements that were put in place from the beginning and finished after the data had been gathered. The involvement of the participants was sought at all stages of the research project.

The results of each group session were developed and discussed in subsequent meetings. Participants were invited to take part in dialogues, and their opinions were recorded at every stage of the study. The results were relayed back to the active stage participants after appropriate analysis, and additional comments were solicited, which were then in turn transmitted and used to construct the next step of the process.

3.4.2 Resolving Inconsistent Interpretations

The data from the interviews was combined into one source, which was effectively the major data source. Critical literature studies of research journals and publications provided a second source of observations and reflections that corroborated the data from the interviews.

3.4.3 Testing Interpretations Against the Literature

The themes were compared to the arguments presented in the relevant literature, which revealed that the literature was generally supportive of the themes'

outcomes. However, a refutation from the literature was observed in relation to the concept of articulating 'clear objectives'. During the interview, recorded comments attributed to the participants revealed a consensus that a clear and fixed project specification was desirable. Previous authors, on the other hand, had only specified the need for well-defined objectives at a high level or in an overview, rather than in any detailed form, as suggested here.

Leadership development and radical innovation enhancement in the mature manufacturing sector is such that detailed specifications may need to be updated in response to changes in understanding and awareness of potential solutions.

The desire to produce clear specifications was considered by the researcher and other organisation members who were not in the research participatory team; it was felt to indicate a strong resistance to taking personal ownership of the product specification.

3.5 Conclusion

To summarise, this chapter has briefly explored the major philosophical paradigms in social science, as well as the study's adopted paradigm, social constructivism. The research design, including sampling, data gathering methods, and data analysis, has also been explained. The following chapter describes the data collection and analysis processes and presents the research findings, along with a discussion of the findings in the literature.

4 DATA COLLECTION AND ANALYSIS

4.1 Conceptual Framework

The design of a theoretical model needs to be both well stated and suited for its purpose in order to be useful for the study (Collins, 2017). According to Bogdan and Biklen (2007), the conceptual framework organises the currents of thought that provide focus and direction to a research project. In another point of view, a theoretical framework, as opposed to a theory, is sometimes referred to as a paradigm (Mertens, 2014; Bogdan & Biklen, 2007; Collins, 2017). Taylor & Rober (1999) describe theoretical sampling as a procedure of selecting additional cases to be studied in order to gather new insights or expand upon and refine concepts already identified. In line with this, Strauss and Corbin (2008) state that theoretical sampling is often used in conjunction with the three levels of coding.

In their study, Rallis and Rossman (2012) explained the conceptual framework as representing “the organisation of ideas—the central concepts from theory, key findings from research, policy statements, and professional wisdom—that will guide the project” (p. 89).

It can also guide the research questions, design decisions, and early analytical strategies (Collins, 2017; Agee, 2009). Schein's organisational culture model is used in this study. As explained in the literature review, Schein's (1984) approach can provide a structure for acquiring an effective understanding of culture improvement. Culture, according to the author, is the wisdom/insight or empowerment gained by a group over time while resolving the difficulties or problems that threaten its survival and relevance. It is a perceptual structure of underlying assumptions that a specific group has found, produced, or enhanced as it has learned as a collective to cope with external adaptation and internal integration issues (Schein, 2010).

Culture has also been described by Schein (2016) as a set of implicit assumptions shared by the affiliates of a certain organisation that determines how they perceive, think about, and respond to situations and events.

Furthermore, culture is mirrored through 'artefacts', which, as defined by Schein, refer to visible organisational structures and processes. Written and spoken language, physical space, organisational layout, and overt organisational behaviours are all examples of artefacts (Goldberg et al., 1992; Goldberg et al., 2000).

Schein (2003) has also defined physical space as a tangible artefact that can be utilised to identify the character of an organisation. Organisational logos, motifs, insignia, trademarks, and other items may also be included under this description (Schein, 2016). Schein's behavioural category refers to organisational rituals, procedures, and methods of operation that have been implemented or stipulated (Goldberg et al., 2000). The third level is concerned with tales, stories, myths, and histories of high-fliers, protagonists, and villains in organisations (Schein, 2016).

All three categories of artefact are typically linked to or represent organisational values (Goldberg et al., 1992, 2000). These values take in a group's social beliefs, goals, standards, and/or the ideals that it is believed to espouse (Katan, 2014). Such values are often characterised by a significant emotional investment, and are naturally important, since they are closely tied to the group's culture, defining the features and thresholds that are highly prized by an organisation and/or its members (Katan, 2014). They are written or implicit, and they allow the individual members of a culture to understand what is expected of them (Hofstede & Minkov, 2010).

According to Schein (2010), an organisation's culture should essentially shape and reflect its employees' values, so that organisational members are empowered to make judgments about the sequence in which to address emergent problems and issues and generate solutions by appealing to the values.

The most intangible element of the model is the level of underlying assumptions (Schein, 2016). These assumptions are normally dealt with through presumptive beliefs, perceptual sensitivities, and other forms of judgment and behaviour, and they are rarely stated explicitly (Pakdil & Leonard, 2015). A recurrent, effective

solution to a problem tends to be taken for granted. Thus assumptions become absorbed responses that can govern behaviour and affect how people think, act, and feel (Schein, 2016).

However, according to Schein's (2010) method, deciphering a culture can be achieved by following this pattern:

1. Visit and observe.
2. Identify artefacts and processes that puzzle you.
3. Ask insiders why things are done that way.
4. Identify espoused values that appear to you and ask how they are implemented.
5. Look for inconsistencies and ask about them.
6. Figure out from the above the deeper assumptions that determine the observed behaviour.

4.1.1 Data Collection and Analysis Stages

This section illustrates the data collection and the analysis stages over the project period.

The interpretative paradigm and grounded theory were found to be beneficial in this study because they allowed the researchers to use individual's perceptions and attitudes to investigate, explain, and characterise what was going on. They also allowed the researchers to build a theory based on the data collected (Denti & Hemlin, 2012; Schein, 1988; Corbin & Strauss, 2014).

As mentioned earlier, GT attempts to generate theory inductively from data as it emerges, rather than verifying prior theories on the basis of the collected data (Locke, 2001; Greener, 2008; Corbin & Strauss, 2014).

The data collection and analysis were conducted in several stages. These stages were adopted from Braun and Clarke's model of thematic analysis (2013), which was chosen due to its simplicity, clarity, and popularity. According to Ibrahim

(2012), the analysis of qualitative data is dependent upon its interpretation. The following are the steps of the thematic analysis that were conducted in this study.

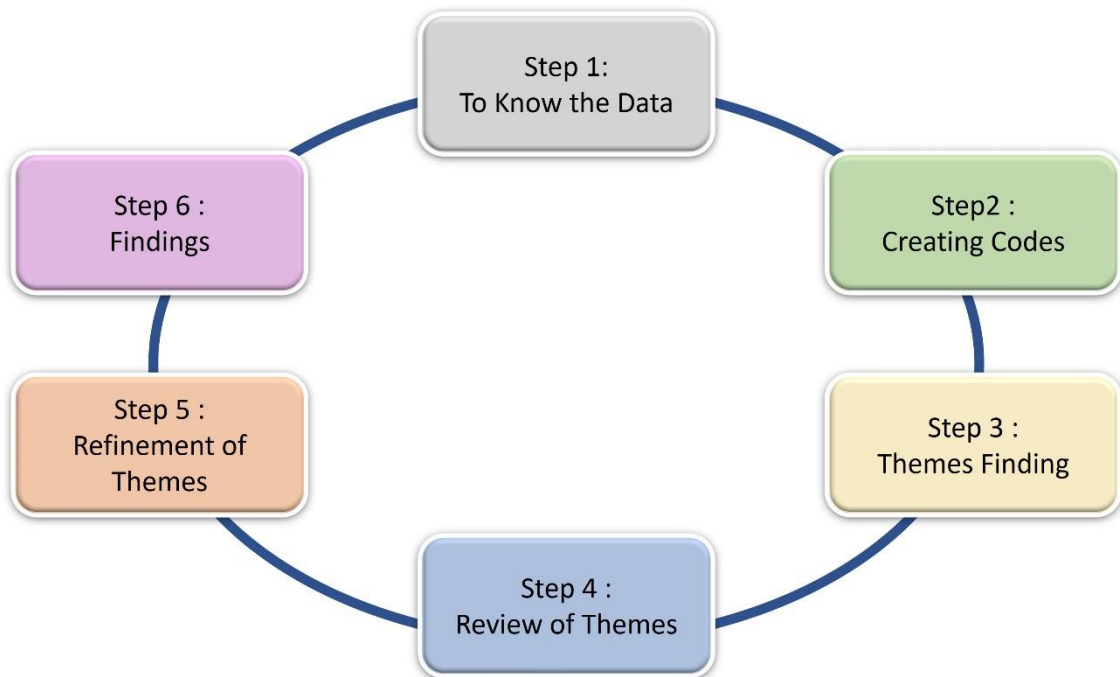


Figure 15 Braun and Clarke's Model of Thematic Analysis (2006)

The data generated from the interviews was analysed thematically and inductively. This study involved a three-stage analytical approach. Data was collected from a variety of sources over the course of several months during the study process. Theoretical sampling was used throughout the data collection process to determine a certain level of saturation, as shown above in Figure 15. Following the guidelines provided by Binder and Edwards (2010, p. 241), the researcher continued to recruit and interview participants until no fresh data was being generated that offered new information or insights for constructing the theory.

Table 12 Field study details

Number of Participants	18
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Domain of the Organisations	Mature Manufacturing
Geographic Location	United Kingdom
Level of Authority	Senior Managers
Experience	5–15 years
Time Duration	6 months
Data Gathering Tools	Semi-Structured Interviews Notes Observations
Total Interviews	21 semi-structured interviews
Total Hours	34 hours
Total Pages	473 pages
Data Analysis Tool	Coding NVivo

A three-stage analytical process was undertaken in this project. Theoretical saturation was reached after 21 interviews.

This study took place in a number of mature manufacturing firms in the United Kingdom, as shown in Table 12 above.

When accessing the opinions and perceptions of people via interviews, the ethical issues and implications of the process need to be considered (Cohen et al., 2011; Rabionet, 2009). Before the fieldwork began, ethical clearance was obtained from Cranfield University. Data were collected over several months between March

and September 2019, in interviews lasting between 40 and 97 minutes each. The questions were targeted to identify the aspects of influence that served in the workplace as encouragers or inhibitors radical innovation culture. The researcher designed a pilot study with selected interviewees in a number of mature manufacturing firms in the United Kingdom, as an initial stage of the project.

This study was exploratory and interpretative in nature. The data was collected by conducting face-to-face interviews. According to Kvale (2008), an interview seeks to elicit and interpret central themes in the lives of the subjects by understanding the implications of what they say. Similarly, interviews are useful in obtaining the story behind a participant's experiences and outlook on a particular topic, and for gathering in-depth information (Turner, 2010). The interview approach was also chosen for this research because it allows for a better grasp of the factors that the participants believe are important in determining the current situation.

According to Klein (1996), "one of the chief advantages of face-to-face communication is the ability of the participants to pick up non-verbal cues as the interaction unfolds" (p. 33). This can enrich understanding of the content, while also communicating emotional nuances that might otherwise be overlooked (Gioia & Sims, 1989). This kind of interview also served the exploratory nature of this research (Whiting, 2008).

The researcher interviewed 18 participants from 18 organisations within the targeted sector. The interviews with the participants generated 34 hours of recordings and 473 pages of transcription for analysis. Theoretical saturation was reached after 21 interviews (see Table 7 above). The interviews were transcribed and analysed. The researcher listened to the interviews again, double checked the transcriptions, and made any necessary changes to the transcripts. Following this, the researcher uploaded the 21 interviews into NVivo software, as the data management and analysis tool selected for this project. The coding and analytical processes were facilitated through the use of this qualitative data analysis tool (Yin, 1989).

Before being transcribed, the data was recorded on digital audio. During the interviews, the researcher made field notes to capture early thoughts. Every response, whether favourable or negative, was taken into account to ensure the reliability of the findings and the accuracy of the coding. In GT, data is analysed qualitatively, line by line or even word by word, until the saturation stage of theory construction is reached (Corbin & Strauss, 1994; Marshall & Rossman, 2006).

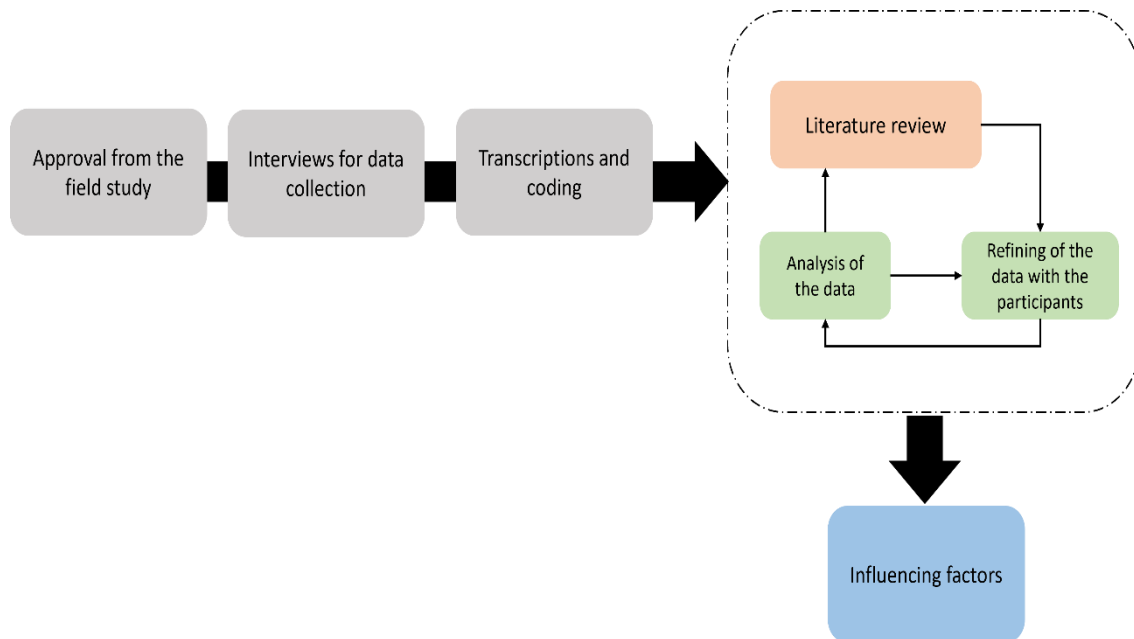


Figure 16 Data Collection Process

Continual comparisons with the literature and the acquired data, as well as iterative phases of data collection from the participants, were carried out, as shown in Figure 16.

First Stage of Data Collection and Findings

This level of data collection aimed to develop and advance a preliminary understanding of the project's context, and address the essential factors and situations that may influence radical innovation enhancement in mature manufacturing organisations.

The findings of this stage of the study reveal the factors that influence leaders' behaviour in MMOs in the United Kingdom, and also those factors that play a

fundamental role in inhibiting and encouraging the development of leadership performance and radical innovation in this vital sector.

The opportunity to obtain a greater understanding of the key influential factors in this field study and to identify how much they influence present performance was one of the most important findings from the pilot study. The data yielded seventy-one open codes as shown below in appendices B. According to the interviews, these characteristics influence the behaviour of UK MMO leaders. They play a critical role in stifling and promoting the development of leadership skills and radical innovation practices in the manufacturing sector.

These factors can be noticed in the behaviours and characteristics of the cognitive and interpersonal qualities of leaders. The preliminary research also shows that there is a link between current leadership practices and aspects of organisational culture.

The findings of this exploratory study revealed that various factors influence radical innovation culture in the mature manufacturing organisations sector. Culture-related factors, in particular, appear to play an important role. The study discovered that organisational culture and structure have a significant impact on radical innovation. These appear to be the factors that have the most influence on the innovation decisions made by leaders.

The findings of this exploration reveal that most of the emerging factors can be connected to the concepts of leadership and organisational culture. All these factors play a key role in a leader's ability either to inhibit or encourage improvements in the innovation and performance of the organisation. However, they do not all relate to the same elements of a leader's cognitive and interpersonal qualities. Certain factors – such as a supportive administration, a positive attitude, communication, the reward system, risk taking, tolerance towards failure, and latitude – seem to have an effect on most leaders' decision-making processes. The collected data also indicated factors that are essential in shaping the relationship between leaders and their employees. These factors are collaboration, working arrangements, communication skills, and appreciation.

4.1.2 Conclusion of the first stage of the project

As a first step, the study asked what factors encourage or inhibit performance improvement in general. The study participants openly shared their views about the way in which certain aspects affected their performance and shaped their relationship with their firms. The aspects that resulted from the data analysis and description are shown below in the appendices. The findings highlight the factors that influence leaders' behaviour in the MMO and have a critical role in both hindering and encouraging radical innovation in this sector.

Seventy-one aspects had emerged in this stage of the study. These aspects tend to involve particular behaviours and different sides of the cognitive and interpersonal qualities of leaders. It is the dominance of these aspects which seems to be what affects leaders' decisions most. It also influences their relationships with subordinates, and thus affects the latter's commitment to the organisation.

The identified factors that affect leadership performance in the mature manufacturing organisations tend to be those relating to the cognitive or interpersonal qualities of leaders. A number of elements emerged as important in shaping leadership performance development, such as fairness and equality, risk taking and tolerance, communication. Taken together, these results suggest that there is broad agreement between the study findings and the literature in the vast majority of factors.

4.2 SECOND PHASE OF THE PROJECT

4.2.1 Emergence of the Themes Influencing Performance

In this stage, the emerged aspects were sorted into potential themes. A theme can be defined as a coherent and meaningful pattern in the data that is relevant

to the research question (Braun & Clarke, 2013). The purpose of this stage of the data collection was to refine the emerged aspects and consolidate the codes into a much smaller number of second-order concepts, which were then divided into categories (the main themes). This allowed the researcher to form an early understanding of the link between each of the properties, and to identify their parallels and contrasts (Glaser, Strauss & Strutzel, 1968). Rosch (1978) describes categories as cognitive classifications that group objects, events, and the like with attributes that are perceived to be similar.

Nine main themes were generated as a result of the analysis of the collected data. These fundamental themes may provide a pathway to the successful creation of a culture of radical innovation in the manufacturing sector. Themes that emerged from these data sources eventually led to a clear approach to solving the research question (Mills et al., 2006b). In this stage, each theme was defined and refined by analysing the data within the themes.

Appendices C below shows the list of developed themes and associated aspects derived from all the interview data.

4.2.2 Themes Development

The themes identified in these responses are presented in Figure 17 below. These themes can help to facilitate a culture of radical innovation in the sector of mature manufacturing. This section discusses each of these themes in depth, as well as the impact they have on leadership performance in manufacturing organisations.

71 aspects had emerged in this study from across different situations. These tended to relate to leaders' behaviours, and their beliefs and interpersonal qualities. The domination of these aspects seems to be what affects leaders' decisions most. It also determines their relationships with subordinates, which in turn influences the latter's to the commitment to the organisation. In a participative workshop with the participants, these 71 emerged aspects were grouped into nine key emerging themes that represented the aspects of culture that influence radical innovation practices.



Figure 17 Radical Innovation Culture

The themes and key constructs emerged through an inductive process in which the development team members continuously refined their meaning, and hence internal validity, in a collective manner (via focus group meetings). The description and title for the themes also came about as an output from the focus group sessions. The themes identified in these responses are briefly described below.

Organisationsal Values and Behaviours

This theme relates to the clarity of the organisation's strategy in terms of the sharing and understanding of its core values among its employees. It also takes in the administrative behaviours applied in the work environment and the most prominent of those values and behaviours mentioned in the interviews, such as mutual trust and respect, fairness and equality, honesty, and passion.

Organisational values can be defined as values that reflect or represent the values in the workplace or environment, as these values guide the behaviour of workers within the different organizational conditions (Sagiv & Schwartz, 2022; Schwartz, 2012b). In regard to this, one interviewee said:

"The integrations and the people were the most difficult I suppose this is with any sort of integrations that happens you end up entering a political field and that something that textbooks and everything properly won't educate people on. But genuinely it is about trying to get people to come on vision on a journey with you and to get them to sign up to you to make sure they want to follow your path or your dream and that is how you influence people".

The importance of organisational values lies in preparing individuals to choose a form of behaviour that enhances their compatibility with others. This helps create a sense of harmony in work teams, improves effective administrative communication, and reduces conflicts that might impact on loyalty or affect the achievement of the desired outcomes (Yukl et al., 2019). This reflects a previous study which suggests that while "organizational culture focuses on the shared behavioural expectations and normative beliefs in work units, climate describes the way individuals perceive the personal impact of their work environment on themselves" (Glisson & James, 2002, p. 788).

Similarly, Schwartz (2012) stresses that values have a key motivational power, in that they provide direction and emotional intensity for actions, and can be acquired through socialization, both in the context of dominant group values, and through individual learning.

Employees are the individuals who create and implement innovative solutions in organisations; therefore, their behaviours are critical to organisational innovation (Dentchev et al., 2018).

Because personal values are the guiding principles in people's lives, affecting their goals and actions (Schwartz, 2012a), it is important to study their role in employees' innovation (Anderson et al., 2017). Similarly, one of the participants stress that:

"personal values are closely related to motivation and thus help explain behaviour".

Similarly, behaviour, which expresses people's individual values, enables them to attain their goals and personal aspirations (Sagiv et al., 2000; Schwartz, 2000; Bardi & Schwartz, 2003). Employees are therefore willing to rely on their personal values in making decisions, choosing actions, and justifying their behaviour (Arieli & Tenne-Gazit, 2017). According to one of the research participants:

"both the positive and negative behaviours of leaders and executives in top management levels affect the performance of people in workplace and shape the organisational culture".

Diversity and Inclusivity

Diversity refers to the traits and characteristics that make people unique, while inclusion refers to the behaviours and social norms that ensure people feel welcome (Gomez & Bernet, 2019; Dougherty, 2012). In addition, Bassett-Jones (2005) has defined 'diversity management' as "the systematic and planned commitment on the part of organizations to recruit and retain employees with diverse backgrounds and abilities" (p. 170). Furthermore, Dobbs, (1996) added that "diversity can be specified in age, sex, geography, lifestyle, education and experiences" (p. 351) (Manoharan & Singal, 2017).

Similarly, Gomez and Bernet (2019) and Hellregiel et al. (1998) in their works talk about diversity as the combining of different backgrounds, experiences, and perspectives, and they believe that taking advantage of these differences is what leads to innovation. Diversity in terms of ethnicity, age, gender, personality and educational background promotes creativity and problem-solving capability (Wrench, 2016). Nevertheless, it takes more than demographic or ethnic diversity to produce the creativity that leads companies to perform better (Chaudhry et al, 2021; Leonard & Swap, 1999).

Diversity and inclusion (D&I) refers to the policies, programs, and inclusive environment that encourages the representation and involvement of diverse groups of people within an organisation (Savin et al., 2020; Gomez & Bernet,

2019). According to Wrench (2016), the words 'diversity' and 'inclusion' are two parts of the same strategy. Diversity involves the traits and characteristics that make people unique, such as age, gender, ability, culture, nationality, personality, education, and ethnicity; inclusion is about cultivating an environment where behaviours and social norms ensure that people feel welcome and respected and that they are provided with equal access to resources and opportunities (Wrench, 2016; Bassett-Jones 2005).

From another perspective, inclusiveness and diversity in the workplace make employees feel that they are accepted and valued, and respected by the company where they work, making them more confident and happier in their work (Mohammadi et al., 2017a). one of the participants indicates to the importance of diversity and Inclusivity in the workplace:

"Diversity is an integrated part of every organization, and it can be addressed and converted as a source for organizational capability and organizational success, it is important among individuals working for an organization (measurements such as age, sex, race etc.), and the administration of differences and different workers, that's, the recruitment, preparing, maintenance and leveraging of human capital with unmistakable and undetectable contrasts, are organizational assets and capabilities that can lead to supported competitive advantage in the workplace environment and can provide a culture for radical innovation in this sector".

In their research, Nielsen et al. (2018) claim that with diverse and different minds working together in the same company, the presence of new solutions and ideas in the company becomes noticeable. Thus, when a group of employees with different views and ways of thinking gets to grips with a specific problem, they will be able to reach innovative, unconventional solutions that open the doors of creativity and innovation (Nielsen et al., 2018; Savin et al., 2020).

According to both Gomez and Bernet (2019) and Wrench (2016), inclusion is where people's differences are valued and used to enable everyone to thrive at work. Not only is inclusivity crucial for diversity efforts to succeed, creating an

inclusive culture will also prove beneficial for employee engagement and productivity (Northouse, 2021).

|Effective Communication and Collaboration

This theme indicates the vital role of communication and how it needs to be effective. It is very important to establish effective communication and cooperation among all employees, through various channels and activities within the institution (Syakur et al., 2020; Hyland & Karlsson, 2021).

It was mentioned in the interviews that "

building effective communication can only be achieved by defining common goals and the expected outcomes from communication and cooperation processes".

In their study, Lei et al. (2020) emphasised the mediating role of tacit and explicit knowledge sharing, and showed that collaborative culture has a significant impact on incremental innovation, whereas knowledge sharing behaviours have a greater impact on radical innovation. Similarly, one of the participants highlights that:

"Promoting good listening skills and interactive discussions is crucial. So too is showing commitment and continuous follow-up, and regular evaluation of employee participation and the provision of constructive feedback".

The concept of open communication between employees, management, and different departments being a determinant of an organisational culture that would support creativity and innovation is supported by authors such as Filipczak (1997, p. 36), Lock and Kirkpatrick (1995, p. 20), and Shattow (1996, p. 47). Bresnahan (1997) emphasises the role of management by pointing out that "open doors" foster innovation (p. 52). Ahmed (1998, p. 36) makes the point that face-to-face communication promotes innovation. To support this result, one of the participants said:

"I think what you going to do with communication is to be able to give it a form that the person is happy with, so you have to do with a number of different types of communication with people. We do a number of things so we have a thing

called listening post which is where any employee can dial a number and tell us how they feel like a synthetic sentiment feeling so they will give you an extraction of how they feel (my boss is great) or (I don't feel valued) and what it will take that syntonic value that may leave because they don't feel valued.

He also added:

"So, communication must be upwards and downwards, and you must allow people to have a bit of a voice but there is a type of communication we do communication through emails, social media, and listening posts, and then there are some technologies that we use where people will just write you a want a five and all that sort of stuff. We are always quite in touch with how people feel about the organization and whether they have been communicated so you have got to keep adapting and learning because the younger generation changed so much".

Resource Allocation

This theme clarifies the necessity to provide employees with the facilities, equipment, and adequate and necessary financing to facilitate the smooth and successful completion of work tasks. This involves planning well ahead, organising all resources, and harmonizing them efficiently (Liu & Ma, 2021; Eckert et al., 2015a). However, the process needs to start with the establishment of clear objectives and by converting long-term goals into action plans. Similarly, One of the most evident commitments to vision is the allocation of resources (González-Sánchez et al., 2020).

Ensuring the availability of the necessary resources is a key duty of leaders in manufacturing firms. According to Sanghi (2016), leadership roles should "make decisions that allocate limited resources (time, people, budgetary, etc.) to meet programme delivery and/or policy objectives" (p. 170). Innovation does require financial as well as intellectual resources. In line with this, Cooper and Kleinschmidt (1988) argue that providing access to resources positively impacts employee creativity – when sufficient resources are available, employees are able to concentrate and fully engage with their work. This supports the idea of one of the participants in this study as he said that:

"Leaders in this important sector must ensure that their organisations have the required resources which are needed to make designed jobs done actively and they need to assure all the available resources are accessible when needed, this is essential to support the practices needed for radical innovation in manufacturing organisations".

|Willingness and Flexibility

Willingness and Flexibility are particularly important themes for leaders and organisations aiming to successfully achieve radical innovation (Shin & Perdue, 2022; Büschgens et al., 2013; Lund, 2003).

Managing radical innovation requires a willingness to change and explore new opportunities and to take risks. It also requires flexibility in dealing with mistakes, and acceptance of new ideas (Baković et al., 2013). All of these are essential leadership qualities for managing radical innovation (Hodges, 2016).

An innovative organisation must ensure that it has a flexible structure rather than a rigid one (Belinski et al., 2020; Abderraouf et al., 2017). Moreover, the flexibility of the organisation depends on the willingness and permission of the leader to introduce change (Rampa & Agogué, 2021). One of the participants of the study indicated the importance of Willingness and Flexibility culture in radical innovation as:

"leaders need to pay more attention to facilitating a culture of flexibility and willingness with their employees to try all kinds of different ideas and tolerance to failure and risk-taking and exploring new opportunities, all these dimensions are important here to enhance radical innovation practices in the workplace".

Flexibility is the ability of a company to change its policy, its practices, and its procedures, and to adapt quickly and easily to changing environmental conditions (Torres & Augusto, 2019; Baković et al., 2013).

|Reward and Recognition

This theme indicates the necessity of developing a strategy of reward and recognition. This strategy aligns with the organisation's values and provides

motivation and support to its employees (Day & Shea, 2021; Abderraouf et al., 2017; Colombo et al., 2017). In line with this, the strong relationship between reward and recognition and its importance for employee job satisfaction has also been addressed in various well-known theories from around the world, such as Maslow's Hierarchy of Needs theory (1943, 1954), Herzberg's Two-Factor theory (1959), Alderfer's ERG theory (1972), Vroom's Valence, Instrumentality and Expectancy Theory (1964). These theories deal in detail with the concept of reward and recognition and employee's motivation and job satisfaction. In regard to this, one of the interviewee said:

"For Innovation we have a design space which is through app and it talks about any ideas that we have in organization we literally will poly out into our rap and let people through data tell us whether they like things or don't like thing before we implement them".

Development and Empowerment

Developing and empowering people in the workplace is deemed a vital duty of leaders. This theme relates to this key expected role (Grass et al., 2020; Boutron et al., 2014). It is critical that leaders concentrate their efforts on ensuring that their followers continue to grow and develop (Le et al., 2020). In their studies, Gaspar et al. (2015) and Jo & Park (2016) found that the impact of empowerment can be divided up into enhancing motivation and commitment in terms of psychological empowerment, and bringing real power to employees.

According to Rampa and Agogu   (2021), the resilience of organisations is increasingly dependent on their ability to develop radical innovation capabilities. Examples of development include: providing helpful career advice; informing people about relevant training opportunities; creating assignments that allow learning from experience; providing developmental coaching wherever it is needed; asking a group member to provide instruction to a new member; and arranging practice sessions or simulations to help members improve their skills (Grass et al., 2020; Holzmann & Golan, 2016; Allio, 2012). This linked with an opinion of one of research participants who said that:

"Leadership is not that simple that anyone can be... specially in the time we are living in... this is a hard one where you have to contain your employees and befriend them for the good of the facility... they can improve your productivity... you will have to deal with different personalities... they will be knowledgeable no less that you are... so when you deal with them, you will find out they are very educated, but in moralities"

|Autonomy

This theme relates to the opportunity to take autonomous action and the freedom to make decisions. Job autonomy refers to the degree to which a job gives the worker freedom and independence in scheduling their own work and determining how it will be carried out (Matteson et al., 2021). Autonomy in the workplace helps employees find meaning in their work (Domínguez Escrig et al., 2019).

Autonomy provides a sense of freedom insofar as employees have responsibility to control their results. This gives them more enthusiasm and motivation to complete tasks. Autonomy can lead to employee contentment with their work and a feeling of being free and unbound, which in turn facilitates innovative behaviour (Domínguez Escrig et al., 2019). This reflected the opinion of one of the interviewee who said:

"Autonomy at the workplace can provide a culture to lead to an increase in the motivation levels, creativity, and happiness of employees".

According to Matteson et al. (2021), managers are also realising that supporting autonomy is essential, as reports have shown that it can lead to optimal productivity due to the willingness of employees to perform and complete tasks.

|Cultivating Creativity

This theme is about fostering innovation through the cultivation of creative thinking and problem solving. These incorporate: considering contemplations that serve you; building certainty; creating your enthusiasm; utilizing flexibility to bolster a fruitful imaginative life; managing successfully with the push; developing compassion; exploring connections; fortifying your personality. Similarly, one of the participants mentioned that:

"It involves experimenting with new ideas and finding ideas in other fields that can be applied to the current problem or task, such this behaviour can foster establishing a culture of radical innovation in the workplace".

According to Ballor and Claar (2019), by creating a climate of psychological safety and mutual trust, a leader can encourage members of the team or organisation to put forward novel ideas. Similarly, leaders can also help to create an organisational culture that values creativity and entrepreneurial activities, they can provide opportunities and resources to develop new products or services, and they can serve as champions or sponsors for the acceptance of innovative proposals (Matteson et al., 2021; Martins & Terblanche, 2003).

There are many ways leaders can encourage, nurture, and facilitate creative ideas and innovation in a team or organisation (Crawford, 2014). Other terms that describe aspects of this behaviour include 'intellectual stimulation' and 'encouraging innovative thinking'. Leaders can encourage people to look at problems from different perspectives, to think outside the box when solving problems, to experiment with new ideas, and to extend their frame of reference (Ansari et al., 2016; Migdadi, 2021).

4.2.3 The Location of the Themes on Schein's Model

The presented themes do not exist in isolation, but rather are correlated representations of aspects of existing performance cultures as the participants see them (Schein, 2016). These themes reflect the views of the field study participants and were developed through participatory assessment with the workshop team members. In terms of Schein's model, the themes as facets of the culture for radical innovation are only presented at the level of either noticeable indexes (artefacts) or as sensed values. This is shown below in Figure 18. The primary assumptions are the ultimate source of these artefacts and values (Guldenmund, 2000). Using Schein's model, it is easy to identify the artefacts, but reasonably complex to interpret them. The values may only reflect the rationalisations or aspirations of the group. Thus, grasping a group's culture clearly requires making sense of the group itself, and reaching an understanding of its shared motivational notions and beliefs (Schein 2010).

Themes located on Schein's model

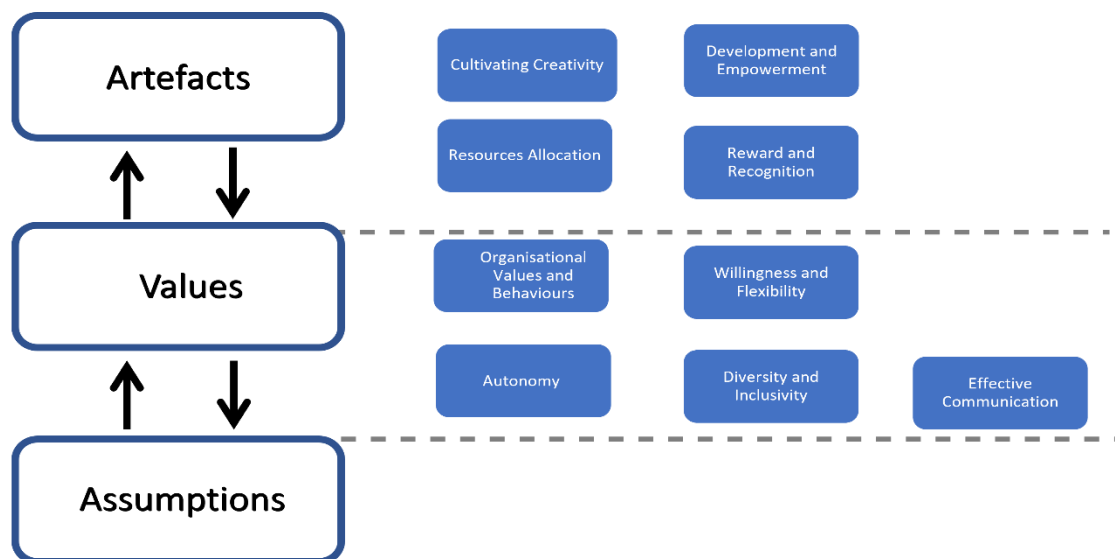


Figure 18 Themes Located On Schein's model

4.2.4 The Proposed Ideal Position of the Themes

The emerged themes were compared with the best-developed practices in the literature review to adopt a proposed ideal position that can be discussed with the research participants to achieve potential interventions which can bridge the gap between the current situation and the potential ideal level of each theme as illustrated in Appendix E.

4.3 Summary

To summarise, the primary philosophical paradigms in social science, as well as the paradigm adopted for this study, social constructivism, have been briefly covered in this chapter. The research design, including sampling, data gathering methods, and data analysis, has also been explained. The aim of this data gathering chapter was to refine the emerged characteristics, aggregate the codes into a smaller number of second-order concepts, and then classify them into categories (main themes). These themes reflected the perspective of the field study participants and were developed through participatory assessment with the workshop team members.

The next chapter presents the findings of this research and a proposed framework to create a culture that can facilitate radical innovation in mature manufacturing firms.

5 FRAMEWORK DEVELOPMENT

5.1 Introduction

This chapter is designed to find appropriate mediations that could promote a culture of radical innovation in MMOs. Hence, workshops with fieldwork participants were conducted to attempt to determine their thoughts on potential interventions that could strengthen the relationship between the discovered themes and the desired framework. To comprehend the relationship between the emerged themes, a regular comparison with the literature and acquired data was carried out (Goulding, 2009; Strauss & Corbin, 2008). Similarly, the constant comparative method was used by the researcher to develop concepts from the data by coding and analysing at the same time (Taylor & Bogdan, 1998). This allowed the researcher to obtain a greater understanding of the potential interventions that would promote the linkage of these themes in order to construct the research framework.

Reviewing the literature in this regard revealed a few mediations applicable to the development of a radical innovation culture in the mature manufacturing sector. These guided the model interventions adopted, the implementation approach, and the predicted impact of transforming the performance improvement culture. In this research, interventions are used to denote precise actions that have or could be applied to a group, with the goal of fostering aspects of a culture of radical innovation in MMOs.

Following the development of these suggested interventions, interventions from the literature were used to produce further ideas for improving the culture of radical innovation in mature manufacturing organisations

The literature was reviewed for interventions made to improve leadership capability and radical innovation in the mature manufacturing sector.

5.1.1 Developing the Interventions

Table 13 shows that some intersecting coherence or overlap of interventions appeared between the intervention outlines derived from the data collected and

those from the literature review. These interventions have been proposed to facilitate a culture of radical innovation in the mature manufacturing organisations sector.

There was a total of eleven interventions that overlapped. These interventions served as the foundation for constructing precise mediations aimed at creating the conditions for a preferred culture in the MMO sector that would improve and increase leadership capabilities to meet the potential challenges found in this sector. Table 13 shows the outcomes and impact of the thirteen interventions recommended by leaders in the mature manufacturing sector to generate the preferred aspects of a culture of radical innovation.

The recommended interventions interact to form a set of ways that can help create a culture that would enable developing leadership performance in MMO organisations, such as interventions that might encourage a ‘do things differently’ approach to problem solving. The most crucial component of the interventions is the selection and development of a leadership initiative in this critical field. The hidden values and beliefs which are being developed and embedded are more essential than the interventions themselves. These underlying beliefs and values can help to make this framework more workable by disseminating the desired behaviours associated with a development culture.

The proposed interventions and their desired results are listed in Table 13.

Table 13 Proposed interventions and their desired impacts

Key Focus	Intervention Actions	Desired Impact
1- Vision-Oriented Innovation	• Identify the innovation values that need to be established and reinforced. • Establish a corporate vision and objectives that stimulate and guide opportunity recognition. • Set and adopt values that inspire innovation, to achieve a bold and inspirational innovation purpose that goes beyond profit and customer. • Create a clear shared vision and values that employees can relate and connect to, which	Vision is a useful device that can direct and structure actions and behaviours when used appropriately (Kotter, 2012). It has the power to inspire people to depict desired objectives and system requirements, both functional and non-functional. In addition, vision could help to allocate resources, to condense information, to jump across the boundaries of segmented scientific disciplines, and to assess technology and radical innovation (Dougherty, 2012; Sagiv & Schwartz, 2022). A corporation with an innovation strategy and where innovation is a component of the vision is more likely to create superior innovation results (Bryman, 1992). Brown & Vergragt (2008) refer to vision as a heuristic device to map a 'possibility space', an instrument for inspiring participators to investigate different problem definitions, to test alternative strategies, and to find shared areas of agreement.

Key Focus	Intervention Actions	Desired Impact
	will inspire them to share ideas and take risks. • Develop appropriate slogans that spur innovation.	Every business should have a clear slogan to explain to employees its aims and objectives, motivate them, and remind them of their working responsibilities (Stokowski, 2002; Abderraouf et al., 2017). This should act internally as advertising acts externally, being easily visible and part of the institution's vision and mission statements, as well as its branding. Familiarity makes it easier to comprehend (Ng et al., 2008).
2- Develop a Diversity Recruiting Strategy	• Recruitment and hiring decisions must derive from the organisation's shared values, beliefs, norms and standards its culture. • Select an inclusive interview team. In selecting an interview team, consider including people who will bring diverse outlooks, and who are respectful of different cultures	Consistency necessitates that a candidate's values align with the culture of organisations whose success is based on a strong set of shared core values (Vaijayanthi & Shreenivasan, 2014). This explains why cultural fit is becoming more crucial in recruitment, and why organisations are resorting to social media profiles to select employees (Calvasina et al., 2014); it ensures that both employers and candidates benefit to the fullest extent possible (Vasavada-Oza & Bhattacharjee, 2016a). By hiring a diverse staff, you will have access to different perspectives that can optimize your team's capacity. The diversity of

Key Focus	Intervention Actions	Desired Impact
	and characteristics. Recognise the potential to bring unintended biases to the process, and address this by having a clear and open discussion among team members before beginning the interview process.	a team (diversity of both experience and education) has a greater effect on its creativity, creating a stronger propensity to adopt risks. Different backgrounds and perspectives lead to different ideas, knowledge, and ways of doing things. The converse is often true as well: team members from the same background may take actions based on a narrow range of experiences. By ensuring that your team includes staff from various social and cultural backgrounds, you will widen the range of perspectives, knowledge, and approaches from which decisions are made. Ancona & Caldwell (1992) emphasise the possibility of accessing a range of experience that would not be available if all the team members belonged to the same functional area of the organisation. In general, teams with diverse backgrounds, training and perspectives are more likely to generate new ways of solving problems, and to successfully develop creative ideas, than more homogeneous teams (Jackson, 1992; Thompson, 2003). Moreover, by building a reputation for valuing differences, companies can attract talented employees who will know that the business will appreciate and utilise the skills, backgrounds, perceptions, and knowledge which they bring to the table

Key Focus	Intervention Actions	Desired Impact
		(Vasavada-Oza & Bhattacharjee, 2016b). This leads to greater commitment and higher productivity.
3- Employee Involvement	• Create cross-functional teams and foster an interaction environment between groups. • Allow debate in decision making. • Allow employees to make recommendations in the rewarding and recognition process.	Allowing employees to offer recommendations, according to Safaruddin et al. (2020) and Iberahim et al. (2016), can boost motivation by giving them ownership and making them feel valuable to the organisation.
4- Encourage Open Conversations and Networks	• Establish and support versatile, formal/informal communication channels for open communication. • Have multiple channels for communication internally.	Open communication between employees, management, and different departments as a determinant of organisational culture that would support creativity and innovation is supported by authors like Filipczak (1997, p. 36), Lock and Kirkpatrick (1995, p. 20), and Shattow (1996, p. 47). Bresnahan (1997) emphasises the role of management by pointing out that “open doors” foster innovation (p.

Key Focus	Intervention Actions	Desired Impact
	• Support open discussion sessions. • Establish channels through which teams can have open conversations without any judgment, conduct retrospective meetings with the team, and encourage open communication. • Provide a safe space for the team to vent out. This helps to build team morale.	52). Ahmed (1998, p. 36) makes the point that face-to-face communication promotes innovation. Informal communication is effective because it strengthens social bonds among employees and makes interactions more personal by encouraging face-to-face interactions (Altinoz, 2009). According to Chow et al. (2000), modern informal communication in business has eliminated inconsistencies due to improved feedback between superiors and subordinates; they also claim that informal communication is pressure-free, especially when employees are dealing with clients who require the immediate resolution of complex issues (Martins & Terblanche, 2003). Informally discussing and solving problems with management and employees is one of the best uses for informal communication, especially when more complex jobs require rapid responses. Problems can be discussed and solved informally to ensure a smooth running firm (Smith, 2005).
5- Employee Satisfaction	• Evaluate and measure employee satisfaction.	Organisations conduct biannual or yearly employee engagement surveys. They put questions up in categories like teamwork, feedback, information, work–life balance, work relationships, self-

Key Focus	Intervention Actions	Desired Impact
	• Conduct yearly employee engagement surveys, including questions in categories such as teamwork, feedback, work relationships, self-evaluation. • Use one-on-one reviews to learn about employee dissatisfaction and its characteristics. This would allow the employees to talk about their discontentment, aspirations, and goals.	evaluation, and so on (Frankel et al., 2007). This is an excellent practice unless it becomes monotonous or complacent. Since work culture differs from one organisation to another, surveys can be designed accordingly. Another useful evaluation practice is one-on-one reviews. These could be very effective to learning about employee dissatisfaction and its causes (Chong et al., 2018). Management can see from this if employees are satisfied with their jobs (Yee et al., 2014). It would allow employees to talk about their discontents, aspirations, and goals. This would foster satisfaction and engagement regarding what employees expect from the organisation (Aranki et al., 2019; Lu & Chen, 2010).
6- Knowledge hub/ Knowledge gathering and sharing system	• Identify four major mechanisms for individuals to share their knowledge in organisations: (i) contribution of knowledge to organisational databases; (ii) sharing	Knowledge management activities impact on innovation and organisational performance directly, and also indirectly through an increase in innovation capability (Mardani et al., 2018). It has been found that knowledge creation, knowledge integration, and knowledge application facilitate innovation and performance. Knowledge creation has a more significant effect on innovation

Key Focus	Intervention Actions	Desired Impact
	knowledge in formal interactions within or across teams or work units; (iii) sharing knowledge in informal interactions among individuals; (iv) sharing knowledge within communities of practice, which are voluntary forums of employees around a topic of interest.	speed, innovation quality, and innovation quantity, whereas knowledge creation and knowledge integration have a more significant effect on performance (Mardani et al., 2018). Organisations must recognise that knowledge creation and recombination is inherently a social process, requiring that individuals share their knowledge at various levels of the organisational hierarchy, and to this end, they should attempt to convert tacit knowledge into explicit knowledge (Nonaka & von Krogh, 2009; Polanyi, 1958). Essential methods for innovation includes the knowledge-sharing procedure. The practice of sharing knowledge improves the ability of individuals to hasten adaptation to change and the growth of innovation (Areed et al., 2021). Moreover, when organisational members endorse information flow among themselves, this triggers new interpretations and fosters novelty.
7- Build employees' innovation capability	• Focus on training	Training and education motivate people and make them more confident and innovative (Ansari et al., 2016; Rampa & Agogu�, 2016).

Key Focus	Intervention Actions	Desired Impact
	- Plan for employee development, and schedule up-to-date training on a regular basis, according on their needs. - Invest in skills coaching to improve employees' skills in critical thinking and problem solving.	2021). Help for employees to develop their skillset is also a marker of employee satisfaction. When you give your employees room for developing their skills, it boosts their job satisfaction and increases work efficiency (Rampa & Agogu��, 2021). This also signifies that, alongside your organisational growth, you care about their career development. This intervention is necessary in order to enable employees to do their work properly and confidently. This confidence then helps them see opportunities for innovation (Jo & Park, 2016). Training, when positioned as a frequent and important activity within an organisation, puts the organisation a step ahead of its competitors, as it provides its employees with up-to-date knowledge which can motivate them to accelerate the success of innovation (Ansari et al., 2016; Rampa & Agogu��, 2021).
8- Empowerment	Give individuals the authority, initiative, and ability to manage their own work.	Empowerment enables individuals to have the authority, initiative, and ability to manage their own work, which creates a sense of ownership and responsibility toward the organisation (Denison, 1996). An empowered workforce leads to higher quality products

Key Focus	Intervention Actions	Desired Impact
		and services, less absenteeism, lower turnover, better decision making, and better problem solving, which in turn result in greater organisational effectiveness, including in relation to innovation (Dennison, 1984). There is, therefore, a significant correlation between empowerment and innovation (Grass et al., 2020; Jo & Park, 2016).
9- Reward and recognition of innovation effort and behaviour	• Design and implement a reward system which encourages innovation behaviours • Recognise innovative effort; recognition may involve thanking. • Implement team-based rewards for innovation projects, achievement and success.	The objective of this intervention is to reinforce innovation values, which need to be maintained and supported in order to keep the spirit of innovation flourishing (Dougherty, 2012). Rewarding employees who uphold these values is important, as they will be more loyal and have more respect for the organisation, thereby embedding innovation values in the organisational culture (Colombo et al., 2017; Damanpour & Aravind, 2012). The organisation must first identify these values and design a reward system which fits their employees and encourages them to comply with the stated values. Expectancy theory suggests that people are motivated to perform better when they perceive a clear link between their efforts and rewards (Baron & Byrne, 1997). Lawler and Rhodes (1976) note that

Key Focus	Intervention Actions	Desired Impact
	• Personalise rewards and recognition to the individual or team involved. • Avoid competitions and grand prizes; instead, seek to reward all legitimate innovations and attempts. • Develop an integrated reward system focused on stimulating the identified innovation values. • Revise recognition and reward programmes to incorporate non-monetary incentives, and to ensure that they are relevant to the expectations of employees.	because output-based rewards (incentives) are objective, they are more effective in fostering the behaviours required for achieving set goals. Laursen (2002) and Laursen and Foss (2003) have also demonstrated empirically the positive impact on innovation of rewards based on individual and team performance. Team-based rewards can foster cooperation among team members, and also, the individuals involved are likely to consider their knowledge-sharing behaviours as instrumental in achieving the team-based rewards (Şimşit et al., 2014). When rewards appeal to an individual's intrinsic motivation and values, motivation is more easily maintained and increased (Cameron & Green, 2015).

Key Focus	Intervention Actions	Desired Impact
10- Resources for innovation initiatives	• Adopt a resource acquisition strategy. • Develop funding, time, space and technologies.	It is vital for innovation that organisations provide open access to information and resources, and equal opportunities for all employees (Bessant et al., 2014; Leifer et al., 2000; Zaefarian et al., 2011; Jiang et al., 2018; O'Connor & Euchner, 2017a).
11- Focus on relationships	• Establish social activities. • Create a sense of community. • Offer emotional support. • Handle conflict.	Promote organisational warmth by providing employees with opportunities to socialize and relax (Cuadra-Peralta et al., 2017). Healthy interpersonal relationships in the workplace are instrumental in enhancing employee engagement. Individuals relating positively to their colleagues tend to be more engaged and satisfied than others (Falkenburg & Schyns, 2007), because humans are innately social beings, craving comradeship and positive interactions with their neighbours (Biggio & Cortese, 2013). The better the interactions, the happier people become. This often has important benefits as far as the workplace is concerned: work becomes more enjoyable and individuals become more productive, receptive to change and innovative (Falkenburg & Schyns, 2007). Positive informal social interactions should be targeted at work (Morrison,

Key Focus	Intervention Actions	Desired Impact
		2004), and can be achieved by strengthening social skills, setting aside time for relationships, and boosting emotional intelligence.
12- Tolerance towards failure & Risk taking	• Creating a learning-from-failure culture through the analysis of previous failed innovation projects. • Reward and recognise 'failed' attempts at innovation where you can celebrate learning.	Management should create values that support risk taking, and should demonstrate through their actions that risk taking and experimenting are acceptable behaviours (Arad, Hanson & Schneider, 1997, p. 48; Khalil, 1996, p. 35; Robbins, 1996, p. 736). At the same time, it is important that risk taking should be calculated and balanced, to allow employees freedom in taking risks, but also to increase the possibility of success by creating a culture that allows for moderate risk taking. Management should realise that innovative employees are largely motivated by the possibility of success rather than by the results of success (Aber, 1996, p. 5; Frohman & Pascarella, 1990, p. 22). Organisations that are willing to experiment are quick to take advantage of opportunities and complete balanced risk assessments (Gomez & Bernet, 2019). Furthermore, innovative leaders are open to new ideas and emotionally supportive of risk takers (Colombo et al., 2017). Failure is viewed as a learning

Key Focus	Intervention Actions	Desired Impact
		process rather than something to chastise, and the only true failure is the failure to learn. Tips for creating a culture where risk taking is acceptable include sharing widely how the organisation has taken reasonable risks on innovative ideas in the past, and establishing a process to publicise and learn from ideas that ‘fail’ (Bruneel et al., 2012).
13- Organisational mechanisms for ideas generation	• Create and sustain strategic momentum for radical innovation. • Proactively implement organisational mechanisms for getting radical innovation out of the lab and into commercialisation projects. • Develop a receiving capacity for radical ideas, so that creative people have a place to go with their ideas.	The desire to export ideas can generate numerous benefits for business organisations: increased competitiveness and productivity, quality improvement, business growth, and greater access to new markets. Exporting firms have been found to be more innovative than others (Salomon & Shaver, 2005; Salomon & Jin, 2008), but their status depends on developing a unique enabling culture (Jasimuddin & Zhang, 2013), which is vital for minimising resistance to the sharing of ideas and knowledge.

Finally, Table 14 below displays the interventions that were chosen in relation to the themes that emerged in this project.

Table 14 chosen interventions linked with the emerged themes.

Interventions	Main Theme
1- Innovation Vision Oriented	• Organisational Values and Behaviours • Cultivating Creativity
2- Develop a Diversity Recruiting Strategy	• Diversity and Inclusivity • Effective Communication and Collaboration
3- Employee Involvement	• Diversity and Inclusivity • Development and Empowerment
4-Encourage Open Conversations and Networks	• Effective Communication and Collaboration • Organisational Values and Behaviours
5- Employee Satisfaction	• Organisational Values and Behaviours • Development and Empowerment • Cultivating Creativity • Autonomy
6- Knowledge hub/Knowledge gathering and sharing system	• Effective Communication and Collaboration • Willingness and Flexibility • Resources Allocation

Interventions	Main Theme
7- Build employees` innovation capability	• Development and Empowerment • Cultivating Creativity
8- Empowerment	• Development and Empowerment • Autonomy
9- Reward and recognition of innovation effort and behaviour	• Reward and Recognition
10- Resources for innovation initiatives	• Resources Allocation • Cultivating Creativity
11- Focus on relationships	• Organisational Values and Behaviours • Diversity and Inclusivity
12- Tolerance towards failure & Risk taking	• Willingness and Flexibility • Organisational Values and Behaviours
13- Organisational mechanisms for ideas generation	• Resource Allocation • Cultivating Creativity

Using Schein's model of culture as a guide, the interventions that influence the behaviours and can lead to the adoption of values and underlying beliefs, the 'way things are done', can be changed to behaviours that are in line with a performance improvement culture. A sequence of interventions to foster change rather than a process of diffusion from one type to another is suggested as a technique for moving towards a radical innovation culture. Transitioning between types is feasible, by embedding new values and underlying assumptions through

the deployment of artefact examples for the group, if these interventions are regarded as acts taken at the artefact and value level in Schein's model of culture.

As the value relating to the artefact created by the intervention is developed, it, in turn, leads to a behaviour, and as that behaviour begins to solve the problem which drives it, the value is slowly changed into an underlying assumption about how things really are. As the assumption is increasingly taken for granted, it drops out of awareness, thus creating a shift in the organisational culture. This shift facilitates the transition towards a type of radical innovation culture within the organisation.

Top management can incorporate this trend into the business strategy in such a way that it becomes an integral part of the day-to-day activities of the business (Kotter, 1995). Only if there is visible support and encouragement for the type of behaviour in question can this be accomplished (Katan, 2014). This in line with Goldberg et al. (1992), who suggested that change comes more readily to the organisation that has:

- A clear mission and strategy that guides and informs the goals of teams and individuals.
- Supportive leaders at every level who effectively engage, motivate, and communicate with their teams.
- Employees who are engaged, informed, and involved.

Similarly, efforts can and should be made at both the individual and organisational levels to effectively understand and support leadership development in areas where a gap or limitation has been recognised (C.Leadership, 2010; Cummings & Huse, 1989). Furthermore, according to Goldberg et al. (1992), "a transition is significantly more likely to succeed when the leadership style, work climate, and environment are already amenable to change" (p. 125).

5.2 Expert Judgment Validation

The last task of this research was to validate the developed framework via expert evaluations. According to Noble and Smith (2015), assessing the quality of

research is necessary if the findings are to be used in practice and incorporated into service delivery. Therefore, the proposed framework was discussed with selected academics and experts. This procedure was designed to assist the researcher in obtaining potentially useful feedback and opinions in order to increase the credibility and dependability of the research findings (Anderson, 2010).

The developed framework of this study was shared with various experts as set out in the following section.

5.2.1 Expert 1

The first expert was an Academic Programme Director and Professor of Strategy & Innovation. He has published in several leading academic journals including the Academy of Management Journal, the Academy of Management Review, the Strategic Management Journal, Organisation Science, the Journal of Management Studies, Strategic Organisation, Research Policy, Industrial and Corporate Change, and Organisation Studies. He serves on the editorial boards of the Academy of Management Review, Organisation Science, the Journal of Management Studies, and Organisation Studies, and is a high-performing member of the Erasmus Research Institute of Management (ERIM) at Erasmus University in Rotterdam, the Netherlands. He is also a consultant at Thinfilms Inc., a New Jersey firm providing thin film services (in particular coating services) to over 150 corporations in the hybrid microelectronics, semiconductor, optical, medical, and sensor industries.

The researcher met Expert 1 through a virtual meeting during a special training course for "Managing Innovation Strategically" held recently at the University of Cambridge.

After that course, a copy of the developed framework was sent to the expert to request his feedback. His feedback was received with a short comment. His statement was:

"it looks like a promising framework".

5.2.2 Expert 2

The second expert who participated in the judgment was a consultant from one of the leading consultancy firms in Australia. The researcher had a virtual meeting with the expert. During this meeting, a brief of the project was given to him. He was given a copy of the framework with details, to seek his evaluation, and he participated in several exchanges with the researcher. After a week, his feedback was collected, which included the following statement:

"The topic is great and is the need of the hour, especially in Saudi Arabia, where radical innovation culture in manufacturing is needed, according to Monshaat (the General Authority for Small and Medium Enterprises in Saudi Arabia), 1.5% of the SMEs are responsible for 40-50% of the jobs. Enhancing leadership practices to enhance innovation would significantly contribute to the Saudi economy".

5.2.3 Expert 3

The third expert involved in this judgment stage is a consultant in leadership, change & coaching and held a Hogan Assessments certified. He also has worked in several mature manufacturing organisations, and the healthcare sector in the United Kingdom. The framework was shared with him and a call conversation was conducted to discuss the project's details. The feedback given here, was worthwhile which included a number of suggestions that can support the framework implementation. For instance, he pointed out:

- Collaborative, visible tools like 'Hoshin Kanri Matrix' to establish clear line of sight between vision and strategy which will drive innovation behaviour.
- Develop a program to inclusively integrate diverse hires of the existing diverse workforce into the organisation? Retention of diversity is a key leadership skill.
 - Venting problems does not build team morale. It may actually do the opposite.
 - The employee satisfaction survey is only a tool. Leadership is learning from those surveys and making demonstrable change. The intervention needs to be a leadership roadmap to create change.

- Could do with an intervention on social motivation to share in order to convert tacit knowledge into explicit knowledge. Usually linked to performance management to drive the right behaviours.
- Needs an intervention to address the blame culture.

5.2.4 Expert 4

The developed framework of this project was shared with an academic expert. He currently is working in a number of the key universities in Riyadh city, the capital of Saudi Arabia. His background is in various areas of management field such as leadership, strategic management and planning, change management, business administration, and performance improvement projects. His feedback was:

"The developed framework obviously given it lots of thought and, it looks like a very helpful framework. This study may provide a piece of further knowledge to the literature which investigates the impact of leadership practices and cultural aspects on the enhancement the radical innovation in MMO". He also suggested that "it would be a good idea to think further about how this framework can be implemented in the future, and also design a tool helping to measure if the desired effect of the suggested interventions has been achieved".

5.3 Summary

The work represented in this chapter aimed to find the relevant mediators that could promote a radical innovation culture. In this chapter, the suggested interventions for creating a culture of radical innovation have been examined, as well as how the desired effect might be achieved. In addition, the chapter has discussed the validation of the judgments by experts. The findings of this study are presented in the following chapter, along with a further discussion of the findings in the literature.

6 DISCUSSION

6.1 Introduction

The findings are discussed in this chapter. In the previous five chapters, the context of the study has been described, the relevant literature reviewed in order to provide a background and rationale for the study, and the conceptual and methodological frameworks of the study and the research findings have been presented. This chapter is divided into three sections, each of which presents the findings from one of the research questions.

A case study approach was chosen to conduct this exploratory study. According to Yin (2013), a “distinctive need for case study research arises out of the desire to understand complex social phenomena” (p. 14).

The chosen interpretative paradigm was effective in this study because it allowed the researcher to investigate, explain, and describe ‘what is going on’ based primarily on people's perceptions and meanings, and also to create a theory based on the data gathered (Corbin & Strauss, 1994). Consequently, this study took a constructive–interpretive philosophical approach to answer its questions and achieve the research goals, employing a qualitative strategy. In order to acquire insight into the characteristics that dominate field study techniques, qualitative analysis was used in this study. Qualitative methods can be more beneficial for identifying and characterising actual phenomena.

6.2 Discussion of Research Results

This section provides the discussion of the findings of this research. This research was intended to study social phenomena that would help to reveal something about the impact of leadership practices and organisational culture and how they may facilitate a culture of radical innovation in mature manufacturing organisations. The research questions were as follows;

Firstly, what are the critical success factors of leadership that can create a culture that enhances radical innovation in mature manufacturing organisations?

Secondly, how can these factors be applied successfully in mature manufacturing organisations?

However, reviewing the related literature showed that there was a need for research investigating the impact of leadership practices and organisational culture on organisations' productivity in the mature manufacturing sector (Kristiansen & Ritala, 2018; O'Connor & Euchner, 2017a).

The rest of this section is subdivided into two. The first of these sections highlights the key influences aspects that emerged from the initial stage of this study. The second presents the findings of the research, focusing on the nine main themes that emerged from the study, and also discusses the potential effects of the suggested interventions.

6.2.1 The Influences Aspects

An initial stage of the project was to identify participants' perceptions in terms of the enablers and inhibitors of radical innovation culture in mature manufacturing firms. However, as discussed earlier in Chapter 2, a number of authors have argued that it is essential to investigate and understand the current assumptions that affect the organisation artefacts level, shaping its values and dominating current practice. This was a pivotal step for this study before the proposal of any solutions (Schein, 2010; Cummings & Huse, 1989). Hence, pilot interviews were conducted to identify factors that relate to the level of performance, including enablers and inhibitors of performance improvement. This helped the author to build an initial understanding of the context of the project, and to address the critical factors that may influence leadership performance and organisational culture in mature manufacturing organisations. The main question in this initial study sought to determine the factors that promote and inhibit radical innovation culture.

Seventy-one open codes emerged from the data, as shown in Table 8. The author compared these emerged aspects with the related areas in the literature to find any a potential gap in the knowledge, as explained in Section 4.1.1.1. The interviewees indicated that these aspects influence the behaviours of leaders in

the mature manufacturing organisations. They play a fundamental role in inhibiting and encouraging the development of a culture of radical innovation in the MMOs in question.

Significantly, cultural aspects were found to play a key role in the situation. As mentioned in the literature review (Chapter 2), culture is a pattern of underlying assumptions that have been cultivated, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration (Schein 2004).

According to the research participants, both the positive and negative behaviours of leaders and executives in top management affect the performance of employees and shape organisational culture. In general, the results did not show any differences between leaders and followers in this regard, which is in line with the findings of Schein (2010), who argued that culture in general is created by shared experience in organisations, and that leaders initiate this process by acting according to their beliefs and values. Similarly, Gulosino et al. (2016) proposed that the cultural characteristics valued by leaders and managers will be associated with specific organisational outcomes.

Taken together, these results suggest that there is an association between the findings of this study and the existing research on leader efficiency and innovation. The studies of Abderraouf et al. (2017) and Domínguez Escrig et al. (2019) discuss the role of organisational context and climate on leadership practices. They also argue that a well-designed organisational context can moderate the style of leadership behaviours.

In other work, both Nabil et al. (2017) and Northouse (2021) argued that in order to develop a creative environment, organisations must have a flexible style of structure. This helps to create a culture that can facilitate radical innovation. In line with this, Valencia and Valle (2017a) suggested that organisational culture is a key factor for firm innovation, and can work to advance it, but is also likely to represent an obstacle getting in the way of innovation practices. This is consistent with Kanter (1988), who characterises culture as liable to have a considerable influence on the propensity of an organisation to be able to deal with innovation

challenges. This point of view is supported by the study of Vecchio (2007), who stated that culture can determine whether or not an organisation is able to survive under changing conditions. This is also consistent with the position of Franco et al. (2002), who argued that cultural characteristics can influence the decision-making processes within organisations.

This result overlaps with Sanghi's view (2016) that organisations need to establish and foster a suitable culture to allow them to build strong working relationships in the workplace. This can be achieved through processes such as working closely within and between teams, and ensuring that individual needs are considered, issues are addressed, and situations are managed in a collaborative, consultative, creative, and flexible manner (O'Connor & Euchner, 2017b; Sanghi, 2016; Willcocks & Wibberley, 2015). These results are consistent with those of Farson and Keyes (2002) and Zentner (2016), who argued that leadership practices and cultural aspects "have a key influence on innovation. It has also been argued that leadership style plays an essential role in fostering innovation (Lei et al., 2020).

A common view amongst the interviewees was that factors such as tolerance towards failure and risk-taking in the workplace, as well as a lack of financial rewards, were the dominant that most affect leaders' decisions. They also determine leaders' relations with subordinates and hence the latter's commitment to the organisation. This finding is similar to that of previous studies which have suggested that leadership can improve innovation where there is a leader who can motivate employees to take the initiative, and calm their fears about making mistakes (Burawat, 2019; Abderraouf et al., 2017). Other studies have suggested that rewarding entrepreneurship and innovativeness, facilitating risk taking, and showing a tolerance towards failure encourages idea submission and creates an environment of formal and informal interdependence and communication which can lead to successful innovation (De Brentani & Kleinschmidt, 2004; Colombo et al., 2017).

Furthermore, setting a good example as a leader is one of the influential aspects that came out in the study findings. This supports the previous work of Sanghi

(2016) and Cairns (2005), who argued that leaders must set a good example by personally modelling desired behaviour and establishing norms for group behaviour. Similarly, Allen (2003) makes the point that if leaders present themselves as good examples, this ultimately creates good followers within the workplace.

The findings of this study also indicate the positive impact of openness and honesty in leadership on the organisational workplace environment. The research participants, overall, believed that emotional intelligence, such as 'being human', having honesty, and showing initiative are essential. This result is linked with the study of Bennis and Nanus (2003), who emphasise the importance of these factors in relation to the functional leadership model.

One of the most interesting findings of the study suggests that diversity in ethnicity and age among team members can play a key role in job satisfaction and commitment. These results match those observed in earlier studies by Mohammadi et al. (2017) and Bassett-Jones (2005), who stress that diversity combined with an understanding of individual strengths and weaknesses, and working relationships that are founded upon sensitivity and trust, have been shown to enhance creativity and problem-solving capability (Hennessey & Amabile, 1998). In addition, the ethnic diversity of team members appeared as a key driver of innovation and creativity. According to the study participants,

"leaders are recognising that a diverse range of ethnicity, perspectives, and backgrounds in a workforce is crucial to innovation and the development of new ideas".

This study also suggests that organisations in the mature manufacturing sector could benefit by giving more attention to these aspects in the future. The importance of personalising the work environment is another finding revealed by this study; this shows how relations between leaders and their employees can be affected negatively as a result of a poor decision on the part of a leader that affects subordinates.

6.2.2 The Dimensions of the Proposed Framework Component

The present study suggested a framework to facilitate a culture of radical innovation in the mature manufacturing organisations. This framework was developed based on the main themes that emerged from the study. To gain a deeper understanding of the practices that these organisations most need to adopt, this research turned directly to the people who work in the sector. Out of this, the study produced nine dimensions, identified by the participants, that were used to build the main emerged themes of the proposed framework. These themes were developed in a participative workshop with the research participants as explained in section 4.2.2. These essential themes illustrate the various functions that play a main role in enabling leaders in this sector to implement change processes within workplace. These emerged themes were discussed in Chapter 4 (section 4.2.2).

This study produced results which corroborate the findings of a great deal of the previous work in this field. Firstly, the findings of this study indicate the importance of clarity in the expression of an organisation's strategy, as a way of creating a shared understanding of the organisation's core values among its employees. The findings observed in this study mirror those of previous work that has examined the effect of setting and adopting values that inspire innovation, and of having a bold and inspirational innovation purpose that goes beyond profit and customers (Belinski et al., 2020; Dougherty, 2012; Sagiv & Schwartz, 2022). This in turn reflects the idea of Abderraouf et al. (2017), that setting a shared clear vision and espousing values that employees can relate and connect to will inspire them to share ideas and take risks. Similarly, the present findings seem to be consistent with other research which found that a company which has a strategy for innovation, and where innovation is part of the overall vision, is likely to display a better innovation performance (Alves et al., 2018; Dougherty, 2012; Sagiv & Schwartz, 2022). In line with this, a previous studies by Oreg & Berson, (2019) and Schwartz (2012) indicated that values have a key motivational power, in that they can provide direction and emotional intensity for actions, and they are open to being acquired through socialization, either in the context of dominant group values, or through individual learning.

The findings of the current study are consistent with those of Vaijayanthi and Shreenivasan (2014) and Pavlovic & Zdravkovic (2019) who stress that every business should have a clear slogan to set out for employees of its aims and objectives, motivate them, and remind them of their daily working responsibilities. This finding also relates to the work of Vasavada-Oza and Bhattacharjee (2016a), which showed that recruitment and hiring decisions must reflect an organisation's shared values, beliefs, norms, and standards, to ensure the maximum benefit for both employers and candidates. The present findings seem to be consistent, too, with other research which suggests that motivation can be increased by allowing employees to make recommendations, as this gives them a sense of ownership. It may also make them feel that they are of value to the organisation, and this can encourage their further involvement (Safaruddin et al., 2020; Oreg & Berson, (2019); berahim et al. 2016).

One of the most significant findings drawn from the study as one of the participants mentioned is that:

"to confirm that having various channels for communication internally can facilitate open conversations and networks in the workplace".

This result relates to the work of Saputra (2021), Filipczak (1997, p. 36), Syakur et al., (2020), and Alves et al., (2018) who suggest that open communication between employees, management, and different departments is a determinant of organisational culture in relation to supporting creativity and innovation. Another interesting finding supports previous research in the area of work psychology which suggests that interventions such as supporting open discussion sessions, establishing channels through which teams can have open conversations without any judgment, conducting retrospective meetings with the team, and encouraging open communication can all foster and promote innovation culture (Do & Mai, 2020; Ahmed 1998, p. 36).

Significantly, the results of this study agree with the findings of other studies in relation to the best tools for evaluating and measuring employee satisfaction. One of these evaluation practices is one-on-one reviews. These can be very effective for learning about employee dissatisfaction and the reasons behind it (Chong et

al., 2018); management can see if their employees are satisfied with their jobs (Yee et al., 2014); and the process can enable employees to talk about any discontentment, their aspirations, and their goals. Such reviews, then, could help foster satisfaction and enable a culture of engagement within the workplace in this sector (Pavlovic & Zdravkovic 2019; Aranki et al., 2019; Lu & Chen, 2010).

Another remarkable finding from this study is that as one of the interviewee said:

"different factors such as knowledge creation, knowledge integration, and knowledge application can all benefit and facilitate innovation and performance". This result links to previous study emphasising that knowledge creation has a more significant effect on innovation speed, innovation quality, and innovation quantity, whereas knowledge creation and knowledge integration have a more significant effect on performance (Mardani et al., 2018). Similarly, firms in this sector need to recognise that knowledge creation and recombination is inherently a social process, which requires individuals to share their knowledge at all levels of the organisational hierarchy and, to this end, to convert tacit knowledge into explicit knowledge (Mardani et al., 2018; Nonaka & von Krogh, 2009).

Importantly, the findings of this study pointed to the key role of training and development programs in enabling a culture of radical innovation in the workplace and building employees' innovation capability. The findings of other studies support this idea. Training and providing education opportunities can motivate people and make them more confident and innovative (Ansari et al., 2016; Rampa & Agogu , 2021). It can help employees to develop their skillset, which is one of the main attributes of employee satisfaction. It can also enable them to do their work properly and more confidently (Abderraouf et al., 2017). Such confidence then allows them, in turn, to see opportunities for innovation (Jo & Park, 2016). Furthermore, previous studies have suggested that training, when positioned as a frequent and important activity in an organisation, puts the organisation a step ahead of its competitors, as it provides its employees with up-to-date knowledge which can motivate them to accelerate the success of innovation (Ansari et al., 2016; Rampa & Agogu , 2021).

This finding corroborates the ideas of Rampa and Agogu   (2021), who suggested that training for creativity and innovation has a significant influence on developing individual creative skills for exploration, catalysing and facilitating collective action through common methods and a shared sense of what innovation entails, and assisting in the creation of a common language among the various groups or divisions of an organisation for talking about innovation exploration.

This study reinforces the idea that rewarding and recognising innovation effort and behaviour can facilitate a culture of radical innovation. The participants in this study suggested that:

"this could be achieved by developing an integrated reward system targeted towards stimulating the identified innovation values".

The findings observed here mirror those of previous studies that have examined the positive impact of designing and implementing a reward system that encourages innovation behaviours in the workplace. For instance, rewarding employees who uphold these values is important, as they will be more loyal and have more respect for the organisation, and this can then help embed innovation values in the organisational culture (Colombo et al., 2017; Thneibat, 2021; Damanpour & Aravind, 2012). In line with this, Alblooshi et al., 2020 and Dougherty (2012) argues that the objective of this intervention is to reinforce innovation values that need to be maintained and supported in order to keep the spirit of innovation alive and flourishing.

Another interesting point from this study is the idea that empowering individuals with the authority, initiative, and scope to manage their own work can foster a culture of radical innovation in MMOs. According to the participants of the study, "this can positively impact on employee participation, productivity, satisfaction, and commitment".

The present findings seem to be consistent with other research which found that this kind of empowerment of employees creates a sense of ownership and responsibility toward the organisation (Jo & Park, 2016; Hodges, 2016; Denison, 1996). Similarly, the results seen in an empowered workforce include higher

quality products and services, less absenteeism, lower turnover, better decision making, and better problem solving. These factors, in turn, result in greater organisational effectiveness, including in relation to innovation (Grass et al., 2020; Kotter, 2012; Dennison, 1984). Thus, there is a significant correlation between empowerment and innovation (Grass et al., 2020; Jo & Park, 2016).

From the perspective of resource allocation, this study suggests that designing a resource acquisition strategy is essential for providing sustainable resources for innovation, initiatives, funding, time, space, and technologies. This finding broadly supports the work of previous studies which have shown that organisations should offer open access to information, resources, and equal opportunities for all their employees (Hervas-Oliver et al., 2014; Jiang et al., 2018; O'Connor & Euchner, 2017a). These are fundamental factors in supporting radical innovation in this important sector. In accordance with the present results, previous studies have demonstrated that leaders of MMOs need to provide such access in order to enhance the culture of radical innovation in this sector (Bessant et al., 2014; Leifer et al., 2000; Zaefarian et al., 2011; Jiang et al., 2018; O'Connor & Euchner, 2017a).

This study reinforces the key role of building up and focusing on relations within the workplace as one of the interviewee said:

"This can include establishing social activities, fostering a sense of community, providing emotional support, and dealing with conflict".

Various previous studies have investigated the impact of workplace relations on organisational values and behaviours. For instance, Cuadra-Peralta et al. (2017) suggested that promoting organisational warmth can be achieved by providing employees with opportunities to socialise and relax. Similarly, building healthy interpersonal relationships in the workplace is instrumental in enhancing employee engagement (Elo et al., 2014; Brown & Vergragt, 2017). In addition, individuals who relate positively to their colleagues tend to be more engaged and satisfied than others (Falkenburg & Schyns, 2007), because humans are innately social beings (Biggio & Cortese, 2013).

This study produced similar findings to that of Gomez and Bernet (2019), who claim that the most innovative organisations are willing to experiment and are quick to take advantage of opportunities and complete balanced risk assessments. Similarly, another study suggests that innovative leaders are those who are open to new ideas and emotionally supportive of risk takers (Colombo et al., 2017). Thus, the study suggests that as one of the participants said:

"tolerance towards failure and risk-taking can enhance employee willingness and flexibility, and can ultimately create the organisational values and behaviours required to encourage a culture of radical innovation in this vital sector".

Significantly, diversity and Inclusivity was one of the main themes that was found in this study to enhance radical innovation in this sector. This finding again supports the work of Gomez and Bernet (2019), who note that inclusiveness and diversity in the workplace make employees feel accepted, valued, and respected by the company in which they work. This in turn makes them more confident and happier in their work (Mohammadi et al., 2017a). Thus, this finding emphasised that diversity can help organisations both reduce conflicts, and increase innovation. This also reflects the findings of Nielsen et al. (2018) about the important influence of increasing workplace diversity on facilitating innovation practices. According to Mohammadi et al. (2017a), "the literature on firm innovation has paid limited attention to workforce diversity perspectives, focusing instead on investment decisions, innovation strategies, and external networks" (p. 407). This reflects the emergence of diversity and inclusivity in this study as a key theme in the enhancement of radical innovation in MMOs.

This chapter has discussed all the findings of this research and the various dimensions of the proposed framework.

7 CONCLUSION, SUMMARY, CONTRIBUTION, LIMITATIONS, AND FURTHER RESEARCH

7.1 Introduction

This chapter consolidates the background, contents, and contributions of this study. The first part offers an introduction to this research, a description of how the research was conducted, and an explanation of the methodology and findings of the study. The second part summarises the findings. The third section describes the academic and practitioner contributions, followed by the research limitations, and suggestions for further studies.

7.2 Background of the Research

The main purpose of this study was to develop an understanding of the status of current leadership practices in mature manufacturing organisations, in order to develop a framework to facilitate a culture of radical innovation in this sector.

This research has been conducted in a number of the largest mature manufacturing organisations in the UK. The researcher intensively studied the nature of leadership practices and organisational culture and their impact on radical innovation in the selected organisations by collecting data from different sources and various contributors from different levels of leadership. This study was exploratory and interpretative in nature.

An interpretivist approach was adopted in this study, because this allowed the data to ‘speak’ with less influence from preconceived theories and models. This is a particularly helpful methodological approach when the research is dealing with a less-researched area (Padgett, 2016).

7.3 Revisiting the Research Aim, Objectives, and Questions

This section explains how the study answers the research questions. The main research questions were as follows: firstly, what are the critical success factors of leadership that can create a culture that enhances radical innovation in mature manufacturing organisations? Secondly, how can these factors be applied

successfully in mature manufacturing organisations? The research objectives are identified as follows:

- 1- To identify the best practices of radical innovation leadership and culture in manufacturing organisations, via an extensive literature review.
- 2- To analyse through a field study the leadership enablers and inhibitors and the cultural factors that affect radical innovation in manufacturing organisations.
- 3- To develop a framework that can be implemented to create and enhance radical innovation in mature manufacturing organisations.
- 4- To validate this framework via expert evaluations.

To address the above research questions, social constructivism was chosen as the research paradigm for the study, as discussed in Chapter 3. This helped the researcher to explore the phenomenon of leadership and organisational culture, and to answer the research questions from the perspective of leaders from within the sector of mature manufacturing organisations.

7.4 Contribution of the Research

This study aims to contribute to this growing area of research by exploring some aspects of leadership practices and organisational culture that facilitate radical innovation in mature manufacturing firms.

The findings from this study make several contributions to the current literature. Firstly, this thesis has provided deeper insight into the importance of leadership practices for radical innovation in MMOs. Secondly, it has investigated in detail the impact of leadership practices and organisational culture on radical innovation in this vital sector.

The key research contribution is the development of a framework to facilitate a culture of radical innovation in mature manufacturing organisations.

This research aimed to achieve an in-depth understanding of the existing practices of leadership in mature manufacturing organisations. The interventions suggested as part of the research are designed to develop a culture supporting

radical innovation in this crucial sector. These interventions are based on empirical examples and address the reduction of the gap between the current and the ideal position of the culture. For practitioners, the contribution therefore lies in what radical innovation culture 'looks like' and 'how to get there' (Hargadon, 2003). It is likely that the situation will improve in the long term. In addition, in the case of this field study, the participants were all fully engaged in the process. They understood that change was required, and they wanted to develop some of the leadership practices to facilitate radical innovation culture in the workplace and improve their organisations.

The developed framework of this research has been constructed based on empirical data that were collected from a variety of participants. The researcher interviewed a wide range of participants who have an influence on performance in mature manufacturing organisations, particularly those with much of the power, such as middle- and top-level managers.

The researcher ensured that there was diversity among interviewees from the same background. Such diversity disclosed different attitudes towards existing leadership performance, and enriched and strengthened the theory. The developed framework of this study suggests certain interventions. Hence, this framework aims to enable organisations in the mature manufacturing sector to overcome obstacles such as those identified from the collected data. These obstacles include, for example, the lack of such factors as training programmes, tolerance towards failure, risk taking, or resilience to change. They also involve cultural factors, such as a lack of clear communication channels in the workplace, a lack of clarity in the tasks given to employees, inadequate financial rewards, and unclear job requirements. This project provided an important opportunity to advance the understanding of the key role of leadership and organisational culture in enhancing radical innovation in MMOs.

7.4.1 Theoretical Contribution

This research contributes to the body of knowledge from a theoretical perspective in several ways. Firstly, it addresses a significant gap in the literature by enhancing understanding both of the connection between radical innovation and

the role of leadership, and of how to create a culture to facilitate this link. Also, this research on leadership development focused on mature manufacturing organisations, an area of study which, until now, has been given little attention. For academics, this research contributes to knowledge relating to aspects of organisational culture that facilitate radical innovation in mature manufacturing organisations.

Additionally, this research fulfils an identified need to study how culture can influence workforce practices in manufacturing organisations, and to what extent this can affect the quality of an organisation's products. The present study confirms previous findings and contributes additional evidence that suggests efficient leadership practices are vital in this context, and can contribute greatly to improved performance (O'Connor & Ayers, 2017). Furthermore, Domínguez Escrig et al., (2019); Sadovnikova et al., (2016) indicated that there is a need to understand the impact that different perceptions of organisational culture and leadership practice can have on radical innovation. Similarly, Valencia and Valle (2017) and Rampa and Agogue (2021) point to the important relationship between organisational culture, employee innovative behaviour, and the level of radicalness in product innovation, but they also suggest that this relationship is more complex than initially expected. In addition, O'Connor and Euchner (2017) have shown that mature manufacturing organisations face challenges to promote a culture that continuously improves the quality of services, innovation, creativity and compassion in this vital sector. This significantly supports the importance of the theoretical contribution of this study. Moreover, Bessant (2014) and McLaughlin et al. (2018) indicate to the key relationship between organisational culture, employee innovative behaviour, and the level of radicalness in product innovation, but they also suggest that this relationship is more complex than initially expected.

Despite its exploratory nature, this study offers some insights into the area of leadership knowledge in the mature manufacturing sector, by offering a framework that includes proposed interventions for improvement. This framework was developed to improve the current understanding of the role of leadership and

organisational culture in supporting radical innovation in manufacturing organisations. As described in section 1.1, in mature manufacturing settings, there is often little attention given to how management practices can be improved or to organisational and structural reforms. This research to some extent contributes to these areas of knowledge.

7.4.2 Empirical (Practitioner) Contributions

The key empirical (Practitioner) research contribution is the development of a framework to facilitate radical innovation in mature manufacturing organisations.

7.5 Limitations

With regard to the research methods, some limitations need to be acknowledged. There has been very little study in the area of leadership and organisational culture on the impact of radical innovation on the performance of mature manufacturing organisations. The limited number of studies on leadership management in the manufacturing sector was one of the main difficulties with this line of research. It did not help, either, that there has been little attention directed within mature manufacturing settings towards how to improve leadership practice (O'Connor & Euchner, 2017). This weak background did not provide the researcher with a solid foundation for developing an understanding of the relationship between leadership and radical innovation before conducting the study. Few published studies have investigated this topic (O'Connor & Euchner, 2017; McLaughlin, 2018).

In addition, because of the chosen research approach of this study, the research result may lack generalisability. Therefore, researchers are encouraged to further test the research propositions.

7.6 Further Research

The key opportunity for further research is in observing the impact of the planned interventions, as implemented over time, on the development of a culture of radical innovation in MMOs. The desired results of the interventions should be assessed later, after implementation. This would provide an opportunity for

participative research in which the researcher, as practitioner, plays a central role in developing a culture appropriate for radical innovation. Significantly, Sanghi (2016) has suggested that organisations should consider how present policies, processes, and methods might be affected by future developments and trends.

Two opportunities for further research lie in evaluating interventions suitable for a broader range of organisations, and in developing interventions specifically focused on creating a particular type of belief. This form of research is likely to be more academic in nature; the practitioner setting of this research precluded taking such an approach. The ultimate outcome for this developed framework is not the suggested list of interventions from the research, but the creation of a culture of leadership performance improvement that facilitates radical innovation in mature manufacturing organisations.

Combining this study with similar studies in other mature organisations in the manufacturing sector would add a wider range of data and allow more comparisons to be drawn. Future studies on the current topic are therefore recommended. Overall, this study raises some potentially interesting topics for future cross-cultural research.

7.6.1 Summary

This chapter has restated the background of this research and how the research was developed. A summary of the findings was presented, and academic and practitioner contributions were stated. Academic contributions were identified in relation to the link between leadership practices and organisational culture, on the one hand, and radical innovation in the mature manufacturing sector on the other. Finally, this chapter has acknowledged the limitations of this research, and made suggestions for future research.

1- Theoretical contribution:

- Enhancing the understanding of the connection between radical innovation and the role of leadership and organisational culture.
- Identifying aspects of organisational culture that facilitate radical innovation in this vital sector.

2- Empirical (Practitioner) contributions:

- Creating a framework to facilitate a culture of radical innovation in the mature manufacturing organisations sector.

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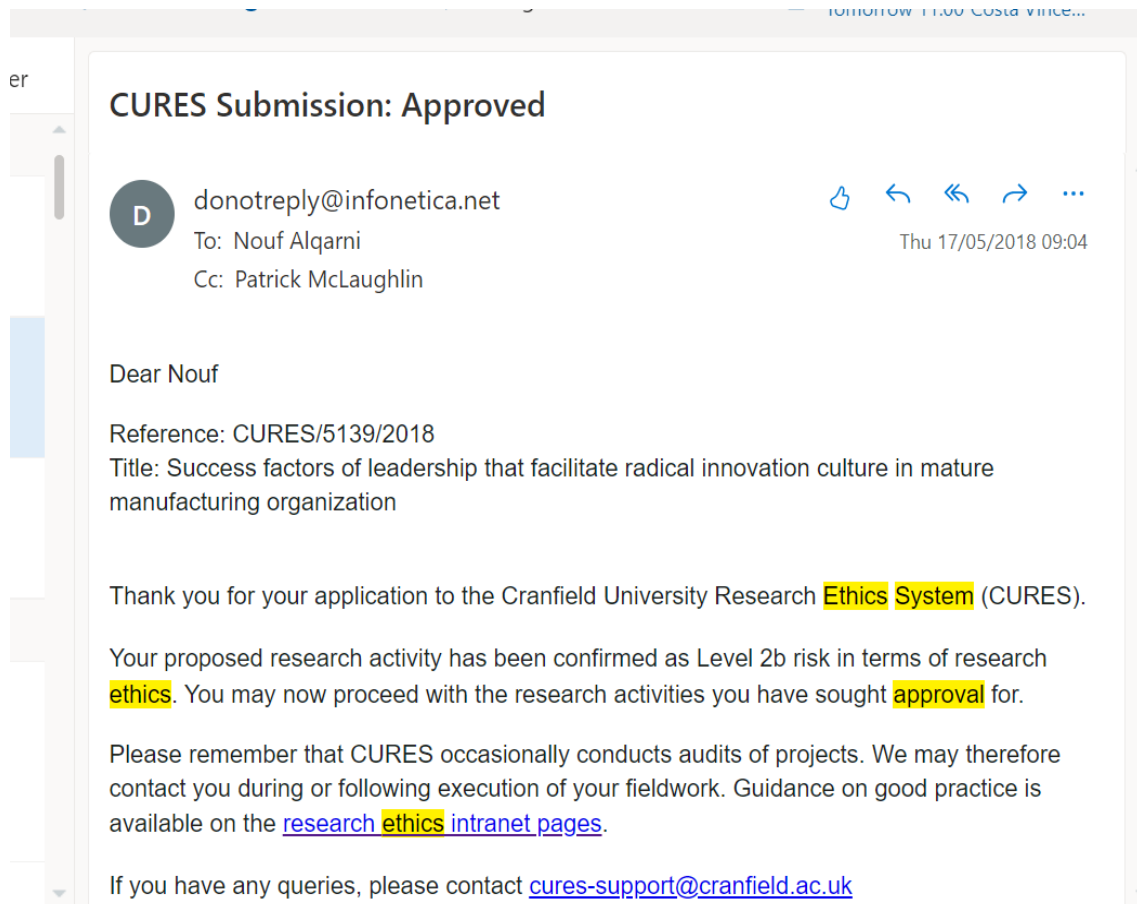
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APPENDICES

Appendix A: Ethical Form



APPENDIX B: Interviews Questions

This research will focus on the leadership factors that facilitate a radical innovation culture. The Interview is confidential, and No Individuals name is going to be used in this research.

On your perspective and experience on this subject.

- What are the leadership aspects that can facilitate radical innovation culture within the organisation?
- What's the inhibitor and exhibiter of Achieving Radical Innovation?
- What are the difficulties facing the leader in creating an environment for innovation?

Appendix C: The emerged aspects

No.	Aspects	Definition
1	Vision	A clarity of vision ensures that all members of the organisation understand expectations. Misunderstandings are minimized, so time formerly spent on correcting errors can be spent on productivity. Identify and describe vision, mission, and values.
2	Showing commitment	The commitment to change towards a better position. The determination to improve. There is a strong willingness to implement improvement techniques at all levels of the organisation.
3	Passion	Turning vision into reality requires passion. Passion is about vision, and involves energy, excitement, and enthusiasm. Passion elevates productivity and ensures employee commitment to the organisation's vision.
4	Support	Fostering support for fresh and constructive employee ideas for improvements and innovation, as well as being receptive and supportive of these.
5	Increasing employee self-confidence	Using encouraging language and expression to boost employee confidence and performance.

No.	Aspects	Definition
6	Positive attitude	Positive leadership involves experiencing, modelling, and purposefully enhancing positive emotions. A positive leader is interested in his or her employees' development as well as the bottom line. High self-awareness, optimism, and personal integrity are required.
7	Boosting employee loyalty to the organisation	Employees who feel connected to the organisation have higher levels of interpersonal loyalty. Employee loyalty is a positive interpersonal relationship in the workplace that benefits the organisation.
8	Avoiding competition	Focus on building cooperative relationships among employees. Avoid competition among organisational and team members.
9	Monitoring	Regular analysis of the capabilities for innovation, knowledge, people. Regular evaluation of the involvement and productivity of employees and teams.
10	Avoid direct criticisms	People will hold back on making suggestions if they are worried about potential consequences.
11	Take safe risks	Attempt new ways of doing things differently.

No.	Aspects	Definition
12	Honesty	Being truthful, having integrity, and building trust. Honesty lead to better and more productive relationships.
13	Decentralised structure	Need for more flexibility in administration. Use informal networks and more flexible structure to eliminate bureaucracy.
14	Good communication	Effective communication is so critical to the efficient functioning of an organisation and employee satisfaction that it has been called the building block of an organisation.
15	Physical safety and wellbeing of employees	Leaders are increasingly focused on safety and enhancing well-being programs.
16	Utilising the best resources	One of the most evident commitments to vision is the allocation of resources. Innovation requires financial as well as intellectual resources and technology.
17	Exploitation of new technologies	New technology exploitation is defined as the utilisation of new technology to improve the performance of products or manufacturing processes. Failure to recognise and manage new technology exploitation projects can result in inefficiencies and frustration.
18	Internal motivations	Intrinsic motivation refers to the personal willingness of the employees to overcome

No.	Aspects	Definition
		challenges and perform better. They gain satisfaction and enjoyment from what they do. In contrast, extrinsic motivation involves external factors, such as money, recognition, and praise.
19	Age-diverse team members	A high appreciation of age diversity leads to increased job satisfaction, fewer conflicts, and more innovation.
20	Skills-diverse team members	Diversity of skills among team members fosters innovation in terms of diversity of ideas, problem solving, increased suggestions, and better decision making.
21	Gender-diverse team members	Organisations need a more diverse work environment to foster innovation. Leaders need to develop gender diversity in teams in order to provide different perspectives and ideas
22	Ethnicity-diverse team members	Diversity is a key driver of innovation and is a critical component of being successful on a global scale. Leaders are recognising that a diverse set of multicultural perspectives and backgrounds is crucial to innovation and the development of new ideas.
23	Autonomy/Latitude	Autonomy is the means through which employees have the latitude to make their

No.	Aspects	Definition
		own decisions, and leaders need to provide both the tools and the guidelines to help employees succeed.
24	Boost employee engagement	Engaged employees are more likely to work diligently and expend discretionary effort in their jobs, supercharging productivity and innovation.
25	Managing resistance to change	The organisation takes the steps required to ensure that the transition runs smoothly and to reduce "change resistance" behaviours.
26	Focus on ensuring job stability for employees.	Providing a secure working environment that offers generous benefits and advantages increases employee loyalty to the organisation and supports continuity.
27	Receptiveness to new ideas	The organisation has open meetings on a regular basis for all employees to exchange ideas about issues of concern. Employee opinions are respected, employee input is recognised, and improvement projects are implemented as a result.
28	Informal communication	Within the organisation, there is an atmosphere of intimacy that allows employees to talk informally about difficulties through side conversations in corridors or even outside the building.

No.	Aspects	Definition
29	Appreciation	Employee qualities and/or outputs are acknowledged and given value. Higher-skilled individuals have more advantages. Undervaluing and neglecting to recognise the value of people in an organisation is likely to result in poor performance and outputs.
30	Challenging	Giving demanding tasks to employees, beyond their existing capabilities, in order to uncover or discover latent, untapped skills and potentials that can influence positive change.
31	Collaboration	Encourage collaboration between different departments in the organisation. To implement an effective innovative culture, it is important that each and every department of the company is included.
32	Communication channels	Employees at all levels should be able to communicate and exchange information through well-defined channels.
33	Complaint handling	Complaints inside organisations are natural and important, and they should be addressed quickly in any workplace.
34	Conflict resolution	In the interest of continuity and performance of the organisation, leaders should be quick to implement peaceful

No.	Aspects	Definition
		solutions to conflicts between parties and competing interests in the workplace.
35	Creating a conducive/ appropriate working environment	A successful organisation keen to target goals should create a suitable working environment for employees that will drive work perception, motivation, and inputs to targeted goals.
36	Empowerment	Empowering/allowing employees to make decisions and take action. If those with outstanding abilities are given authority, the process of improvement will be hastened. When leadership and power are delegated, employee engagement, loyalty, and trust improve.
37	Organic organisational structures	An organic organisation is one that is very flexible and is able to adapt well to changes. Its structure is identified as having little job specialisation, few layers of management, decentralised decision making, and not much direct supervision. An organisation with an organic structure tends to promote innovation initiation. Hence, a lower level of formalisation facilitates innovative behaviour, whereas a higher level of formalisation hinders it.
38	Facilitating knowledge sharing	Continually updating and improving upon existing knowledge in all aspects, to

No.	Aspects	Definition
		sustain relevance, dominance, and resilience.
39	Exchanging experiences	Improving performance by establishing interactive platforms and encouraging the exchange of know-how between the organisation's managers and employees.
40	Evaluating the employee mind-set	Ascertaining employees' willingness to work, or their desire for self-development, through the continual delegation of tasks and monitoring of their reactions.
41	Fairness and equality	Ensuring impartial, or non-preferential, management of employees, and putting in place appropriate organisational rules and policies.
42	Flexibility and breaks	Giving employees more flexibility in their work schedules by instituting planned breaks and time-outs after long periods of labour.
43	Humility	The ability to be humble in interactions with co-workers. Employees should have this mindset, according to their bosses.
44	Indirect instructional leadership	Using other employees or third parties to correct employee errors and inaccuracies in the organisation.

No.	Aspects	Definition
45	Customising employee motivations	Because different people have different motivators, such as money, recognition, time off, promotions, and so on, individual motivators must be personalised.
46	Interaction between leaders and employees	Leaders and subordinates engage in the workplace to create bonds and develop mutual ties.
47	Integrity	The quality of being honest, upright and reliable. Having strong moral principles.
48	Openness and reachability	The ability of a leader to relate freely and openly, which helps them manage their work whilst building relationships with employees.
49	Intuition	Using instinctual knowledge to find and constructively leverage hidden employee potential for the benefit of the organisation.
50	Embrace changes	Leaders need to engage in gradual positive changes in the work environment to build and sustain employee interests and productivity.
51	Boost employee devotion	Delegate responsibilities and reporting to make employees feel responsible and confident, and to develop their sense of duty.

No.	Aspects	Definition
52	Morals	The demonstration of good character and behaviour by leadership when dealing with subordinates.
53	Mutual trust	A relationship between leadership and employees based on mutual trust, and the degree to which that trust is reflected in the workplace.
54	Mutual respect	Reciprocated esteem or regard towards a person, or to his/her views concerning needs, space, friendship, etc.
55	Openly communicating	Making the direct and unrestricted exchange of messages or information between leaders and followers possible in an organisational structure.
56	Hold regular social gatherings/activities	Social activities for employees can be beneficial. It is vital to develop positive interpersonal relationships with and among employees in order to improve performance and create a pleasant working environment.
57	Rewards	Rewarding deserving employees for their hard work and excellence in order to stimulate and encourage others in the organisation. For example, employee of the month/year awards.

No.	Aspects	Definition
58	Recognition	Recognising and appreciating employees for their accomplishments and efforts.
59	Self-awareness	Having a clear consciousness and understanding of self, one's thought patterns, behaviour, and responsiveness to others. Self-awareness helps better structuring of personal and professional relationships.
60	Employee involvement in decision making	Involving employees in decision making can be beneficial for the organisation and its employees. When employees are permitted to help with decisions, it shows that they are trusted. Even if employees are only allowed to give input to assist in making the final decision, this still shows that their opinions are valued.
61	Situational approach decisions	Making leadership decisions that depend on situation and personal dispositions.
62	Supervising the relationship between managers and employees in the workplace	Observing, evaluating, and regulating the relationship between parties in order to minimise relational frictions that could disrupt normal operations is made a formal mandated responsibility of a specific department inside the organisation.
63	Tolerance towards failure	Employees' mistakes, misbehaviours, and critiques are treated with open minds,

No.	Aspects	Definition
		allowing for progressive learning and improvement.
64	Supporting initiatives	Employee creative initiatives and propositions for work enhancements receive leadership and organisational support and encouragement.
65	Training	The organisation recognises the importance of training and makes every effort to improve its employees' capabilities, providing courses and programs for employees to develop their knowledge, skills, and competence for undertaking organisational roles and responsibilities.
66	Share and explain the organisation's core values	Understanding the organisation's core value, or its purpose for existence. A mission statement can often reflect the values and beliefs of top managers in the organisation.
67	Using different skills in different situations	Leadership is expected to apply a variety of skills to deal dealing with varying employee personalities, behaviours, and situations in relation to organisational objectives and requirements.
68	Social relations with employees	Employees, including senior management, have strong and harmonious relationships. The manager–employee relationship is the

No.	Aspects	Definition
		most important driver of employee engagement; this relationship has been tied to employees' satisfaction or dissatisfaction with their work or workplace.
69	Opportunities	Leaders initiate a search for new development opportunities for innovating; positive attitude towards internal and opportunities; competent use of opportunities within the strategic planning process.
70	Courage and risk-taking	An effective innovation leader should encourage creativity and risk-taking. Innovation is impossible to achieve without taking a necessary amount of risk.
71	Offer flexible hours	Flexibility in work hours shows trust in employees to manage their own time, recognising their competency and ability to accomplish their own tasks.

Appendix D: Themes developed and the emerged aspects

Themes	Emerged Aspects
1- Organisational Values and Behaviours	• Vision • Share and explain the organisation's core values • Showing commitment • Passion • Support • Positive attitude • Honesty • Social relations with employee • Physical safety and wellbeing of employees • Complaint handling • Conflict resolution • Fairness and equality • Humility • Integrity • Morals • Mutual trust • Mutual respect • Self-awareness
2- Diversity and Inclusivity	• Age-diverse team members • Skills-diverse team members • Gender-diverse team members • Ethnicity-diverse team members • Boost employee engagement • Avoiding competition • Monitoring

Themes	Emerged Aspects
	• Supervising the relationship between managers and employees in the workplace • Exchanging experiences
3- Effective Communication and Collaboration	• Communicating well • Informal communication • Collaboration • Openly communicating • Communication channels • Interaction between leaders and employees
4- Resource Allocation	• Utilising the best resources • Exploitation of new technologies • Facilitating knowledge sharing
5- Willingness and Flexibility	• Openness and reachability • Opportunities • Flexibility and breaks • Using different skills in different situations • Decentralised structure • Organic organisational structures • Embrace changes • Situational approach decisions • Tolerance towards failure
6- Reward and Recognition	• Customizing employee motivations • Appreciation • Rewards • Recognition • Internal motivations

Themes	Emerged Aspects
	• Boosting employee loyalty to the organization
7- Development and Empowerment	• Training • Evaluating the employee mind-set • Increasing employee self-confidence • Focus on ensuring job stability for employee • Empowerment • Indirect instructional leadership • Employee involvement in decision making
8- Autonomy	• Autonomy/Latitude • Boost employee devotion • Offer flexible hours
9- Cultivating Creativity	• Avoid direct criticisms • Take safe risks • Managing resistance to change • Receptiveness to new ideas • Challenging • Intuition • Creating a conducive/appropriate working environment • Hold regular social gatherings/ activities • Support initiatives • Courage and risk-taking

Appendix E: Themes and their ideal position

Themes	Ideal Position
1. Organisational Values and Behaviours	Organisational values describe the core ethics or principles which the company will abide by (Zien & Buckler, 1997). They inspire employees' best efforts and constrain their actions. According to Büschgens et al. (2013b), organisation values should really be unique, representing what organisation stands for. They should be simple to grasp, powerful, motivational, aspirational and authentic all at the same time. Involve your employees and uncover what they really think your organisation's values are (Holzmann & Golan, 2016; Martins & Terblanche, 2003). Behaviours are the practical application of your organisation values – translating them into day-to-day actions (Sagiv & Schwartz, 2022; Schwartz, 2012b). Behaviours nail the detail of what you expect your employees to do (Almaiman & McLaughlin, 2018). In addition, a successful organisation values and behaviours framework brings both elements together, and includes a shared vision and clear objectives for employees to follow (Allio, 2012).
2. Diversity and Inclusivity	Diversity refers to the traits and characteristics that make people unique, while inclusion refers to the behaviours and social norms that ensure people feel welcome (Dougherty, 2012).

Themes	Ideal Position
	Similarly, Gomez & Bernet (2019) and Hellregiel et al. (1998) in their works talk about diversity as the combining of different backgrounds, experiences, and perspectives, and they believe that taking advantage of these differences is what leads to innovation. Diversity in terms of ethnicity, age, gender, personality and educational background promotes creativity and problem-solving capability (Wrench, 2016). Diversity and Inclusion (D&I): The steps toward creating a company culture with an inclusive, productive, and aspiring workforce, which values and appreciates every employee and enables them to express their ideas in working toward common goals (Hackman & Johnson, 2013). But it takes more than demographic or ethnic diversity to produce the creativity that leads companies to perform better (Leonard & Swap, 1999). According to Gomez and Bernet (2019) and Wrench (2016), inclusion is where people's differences are valued and used to enable everyone to thrive at work. Not only is inclusivity crucial for diversity efforts to succeed, creating an inclusive culture will also prove beneficial for employee engagement and productivity (Northouse, 2021).

Themes	Ideal Position
3. Effective Communication and Collaboration	Effective communication is so critical to the efficient functioning of an organisation and satisfaction of employees that it has been called the building block of an organisation (Baumard, 2014; Priest & Gass, 2017). Implementing effective strategies to strengthen the communication between team members helps in building strong team relationships. According to Hyland & Karlsson (2021) and Priest & Gass (2017), effective communication is a key factor in increasing employee engagement. It also increases team morale, by taking every member's perspective into consideration when solving a problem. Collaboration across departments is required. Working together as a team will ensure collaboration and long-term success for the organisation (Abidin et al., 2013; Colombo et al., 2017). It can create a workplace environment where employees will enjoy their work and strive towards better performance (Rohlfers & Zhang, 2016).
4. Resource Allocation	One of the most evident commitments to vision is the allocation of resources (González-Sánchez et al., 2020). Innovation does require financial as well as intellectual resources. In line with this, Cooper and Kleinschmidt (1988) argue that providing access to resources positively impacts employee creativity. When sufficient resources are available, employees are able to concentrate

Themes	Ideal Position
	and fully engage with their work. According to Sanghi (2016), leadership roles should “make decisions that allocate limited resources (time, people, budgetary, etc.) to meet programme delivery and/or policy objectives” (p. 170).
5. Willingness and Flexibility	An innovative organisation must ensure that it has a flexible structure rather than a rigid one (Abderraouf et al., 2017). Moreover, the flexibility of the organisation depends on the willingness and permission of the leader to introduce change (Rampa & Agogu��, 2021). Flexible leaders change plans as situations change. This results in an ability to remain productive during times of upheaval or transition. Flexibility and willingness to try all kinds of different ideas and tolerance towards failure and risk-taking and exploring new opportunities are important here. Flexibility is the ability to change the company’s policy, its practices or procedures, and to adapt quickly and easy to changing environmental conditions (Bakovi�� et al., 2013).
6. Reward and Recognition	Employees have a variety of needs and aspirations, and also differing perceptions of what constitute appropriate rewards and recognition in relation to effective motivation (Holzmann & Golan, 2016). For this reason, motivating workers and increasing their job satisfaction requires

Themes	Ideal Position
	an in-depth understanding of individual differences and attitudes regarding appropriate rewards and incentives, as well as a combination of extrinsic and intrinsic rewards (Abderraouf et al., 2017; Colombo et al., 2017). In their study, Engelbrecht et al., (2014) emphasises that leaders use reward and other forms of recognition to show appreciation to others for effective performance, significant achievements, and important contributions to the team or organisation.
7. Development and Empowerment	Leaders use development to increase the skills and confidence of work-unit members so as to facilitate their career advancement (Grass et al., 2020). Examples of development include: providing helpful career advice, informing people about relevant training opportunities, creating assignments that allow learning from experience, providing developmental coaching when it is needed, asking a group member to provide instruction to a new member, and arranging practice sessions or simulations to help members improve their skills (Grass et al., 2020; Holzmann & Golan, 2016; Allio, 2012). Leaders can empower subordinates by providing opportunities to apply new skills on the job, and by giving them more influence over decisions about their work. When used in appropriate ways,

Themes	Ideal Position
	empowerment can increase decision quality, decision acceptance, job satisfaction, and skill development (Rampa & Agogu��, 2021).
8. Autonomy	Job autonomy refers to the degree to which their job gives the worker freedom and independence in scheduling work and determining how their work will be carried out (Matteson et al., 2021). Furthermore, autonomy in the workplace helps employees find meaning in their work (Bakovi�� et al., 2013; Hunter et al., 2007). Autonomy provides a sense of freedom insofar as employees have the responsibility for controllable results. This gives them more enthusiasm and motivation to complete tasks. In line with this, Chang et al. (2012) and Matteson et al. (2021) stress that autonomy can lead to employee contentment with their work and a feeling of being free and unbound, which in turn facilitates employees' innovative behaviour. Autonomy at work is known to lead to an increase in the motivation levels, creativity, and happiness of employees. According to Matteson et al. (2021), managers are also realising that supporting autonomy is essential, as reports have shown that it can lead to optimal productivity due to the willingness of employees to perform and complete tasks.

Themes	Ideal Position
9. Cultivating Creativity	There are many ways leaders can encourage, nurture, and facilitate creative ideas and innovation in a team or organisation (Crawford, 2014). Other terms that describe aspects of this behaviour include ‘intellectual stimulation’ and ‘encouraging innovative thinking’. Leaders can encourage people to look at problems from different perspectives, to think outside the box when solving problems, to experiment with new ideas, and to find ideas in other fields that can be applied to their current problem or task (Ansari et al., 2016; Migdadi, 2021). In addition, by creating a climate of psychological safety and mutual trust, a leader can encourage members of the team or organisation to bring forward novel ideas (Colombo et al., 2017). Similarly, according to Pellegrino (2018) and Sarros et al. (2008), leaders can also help to create an organisational culture that values creativity and entrepreneurial activities, they can provide opportunities and resources to develop new products or services, and they can serve as champions or sponsors for the acceptance of innovative proposals.

