Integral Design Thinking

A Novel Cross-national Framework for Sustainability Management

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Abbreviations and Glossary of Terms

The following are abbreviations and glossary of terms used in this thesis:

Abbreviation	Full form
AR	Action Research
CAS	Complex Adaptive Systems
CSR	Corporate Social Responsibility
DSR	Design Science Research
DT	Design Thinking
HDTM	Holistic Design Thinking Methodology
ESG	Environmental, Social Governance
IDT	Integral Design Thinking
OC	Organisational Culture
SSM	Soft System Methodology
ST	Systems Thinking

Terms

Artefacts – These are the designed and developed solutions for organisations' issues in the form of activities or tools.

Branding – This focuses on distinctive mark and design of an organisation as a whole.

Change Agent – This refers to any individual that is attempting to instil sustainability into the organisation.

Communication – This refers to communication systems for internal and external stakeholders in an organisation.

Community – The term describes the creation of a common group, interests, and goals by an organisation, both internally and externally, with all stakeholders.

Complex Adaptive Systems approach - A method of thinking about and evaluating matters by realising complexity, patterns, and interrelationships instead of concentrating on the cause and effect.

Design Thinking – The methodology of utilising the design process to solve problems and find innovative solutions for organisations, from operations, process, actions, and more.

Design Science Research – A research methodology that utilises the design process to develop research and review findings.

Empathy – The understanding of other's needs, fears, and work relating to the organisation and their community.

Framework – An essential supporting structure and application to help develop a process.

Holistic Design Thinking Methodology – An approach that includes design thinking and complex adaptive systems methodologies to be applied to organisational change analysis.

Integral Design Thinking - Defined as a holistic strategy framework that works to both the breakdown and building of systems with a combined understanding of human and organisational focus. IDT is a strategic framework that builds purpose in all aspects of the analysed areas of change.

Organisational Culture – The way an organisation does everything.

Soft Systems Methodology – An offshoot of systems thinking that is more people-oriented, helps develop goal understanding, and facilitates resolution of unsolved problems and issues.

Stakeholder – A person who is associated with the organisation or affected by the organisation.

Sustainability/Environmental, Social and Governance (ESG)/Corporate Social Responsibility (CSR) – A holistic vision for Sustainability. These terms will be interchangeable throughout this thesis. These live under the same umbrella for the context of the current research, where an organisation's strategy is to encompass the aspects of these traditional definitions.

Sustainability Leaders or Leadership (Change Agents) – Leaders in the organisation that are attempting to implement change initiatives that relate to environmental, social and governance issues; these could include, but are not limited to, energy reduction, diversity, and inclusion initiatives, philanthropy initiatives, waste management, employee health and wellbeing, parental leave policies, community environmental health, supply change management, etc.

Systems Thinking – The methodology of understanding the holistic connections of systems in an organisation and how they work.

ABSTRACT

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Title: Integral Design Thinking: A Novel Cross-national Framework for Sustainability Management for Organisational Culture Change

This study attends to those involved in driving organisational sustainability agendas and the various obstacles they confront in implementing change. There is little evidence of holistic strategies that incorporate all the various sustainability elements, and a large percentage of sustainability leaders have implemented initiatives in a singular and isolated manner, which then fails to evolve adoption to the next level. Thus, there is a need for a holistic strategic framework that aids in the evolution of building agile, adaptive, and innovative organisations for sustainability/environmental social and governance (ESG) adoption.

This research aims to create a framework that will aid in advancing sustainability in organisations at a faster rate and find the main area of concentration on which sustainability leaders need to focus to embed sustainable behaviour into the organisational culture. It further intends to understand the challenges and barriers to sustainability leadership, the successful sustainability measures that have been put in place, and how design thinking methodologies may improve adoption. The methodology utilised to aid in the process is design science research with action research and holistic design thinking methodology cycles of learning for action. The study takes qualitative research approaches and includes case studies and semi-structured interviews with sustainability leaders in the UK and the US.

The findings reveal that the US sustainability sector is in constant evolution, causing pressures on organisations from both external and internal factors. These leaders are implementing change management processes, but they are not enough, as sector evolution has made it necessary for organisations to be agile and innovative. These leaders' major challenges and the downfall of all change initiatives are the lack of a holistic strategy, leadership support, and cultural barriers. This study developed an integral design thinking holistic strategy framework, a tool that enables those in the sustainability management field to develop holistic strategies for the faster adoption and implementation of sustainability in their organisational culture.

Keywords:
Sustainability, Design Thinking, Strategy, Culture Change, Behaviour Change, Holistic Change Management, Innovation, Design Driven Innovation, Integral Design Thinking, Environmental Social and Governance (ESG), Policy

CHAPTER 1: Introduction

1.1 Prologue

This introduction aims to set out and explain the rationale behind the study. The chapter will detail the investigation's focus and describe the presentation and the structure of the thesis's anticipated research for the reader. It will underline the study's chronology, demonstrate why the research is relevant, and outline the how and the relevance for the sustainability market. It will showcase the central constructs of environmental, social, and governance (ESG) management, strategy, design thinking, and change management. It presents the following aspects of the thesis:

- The impetus for the research
- Context: Design thinking, change processes, and bottom-up creative innovation
- Research aims and objectives
- Research exploration
- Study overview – an overview of the methodology
- Thesis structure
- Chapter summary

1.2 The Impetus of the Research

It has taken a worldwide recession, economic restrictions, and social pressures for leadership to accept the concept of sustainability management as a strategic element in organisational success. However, executive leadership needs a more holistic strategy to become more efficient and develop socially-minded practices to attract customers and investors. These change agents will be required to aid the organisation in transitioning to a more sustainable organisation as it secures its standings in today's evolving marketplace.

1.2.1 USA – New economy and leadership for the 21st century

A new economic movement began as the world transitioned into the 21st century; this brought the paradigm of a movement where environmental, social, and individual health pushed for an industrial evolution (Klapper et al., 2015; Burns, 2012). Organisations are realising that transitioning to a more environmentally and socially focused company improves the firm's image, leads to higher sales, and lowers operation costs (Jia and Wang, 2019). However, individuals are also realising their purchasing

power and the power of unification as a group/community to affect significant business behaviour. As climate change challenges economies across all industries, leaders cannot rely on traditional leadership approaches to find effective solutions to current global problems (Fry et al., 2021; Brown, 2006). Nordhaus (2019) noted that the current economic situations created by climate change will need a radical proposal to change current processes and contends that collaborative efforts hold the promise of achieving climate goals. Wheatley (2004) contended that current economic situations were unintentionally created because 'we act on assumptions that can never engender healthy, sustainable communities and organisations'; she defines it as 'the era of many messes' (p. 2). Organisations are now attempting to tackle the issues through sustainability management, as they are acknowledging the responsibilities for their actions. As these influences continue to evolve, these businesses' obligations include activities that affect the health of individuals and communities in their care. Ferdig (2007) discussed the challenges that sustainability leaders face, where there is a need to balance demands and find solutions for economic, social, and environmental issues. From these, companies are attempting to build resiliency strategies into the prevailing cultural behaviour of their organisations.

As new technologies develop, communication and information barriers are also breaking down. Globally, a new economic structure is evolving, and organisations need to be agile, adaptive, and innovative to attract top talents, investors, and loyal consumers. The first Industrial Revolution was exceedingly individualistic. The capitalist society's focus was on profit and growth without any concept of destruction or harm to the communities and environments where organisations operated. In today's emerging economy, smart consumers/employees are demanding better working conditions, healthier environments for themselves and their families, equality in the treatment of all, and safety in the workplace and communities in which they live (Babiak and Trendafilova, 2011). This century has brought a deeper awareness of these issues and how they affect every individual family, work life, community, and local, state, and national governments. This reality has brought forward the realisation that the current status quo is no longer viable (Burns, 2012).

Organisations in this new paradigm will have to build strategies to address these issues, build transparencies, prove behaviours, and build or transform their foundations to be agile/adaptive to the continually evolving market. Ferdig and Ludema (2005) advised that sustainability leaders must create opportunities as they build collaboration to develop and implement actions. They explain that they will need to create adaptive organisations and 'recognise that the experience of change itself, and the dissonance it creates, fuels new thinking, discoveries, and innovations that can revitalise organisations'

(p. 31). It is becoming progressively obvious that leaders must consider transformation differently as they innovate, but they do not have a framework to help them develop holistic strategies. Sustainability management leaders need to understand organisations' evolving and multi-dimensional nature of change as they manoeuvre these challenges (Senge, 1990; Wheatley, 2004; Bertalanffy, 1950).

The new world economy sees a push for change from both top-down and bottom-up directions on a global scale. Activists are pushing for transformation from the ground, such as the global climate march to the student climate march in September 2019, when millions of students voiced their demands for change. In the US, there is a unification of non-federal governments and organisations to commit to change; the Paris Accord, the creation of C40 Cities, and the Purpose of a Corporation pledge are some examples of this. These activities show that corporations that want to work in this evolving market will need to acknowledge and transition to meet the progressing demands. Businesses seek leadership that will assist them in this transition or build foundations that will give them the fundamentals to thrive in these changing economic environments. These leaders will need to recognise this new reality's unpredictable nature, accept the continuously evolving market, and develop strategies and a culture that allow for continuous transformation and adaption (Gitsham, 2019). Ferdig (2007) indicated that these leaders' success is grounded in ethics, empathy, and the recognition that all can co-create the future. They classify them as 'informed, aware, realistic, courageous, and personally hopeful in ways that genuinely attract others to the business of living collaboratively' (p. 32).

Ferdig (2007) shared that sustainability leaders must be human-centric in their actions as they create an agile organisation. They must 'possess a spirit of inquiry and learning' and take 'informed and calculated risks; they unashamedly learn from their mistakes and tell others about what they discovered in the process' (p. 33). In a globalised society, where organisations become multinational, leaders can no longer depend on past solutions for success; they will need to build holistic strategies that have broader consideration to influence change that addresses today's problems. Trompenaars and Hampden-Turner (2002) discussed the complexity of leadership in today's changing markets. They indicate that a leader today will be required to inspire, motivate, be passionate, develop priorities, be analytical, enunciate a clear strategy, and encourage participation. They also advise that the challenge will be that leaders will also be required to listen, delegate, decentralise responsibilities, optimise operations, have the foresight of risk, and build collaboration with decisive leadership. These individuals will require foresight and knowledge to be able to unify strategic thinking, communication, change management, inspiring others,

analysis, and messaging as they engage all stakeholders as leaders in the organisation with the same purpose.

1.3 Research Context: Design Thinking, Change Processes, and Bottom-Up Creative Innovation

As discussed, sustainability management is multi-layered and will require strategic thinking and innovation to develop strategies to manoeuvre its complexities. This research is within the perspective that there is a clear understanding that design thinking is a strategic tool for business management. These organisations can utilise design thinking to underpin strategic management, tap into team intelligence, creativity, and ambition, and enable innovation to support the implementation of any change process (Johansson-Skoldberg et al., 2013; Kotler and Rath,1984; Junginger, 2007; Fraser, 2007; Elsbach and Stigliani, 2018). However, as a practitioner, manager, and design researcher, this author has found many leaders in this sustainability management position struggle to execute sustainability initiatives in a systemic and thoroughgoing method (Beer et al., 1990; Kotter, 1995; Collins and Porras,1996; Levy,2001; Beer and Nohria, 2000; Sirkin et al., 2005). Furthermore, the root of the issue is the lack of understanding of how and what areas they will need to address to be able to stimulate and support cultural shifts (Bate, 1995; Quirke, 1996; Hofstede, 1994; Mirrelees and Miller, 2008). The authors' perspective is that embedding design thinking methodology as part of organisational culture will help these managers manoeuvre the complex itineraries they face. Strategically addressing the areas that will aid in the transformation process is also essential to their success.

Design thinking has now achieved more than a decade of application in the arena of strategic management and competitive positioning. Significant research has been applied to understanding its potential and efficacy as a management tool. Currently, there is an absence of research relating to the deployment of design thinking approaches as a means of supporting organisational cultural shifts; for example, there are those that focus on the implementation of innovation initiatives (Dunne and Martin, 2006; Fraser, 2007; Wong, 2009; Martin, 2009; Sato et al., 2010; Liedtka and Kaplan, 2019). The theme of organisational change and cultural repositioning is well-established in the literature (Miller and Friesen, 1984; Romanelli and Tushman, 1994; Kelly and Amburgey, 1991; Greenwood and Hinings, 1996; Cummings and Worley, 2005), and some work has been undertaken with respect to the combination of top-down and bottom-up approaches. Indeed, the latter is seen as a fruitful approach to leveraging sustainable cultural refocusing, where the employees and other non-management actors have a stake in designing or shaping the change

that will affect them; this will lead to a greater likelihood of acceptance, accelerated change, and successful and thoroughgoing transformation (Beer, 1980; Burk, 1976, 1982; Burk and Litwin, 1992; Child and Keiser, 1981; Hining and Greenwood, 1988; Romanelli and Tushman, 1994).

1.4 Research Aim and Objective

The study is founded upon critical analysis of emerging themes that derive from a review of the literature, personal and professional experience, and an initial case study. The themes include the importance of design thinking strategies to organisations undergoing cultural change for sustainability management, current barriers to implementation of sustainability initiatives, and the market policies that create a need for more effective strategies for sustainability management and leadership. Sustainability defined in this research includes environmental, social, and governance (ESG) factors in an organisation. The author's research was of a cross-national nature, in which the exploratory interviews in the UK were utilised as a benchmark to guide the study. This research pursues a multi-trajectory literature approach that focuses on the following themes: (i) sustainability in business, (ii) design thinking (DT) leading to innovation, and (i) strategy, (iv) organisational change management (OCM). This will be further explored and discussed in the conclusion of Chapter 2.

The author further seeks to address this gap by exploring the development of a strategy that utilises design thinking methods to aid in implementing a holistic sustainability strategy in an organisation. The research will survey the development of policy at various levels (and across multiple territories) and will examine responses at an organisational level. A vital aim is to better understand how sustainability is constructed, negotiated, and transacted at organisational (and inter-organisational) levels. The study will engage with the effects of definition/perception on the development of sustainability agendas/projects and the establishment of monitoring and outcome measurement systems. Here, the research will also examine the consequences of sectoral locations for creating and implementing sustainability strategies. The study will examine the presence of active agendas in organisations that promote the deployment of initiatives to stimulate cultural change. This exploratory research will summarise the development of a framework that would support the implementation of sustainability strategies in organisational culture.

1.5 Research Exploration

The research was founded on two pillars—interview programmes with relevant sustainability experts and practitioners and case studies involving organisations undertaking sustainability work and implementing

sustainability processes. The study commenced with an initial foundational case study in the summer of 2014 and a set of scoping interviews conducted in April and May 2015. The interviews were undertaken with sustainability leaders and policy actors in Birmingham in the UK. The author analysed the Birmingham City Council (1999, 2000) and its work on sustainability. Initial interviews were conducted with six key stakeholders: three leaders in government, two in non-profit, and one in for-profit. Some examples of the interviewees were leaders of sustainable schools and sustainable school programmes, and a city councillor who is a cabinet member for Green, Smart and Sustainable City, and CEO of the Business Council for Sustainable Development UK that is located in Birmingham. The aim was (a) to explore the ways in which the city's sustainability leaders had tackled a policy-inspired drive to implement sustainability initiatives and (b) understand how the policy had been interpreted and operationalised (and modified for local application). The qualitative material gathered via these interviews provided a sound foundation for the further development of the research.

Establishing the three case studies extended the analysis and foster these foundations. One was a foundational study, and two were exploratory investigations that employed a design-science/action research 'real-time' approach; interviews of leaders in the field followed this to validate the findings and refine the designed artefact. The three case studies are the Bedell Cellars and Long Island Sustainable Winegrowing, Department of Education 'Office of Sustainability', and Time Equities Inc., a real-estate management development firm. The author selected studies that encompassed both private and public organisations for breadth and test of differences, as the research was assessing organisations that were embarking on sustainability implementation. This particular data enables the author to unveil information in this research context 'on the ground,' focusing on academic/theoretical discussion and bringing together practice and theory.

The initial case study led to the preliminary development of the framework theory that was built on by the subsequent two case studies; these two cases followed the same methodology:

- Identify the problem
- Create an intervention
- Design the artefact
- Implement when possible
- Reflect

The interviews with leaders in the field aided the validation and expansion/refinement of findings. The research selection of sustainability leaders was from multi-disciplinary industries to understand and review cross-section challenges and needs. These followed the format of this study's objective. The findings, combined with the final results that evolved at every step of this work, helped develop the integral design thinking (IDT) holistic strategy framework.

1.6 Research Philosophy and Methodology

After a thorough literature review, the findings revealed that there is a gap in sustainability management research regarding a developed methodology framework for holistic strategies for organisational cultural shifts. It led the author to adapt design science research (DSR) and action research methodology to this study, and it will create an opportunity for further development and foundations for the field. Van Aken (2004) defined design science as the 'knowledge through design and realisation of Artefacts' (p. 224), which can be used to improve the performance of existing processes or solve improvement barriers. This study applies a triangulation of exploration techniques that blends design science with an action research approach and a holistic design thinking methodology model of learning for action. As all three aid in resolving problems and have reflective cycles, the combination creates a solid foundation for this research. Reflexive thematic analysis is also employed to generate ideas and connections to the overall research and interview processes in parallel with the three. The study focuses on collaboration in professional practice, the authors' observations, and analysis to create the design of artefacts that address organisational/study needs. The artefacts were then tested (when possible), reanalysed, and modified as required.

The DSR framework chosen for this examination was tailored from other scholars' methodology and was broken down into a three-phase process (Offerman et al., 2009; Holmstrom et al., 2009; Schultz, 2017). The three phases are: identify the problem, design a solution, and evaluate. As the author entered the organisation, real-life problems associated with organisational sustainability management goals were identified. The foundational information gathered from the first case study was applied to Phase 1; this step was followed at the initiation of all case studies with findings that were collected in the previous case. Thereafter, solutions formed into an artefact; these developed from collaborative efforts, action research reflections, and analysis. Artefacts were piloted/tested in the evaluation stage through a sequence of observation, planning, intervention, and reflection. While exploratory research and problem solutions were formulated, an extra literature review was conducted for that specific case (Stebbins, 2001). Action research cycles were used as learning tools when gaps were encountered in the literature research. In the

final stage, the author went back to re-evaluate the research questions, aims, and objectives and then summarised the outcomes of the study. This methodology was used for both the overall thesis and for each of the two exploratory case studies.

1.7 Thesis Structure

The structure of this thesis is composed of eight chapters, including this introduction. The remaining will be summarised below. The main research themes revealed through the literature review are sustainability/ESG management, strategy, design thinking, and change management. This is followed by developing the research aim, objectives, artefacts, findings, and framework throughout the research journey.

Chapter 2: Designs for Life: Sustainability Business, Sustainable Organisations – A Review of the Literature

In this chapter, an overview and understanding of sustainability in a business context and theoretical frameworks are presented. Strategies for sustainability management are formalised, followed by a literature exploration of evidence of strategy, design thinking, and organisational change management. The relevant theoretical conjectures of what the integral design thinking framework for a sustainability management workplace might look like are presented.

Chapter 3: Operationalisation of the Study – Methodology, Tools, and Framework

In this chapter, the research methodology's establishment is introduced, the orientation of the study is explained, and design science research methodology is discussed. These are followed by an explanation of the rationale for the study and the data collection techniques.

Chapter 4: Scoping – Exploratory Interviews and Case Study

This chapter discusses initial scoping UK interviews and the case study that helped create the foundations of the IDT framework that are applied in Phase 1 of the main case studies. The author reviews the steps and elements developed from this research. The findings confirmed in these scoping chapters are applied, further examined, and linked in the central cases in Chapter 5.

Chapter 5: Main Study - Case studies 2 and 3 Overviews and Results

This chapter explores two case studies of organisations seeking to transition into the sustainability/ESG market. The author reviews the steps and elements developed from this research. The findings confirmed in these case studies will be further examined and linked to the interview results exploration in Chapter 7.

Chapter 6: Extension and Validation – Interview of Leaders in Industry

This chapter introduces the interview sectors and participants. An analysis of results and connections to research are made, and then the mapping of the interview process and findings are reviewed. The findings validated in these interviews are further examined and linked to the case study result exploration in Chapter 7.

Chapter 7: Discussion and Framework Introduction

In this chapter, the author establishes a discussion of the research and study findings. Results from this study are reviewed and discussed. Integral design thinking holistic strategy framework is presented and reviewed. Integral design thinking visual tools are presented and reviewed.

Chapter 8: Conclusion and Contribution to Knowledge

In this chapter, a reflection on the research aims and objectives will be discussed. The author establishes a review of the contribution to the knowledge, methodology, practice, education, and limitations of the research. Final thoughts are expressed, and the thesis conclusions are presented.

1.8 Chapter Summary

In this chapter, the case for this research is constructed and presented. An explanation of the research task and theory are articulated, and the thesis structure, aims, and objectives, focus, and concepts are established and introduced. Chapter 2 provides an overview of the primary literature factors.

CHAPTER 2: Designs for Life: Sustainability Business, Sustainable Organisations – A Review of the Literature

2.1 Introduction

Chapter 2 establishes the theoretical constructs, knowledge, methods, and theories that informs this study. The aims of this chapter are to identify, examine, and understand the four constructs of the research. These are sustainability in a business context, strategy, design thinking, and change management. Relevant theoretical frameworks will be discussed, and an analysis of the literature review will be presented. Focus on holistic behaviour change strategies for cultural shifts are analysed. This research suggests that strategies designed to implement change should be holistic, coherent, and consistent from top-down and bottom-up.

This chapter is organised in the following format:

- Sustainability defined in a business context
- Evolution of perception and theoretical frameworks
- Strategy and strategic thinking
- Design thinking
- Organisational change management
- Conclusion

This research will examine the way in which sustainability might become an essential part of business practise and intent. To bring about pertinent change in any organisation, a true cultural shift needs to happen, where all the players are working towards the same mission and vision. For change to occur, one needs to understand the overall map of an organisation and strategically design how and where changes need to be implemented. This literature review will address how sustainability is defined in a business context, the evolution of perception, theoretical frameworks, design thinking, and change management. It will also investigate the importance of design and design thinking in strategic planning, organisational change management, organisational culture, and how they influence holistic systems' function and sustainability.

2.2 Sustainability Defined in a Business Context

The 21st century is witnessing the rise and emergence of different global corporate responsibility movements and sustainability efforts (Fry and Egel, 2021). In the United States, global warming, environmental health, and sustainability management agendas have only come into focus within the past decade or so, and have become part of mainstream conversations (Lux, 2014). Klapper et al. (2020) suggested that as global efforts agree on climate change imperatives, they confirm that collectively and as a global community, organisations will need to transform how they operate their business. Singh (2019) further advised that, 'In sustainable business an environment management is the key competitive advantage in the 21st century world' (p. 2). Scientists, civic leaders, and experts on the subject have been trying to educate the public, industry, and policy makers on the need to change behaviours (Schaltegger et al., 2019; Camou and Green, 2016; Gore, 2006; Engert et al., 2016; Goodall, 2012; McKibben, 2011; Babiak and Trendafilova, 2011; Singh, 2019; Jai and Wang, 2019; Pasricha et al., 2017). Roscoe et al. (2019) have noted that this has also brought the need for business scholars and education development on the subject, as most large companies are hiring to fill sustainability management positions to help them in the transition process. These positions are being filled to help organisations decrease the impact of the Industrial Revolution on social and environmental health (Kolk, 2016). It is contended that businesses and citizens now need to recognise the effects of industrialised nations' harmful consequences of actions on social and ecological systems and that engaging in sustainable business and environmental management will be a critical competitive advantage in the 21st-century economy (Singh, 2019; Porter and Kramer, 2019). These consist of, but are not limited to, the use of fossil fuels, extensive resource consumption, and massive emission of greenhouse gases (Gore, 2006; Arrow et al., 1978). Fry and Egel (2021) have noted that organisations now need to not only create new business models but also new models for sustainability that can address the environmental, social, and economic pillars of sustainability. Engert et al. (2016) further indicated that a focus has also developed on corporate environmental management, corporate social responsibility (CSR), and sustainability reporting, as more insight is revealed to the management of various sustainability components. Rogers (2010) claimed that companies have not yet fully grasped how they can transform their existing systems. There is a recognition of these arguably harmful practices but not a developed holistic strategy to change the transformation to positive ones for both human and ecological systems. Thus, it falls upon these sustainability leaders to be dedicated change agents for sustainability rooted in an organisational learning paradigm (Fry and Egel, 2021).

In American society, enterprises have the ability to influence the economy and shape the laws and policies employed and passed at the city, state, and national levels. In the past few decades, sustainability has influenced the transformation of environmental, business, and social issues affected by industry practice (Porter and Kramer, 2019). This way of thinking helped the growth of markets, such as green buildings and development, into organic and eco-friendly products. Goodall (2012) defined the term sustainability as calculating the limits humankind has to live within and then using our scientific genius to give us all a good life within those boundaries (Camou and Green, 2016). He highlighted the necessity of recognising our limits and our understanding to develop healthier systems to be employed in all aspects of what is done, how it is done, and grasp all connections. This holistic insight was also highlighted by McKibben (2011), who contended that society, business, and government need to change behaviours in thinking, acting, or working, as well as modifying their values in a new era of climate change (Klapper et al., 2018). These adjustments lead to cultural change, where these practices become second nature to business goals and operations. However, in most cases, these initiatives are being implemented in a singular and isolated manner, so they fail to progress to the next level (Doppelt, 2003; McDonough and Braungart, 1991, 2002). Various examinations of diverse facets of leadership in the corporate world over the years have shown that traditional models have not worked, and there needs to be an evolution of how things get done (Klapper et al., 2018; Centre for Creative Leadership, 2020; Esty and Winston, 2006; Seelos and Mair, 2005b; Ferrell et al., 2018; Wyness et al., 2015). Martinez et al. (2019) argued that one reason why sustainability incorporation has been so difficult to achieve in practice is that it is not just a battle of rival business rationalities but a battle of belief and culture. Boone et al. (2013) stated that it is essential that various stakeholders are actively included in shaping revised business model strategies for the organisation to be successful.

In an increasingly globalised economy, narratives and actions connected with climate change and sustainability are taking centre stage for governments, corporations, public sector service providers, NGOs, consumer groups, and even individual consumers (Boons et al., 2013; Epstein and Buhovac, 2014). All of these entities consider what initiatives might be required to reverse the environmental problems associated with two centuries of rapidly progressive industrialisation. Business leaders' ability to create change and play this role well has increasingly become a key variable in the success or failure of both their organisations and broader society (Gitsham, 2019). Government agencies and businesses are working on analysing how they might become more sustainable and stimulate advanced sustainability initiatives in their practices and communities (Joyce and Paquin, 2016). This is pushing organisations to create

ethical frameworks that guide their strategy and behaviour to address purpose as well as profits (Taback and Ramanan, 2014; Paulson, 2003). Sustainability programmes are being implemented ever more frequently—from energy-efficient buildings, closed-loop manufacturing, product, and supply chain management, through to local recycling projects. These efforts are worldwide in business corporations, educational systems, and communities. They are directing sustainability management to design and establish benchmarks, policies, and standards that allow sustainability to be measured, evaluated, and communicated on a multinational level (Global Reporting Initiative, 2007; UN Sustainable Development Goals, 2015; Nareit, 2019; Nordhuas, 2019). As initiatives develop, they serve to promote responsible practices related to environmental, social, and governance policies. Horrigan (2010) claimed that corporate social responsibility (CSR) is one of the most critical developments of the 21st century. According to him, CSR will play a substantial role in influencing the shape and fate of the world for generations to come (Camou and Green, 2016). CSR is where an organisation is investing in its' people and community as it builds itself and stresses the importance of social capital. Champniss and Rodes (2011) revealed a link between social capital and sustainability. They argued that where sustainability is being attempted, embedding social capital thinking will make it more intuitive, engaging, and durable. As businesses redevelop systems, they also look to redefine their brands. The social capital of a brand is where organisations participate in rich, different, and frequent dialogue; they have shared thinking and engagement with their internal and external customers to develop trust and loyalty (Klapper et al., 2018; Calvo and Calvo, 2018). Champniss and Rodes (2011) advised that in today's customer marketplace, organisations should recognise that society is its main supplier and should protect and nurture it for the long term to safeguard its own survival. CSR and sustainability are becoming important business practices and seem to be regarded as value drivers with numerous advantages that are not mirrored in conventional financial terms (Babiak and Trendafilova, 2011).

Experts claim that organisations suffer from system blindness, where they cannot comprehend the fundamental economic restructuring required to certify their own survival; for example, Goleman (2013) indicated that most companies attempt to solve problems without considering the complex interconnections and relationships that they have with other commercial and non-commercial actors. Porter and Kramer (2011) advised that the big problem lies within organisations as they are trapped in outdated methodologies for value creation and must recombine company success with social progress. Enlightened companies and organisations are exploring various models and frameworks that will assist them to achieve transformation. These prototypes can focus on large or small areas of activity, and they

help organisations conduct structured, achievable, and strategic conversations around new businesses or existing ones. Successful organisations such as Nespresso have developed business models with powerful effects on the transformation of their markets (Osterwalder, 2013; Saari et al., 2019). Different business models or frameworks are designed to function in another way and to achieve a range of ends. Most are designed with the logic of the organisation in mind, specifically with respect to how it operates, creates, and captures value for stakeholders in a specific marketplace (Casadusus-Masanell and Ricart, 2011; Camou and Green, 2016). Yoon and Chung (2018) advised that sustainability management leaders need to understand and meet the needs of both internal and external stakeholders for organisational success; understanding the effects of corporate social responsibility on these stakeholders will allow change agents to focus on strategies to influence a companies' financial value.

Given the need for the transformation of existing systems or the development of new ones, proper design processes will need to be utilised and understood (Saari et al., 2019). Design is an essential component of an organisations' strategic approach and competitiveness; it permits the synthesis and incorporation of external knowledge with organisational capabilities (Cooper and Kleinschmidt, 1987; Gardiner and Rothwell, 1985). Experts in the field have started to focus on how design can influence organisations' decision making and their efforts to create competitive advantage. Gorb and Dumas (1987) and Borja de Mozota (1990) viewed design as fundamentally intertwined with an organisations' managing processes. Kotler and Rath (1984) highlighted the significance of design as a strategic procedure that seeks to optimise consumer satisfaction and company profitability. This is achieved via different levers, such as enhanced performance, form, durability, and value in relation with products, environments, or identities (Porter and Kramer, 2019; Camou and Green, 2016).

Developing design thinking strategies will give leaders the ability to visualise the unseen, learn what to focus on, what to use, understand what tools are needed, and how to apply them (Bolton, 2011). Companies' top executives and their boards of directors see that a growing number of investors are paying attention to an organisation's performance on environmental, social, and governance (ESG) metrics. They often focus on corporate strategy and behaviour in one direction rather than another based on their understanding. As Unruh et al. (2016) argued, findings from years of study show that sustainability strategies are considered necessary, but few companies have developed one. They suggested that even though the business case and model change are central to the strategy, few have built sustainability management as part of their overall process. They advised that 'Organisations that have made a sustainability-related business model change are twice as likely to report profit from sustainability than

are companies that haven't.' (p. 5). They concluded that most businesses recognise the significance of a sustainability strategy to their overall competitiveness, but only a minority of managers' report that their organisations have established a business case for their sustainability endeavours. Todnem (2005) agreed with their findings and suggested that a new and pragmatic framework needs to be explored, and further understanding of the nature of change and how it is administered ought to be performed.

2.2.1 Sustainability defined

The concept of sustainability has evolved since the 1950s in the United States (Kidd, 1992). Kidd indicated that some of the six foundations of sustainability consist of ecological and social foundations. Examples of environmental foundations are limits to growth and conservatism, while examples of social foundations are social activism and eliminating poverty. His conclusions open the path of an integrated approach to environmental, social, and economic processes and reveal that sustainability should be regarded in a holistic manner, not in isolation.

Sustainability's most well-known definition is that of sustainable development, as defined by the Brundtland Commission of the United Nations in 1987: 'sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' In 2005 a world summit on social development set forth three goals: economic development, social development, and environmental protection. These have translated into today's triple bottom line: people, planet, and profit. As organisations incorporate these three areas into practice, they see further evolutions that need to be considered and managed. Some of these are sustainable development, net positive, circular economy, carbon neutral, embodied carbon, corporate social responsibility (CSR), and within today's pandemic and economic turmoil health and well-being. Khan et al. (2017) concluded that 'organisations need CSR and innovation to enhance their performance' (p. 10). All of these are encompassed in sustainability, and leaders are developing systems to track and influence them. Sustainability is about creating harmony between the preservation of life for all human beings while maintaining the natural environment now and for the future. Sustainability management helps preserve and enhance natural resources, as it helps promote fair treatment for all, including those less able to fend for themselves, and enhances an organisation's standing in the marketplace (Hart and Dowell, 2011; Laszlo, 2005; Hawken et al., 1999; Broman and Robèrt, 2015; Sachs, 2005).

Sustainability management's primary goal is the long-term stability of environmental and economic ecosystems; this is only attainable through the decision-making process to integrate and acknowledge

environmental, social, and economic concerns (Schaltegger et al., 2019). Dernbach (2003) and Stoddart (2011) both agreed that the fundamental principles of sustainable development are environmental, social, and economic matters and should be integrated into all aspects of decision making. This study follows this form of thinking and definition for sustainability management, where environmental, social, and economic matters must be integrated throughout the decision-making process in an organisation to move towards a truly sustainable one. Also, that sustainability management develops accountability for organisational actions and

2.2.2 Consumer demand and organisational response

According to 'Sustainability: The Rise of Consumer Responsibility', a 2009 study conducted by the Hartman Group, 88% of consumers indicated that they were engaged in sustainable behaviours during the late 2000s. This research shows that environmental sustainability is a high priority for consumers and businesses alike, more than ever before. Fortune 500 companies are promoting their ethical and environmental efforts through corporate social responsibility (CSR) and Global Reporting Initiatives (GRI) (2015) for the full transparency of their sustainable activities. For example, Cisco Systems Inc. (2020) ranked 4th in 2020 'Global 100 Most Sustainable Corporations Worldwide' by Corporate Knights Inc., has an environmental sustainability section in its website's CSR tab where it states, 'At Cisco, we believe environmental sustainability is critical for economies and for all global citizens. Reducing greenhouse gas emissions, preserve biodiversity and natural resources, and design our products to minimise waste. These important actions are factored into every aspect of our business (Cisco, 2020).' Kolk (2016) indicated that those codes of conduct/ethics have persisted in playing a role over the years, though in different forms, but are expanding to include multi-stakeholder groups as well as international organisations, business associations, individual firms, and NGOs. She further concluded that the expansion of responsibilities has created blurred lines between the responsibilities of the public and private sectors.

What sustainability needs is the specificity of new ways to engineer change and to change behaviours. When regarding the execution of sustainability, there needs to be the implementation of changes in values, norms, systems, beliefs, and habits. Gnyawali and Madhavan (2001) argued that this cultural change will require collaboration, connections, and an understanding of how a range of social, economic, and cultural factors all work together to help establish a stable, sustainable environment. Roscoe et al. (2019) observed that organisational culture encompasses the values, beliefs, and behaviours of organisational employees.

Behaviour change will require change management processes for corporate sustainability that integrate supportive management systems (Benn et al., 2014; Oskarsson and von Malmborg, 2005). Scholars have concluded that sustainability management still lacks a strategic approach to the introduction and implementation of needed practices and goals and that current methodologies are limited (Hopwood et al., 2005; Baumgartner and Korhonen, 2010; Sneddon et al., 2006; Goncz et al., 2007). Valente (2012) suggested that organisations need to find ways to intersect social, economic, and ecological systems using 'coordinated approaches that harness the collective cognitive and operational capabilities of multiple local and global social, ecological, and economic stakeholders operating as unified network or system' (p. 586). He observed that a new paradigm beyond what organisations are currently thinking and implementing with respect to corporate sustainability has yet to develop. Freudenreich et al. (2020) deduced that business models should be designed, developed, and realised in relationships between a business and its stakeholders.

2.2.3 City and state regulations push organisational sustainability and market transformation

As enterprises have seen the necessity for re-evaluating current systems, so have municipalities. Sustainability is an important topic in the private and public sectors, as change in thinking is required for the management of scarce resources, climate change, and social grievances (Lux, 2014). An example is New York City's PlaNYC in 2007. It was an unprecedented effort undertaken by Mayor Bloomberg to prepare the city for one million more residents, strengthen the economy, combat climate change, and enhance the quality of life for all New Yorkers. The plan was devised through the collaboration of more than 25 city agencies and is run by the Long-Term Planning and Sustainability (OLTPS) office. OLTPS observes the effectiveness of the plan and reports on progress each year (NYC, the Office of the Mayor, 2011). They have designed sustainability indicators to support them 'monitor current conditions and relate them to our long-term goals' that are included in the 'PlaNYC 2014' progress report. These indicators were designed to deliver quantifiable metrics to see if goals were met and to provide transparency and accountability, as reported by the NYC office of the mayor (2014). The report shows that as systems are designed, there need to be quantifiable metrics implemented into the equation, which will aid in the ability to monitor the performance of the model or framework that is being designed and developed. (PlaNYC Progress Report, 2014). PlaNYC has persuaded NYC's government agencies to drive for sustainability actions. Since the execution of the plan, the Department of Education's (DOE) Division of School Facilities has been creating sustainability programmes so that school staff, students, and the overall community can become mindful of various sustainable practices (Camou and Green, 2016). Starting in

2015, a Sustainability Initiative Advisory Council was created to work with the Whole-School Sustainability Framework to look for ways to help implement sustainability in all school districts and promote overall culture change (Institute for the Built Environment at Colorado State University, 2014). This sustainability framework is being adopted by municipalities all over the country.

These frameworks push organisations that work in these regions to follow regulations, reporting, and transparency demands. These have helped the green market evolve with new businesses and roles in organisations to meet the demands municipalities are placing on businesses. In the US, 14 major cosmopolitan cities have signed on to be C40 Cities; some examples are New York, Boston, Chicago, Huston, Los Angeles, Miami, Seattle, and Washington, DC:

> 'Around the world, C40 Cities connects 96 of the world's greatest cities to take bold climate action, leading the way towards a healthier and more sustainable future. Representing 700+ million citizens and one-quarter of the global economy, mayors of the C40 cities are committed to delivering on the most ambitious goals of the Paris Agreement at the local level, as well as to cleaning the air we breathe'. (c40.0r9, 2020)

Many of these metropolitan cities have multinational and international organisations, as these organisations have to follow the new regulations locally; they are implementing them on their larger footprints and helping transform the organisational processes and culture in cities that have not adopted these stricter frameworks.

2.2.4 Section synthesis: Sustainability defined in a business

Dryzek et al. (2012) revealed that only in recent decades has the problem of global warming and environmental health become part of mainstream dialogues. Specialists claim that organisations suffer from system blindness, where they cannot grasp the fundamental economic restructuring needed to ensure their own survival (Camou and Green, 2016). Enlightened companies and organisations are exploring various models and frameworks that will assist them in achieving transformation. Design is an important element of an organisation's strategic method and competitiveness; it permits the synthesis and integration of external knowledge with organisational abilities. This way of thinking redirects focus to stakeholders, where Sroufe (2018) concluded that articulating goals based on value creation for all organisational stakeholders has increasingly become a key variable in the success or failure of both their organisations and wider society. Dryzek et al. (2012) advised that proper design processes need to be

developed and understood to transform existing systems or create new ones to prevent and adapt to the consequences of climate change.

In an increasingly globalised economy, narratives and actions connected with climate change and sustainability are taking centre stage for governments, corporations, public sector service providers, NGOs, consumer groups, and even individual consumers (Dryzek et al., 2012). Developing design thinking strategies will give leaders the ability to visualise the unseen, learn what to focus on and what to use, and understand what tools are needed and how to apply them (Gribbin et al., 2017). This will require change management processes for corporate sustainability that integrate supportive management systems. To create this culture change, organisations will require collaboration, connections, and understanding of how a range of social, economic, and cultural factors all work together to help establish a stable, sustainable environment (Pasricha et al., 2017; Roscoe et al., 2019). This will require the development of stakeholder "soft skills" to be able to handle the human side of business, such as influencing, communication, team management, delegating, appraising, presenting, and motivating. Vlasov and Chromjaková (2018) indicated that the most advanced and developed companies internal stakeholders are required to possess an ability to communicate clearly and openly as well as listen carefully and react empathetically.

As the world economy focuses on climate change, organisations are repositioning themselves and realising that this will require the development of social activism and internal culture change. These revelations show that a new paradigm beyond what organisations are presently thinking and executing concerning corporate sustainability has yet to emerge (Dryzek et al., 2012). Initiatives are implemented in a singular and isolated manner, so they fail to evolve to the next level (McDonough and Braungart, 1991, 2002; Weick and Roberts, 1993; Doppelt, 2003). This study will explore how sustainability might become an essential part of business practice and intent. It will examine the presence in organisations of active agendas that promote the deployment of initiatives to stimulate cultural change.

2.3 Evolution of Perception and Theoretical Frameworks

Current scientific investigations reveal that Earth is constrained in its capability to maintain human growth, and there is a small window for leaders to implement change; the current economic model needs to evolve to meet global needs (Dryzek et al., 2012). World leaders, organisations, and individuals need to understand the urgency as global resources are depleting and the earth's capacity to support human life is in jeopardy (Champniss and Rodes Vila, 2011; Dresner,2002). The conversation of sustainability was

brought to the mainstream in the late '80s and has continued to evolve as a broader understanding of the challenges and needs of current society's health, and security are realised.

This section will discuss the evolution of sustainability's awareness and global perspective. The changing sustainability market and consumer demands have pushed organisations to re-evaluate their positioning and organisation's process to remain competitive and leaders in their industry (Brown, 2006). Further research on other scholars' work will be discussed, and an emphasis on the work of Wilber, Scharmer, Doppelt, and Laszlo will be addressed with regard to their philosophy concerning the current study.

2.3.1 Evolution of the perception of sustainability

The evolution of sustainability began through the Brundtland Report in 1987 on the first World Commission on Environment and Development assembled by the United Nations, where a definition of sustainable development was crafted as it involves the transformation of both society and economy. From that time, the advice has been that sustainability can only be pursued in the current rigid social and political setting when new policies consider the variations in access to resources, and to the distribution of costs and benefits to all affected; this implies that there should be considerations of equity between and within each generation moving forward (Dryzek et al., 2012). From that time on, sustainability and the agendas tied to it have developed and evolved. Since 2014, sustainability conversations and roles continue to transform and become linked to the health of people and the planet (Kjaergard et al., 2013). In 2019, the new paradigm of purpose brought it all to the next level and tied it together. This is being advanced by industry leaders who are changing focus in the American economy from shareholder to stakeholder and accountability to environmental actions. Over 200 Fortune 500 American companies, including Amazon, Apple, CIGNA, the Coca-Cola Company, The Walt Disney Company, Ford Motor Company, Fox Corporation, and GAP Inc., signed this commitment. As this small sample shows, companies from all sectors have joined this movement and will influence others in their industry to follow their lead. This movement has evolved from leaders who have been pushing sustainability for over a decade, the changing from the triple bottom line to quadruple bottom line to include the purpose and to merge all definitions of sustainability into one environmental, social, and governance (ESG) (Business Round Table, 2019).

Current scientific investigations reveal that Earth is constrained in its capability to maintain human growth, and there is a small window for leaders to implement change. Brown (2006) defined this moment as 'overshoot-and-collapse,' where the 'demand has exceeded the sustainable yield of natural systems…at the global level' (p. 5). He argued that 'Plan A, business-as-usual,' which 'has the world on an

environmental path that is leading towards economic decline and eventual collapse' (p. ix), needs to be revised. The Brundtland Report in 1987 discussed the cause and effect of the short-term vision of current consumer markets and their impact on the environment and increasing the gap between rich and poor. At the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012, the UN Sustainable Development Goals (SDG) were announced. These represent 17 different goals that give guidance to environmental, social, and governance issues, including clean energy, climate action, life on land, peace, justice, and strong institutions (undp.org, 2020). Scholars advise that there need to be new methodologies and tools, as these cannot be interpreted or addressed in isolation. This new knowledge will aid leadership in understanding how the co-creating process actually happens. They understand that when addressing sustainability challenges, even as each element might work in isolation, there needs to be a collaborative effort of multi-level stakeholders to address these challenges fully (Dyrek et al., 2012; Kofman, 2002; Klapper et al., 2020; Shuatyto and Miklovich, 2014). They highlight the need for multi-stakeholder collaboration and how it is imperative for these collaborations, as they aid in the creation of tangible and measurable results for solving problems or finding new solutions. Design thinking methodology is a tool that helps create multidisciplinary collaborative teams (Brown, 2008). It also builds empathy in an organisation, as empathy is essential for individuals to comprehend the consequences of the impacts of environmental change on the natural world and on other populaces (Brown et al., 2019).

2.3.2 Global perspective of Sustainability

Twenty years into the 21st century, the world is seeing global volatility in environmental, social, and economic areas. Worldwide, voices are being raised to find better measures and avenues to unify in finding solutions. Despite good intentions from the international community, there is a fear from scientists and scholars that it is beyond the capabilities of humanity to alter the damage that the first Industrial Revolution has created (Brown, 2006; Sachs, 2005; Wroe and Downey, 2004). Seelos and Mair (2005b) noted the increase in disease, intolerance, illiteracy, and poverty as the world is becoming more interconnected and multicultural. They also believed that locally generated solutions will be more feasible for addressing these issues and providing more viable options (Brown, 2006; Sachs, 2005). They advised that leaders consider all parts of this problem's interconnectedness to find innovative and viable solutions, having concluded that there is not much proof in the field methods that integrate all these diverse components.

For many years, larger sustainability issues have been addressed on a global scale. These can be traced back to the United Nation's Universal Declaration of Human Rights (1948), the Convention on the Rights of the Child (1989), the United Nations' Agenda 21 (1992), the Millennium Development Goals (UNDP, 2015), and the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement. These agreements have influenced the creation of programmes and policies at local and global levels that address environmental, social, and economic issues. These mandates have not only impacted governments but have also influenced community and business behaviours. Gerzon (2006) stated that 'we are connected today into more complex systems than ever before.' (p. 6), whereas Link (2006) highlighted a need to understand the complex web of connections and the effect of one's unsustainable behaviour on the other side of the world. In 1993, McKnight stated that local-level integrated initiatives would help promote self-sufficiency and develop more sustainable communities. One global issue that has made headlines is plastic waste that ends up in our oceans, has polluted other countries, and has caused severe damage to ecosystems. These concerns have led to the creation of many businesses on the ground that are attempting to find solutions to these global issues. One example of a socially focused organisations is 4Ocean, a for-profit organisation established in 2017 and registered as a B Corporation. 4Ocean has built its business model and product to help reduce plastic pollution from the world's oceans; the organisation reports that since 2017, it has recovered 12,080,475 pounds of plastic waste (4ocean.com, 2020). Clearly, there is a web of connections on both a global scale and at local levels to help combat these global challenges and create a more sustainable future.

As more organisations have become multi-national, their products travel thousands of miles; they are produced from parts that come from other nations and pass through hundreds of hands before reaching their destination. These products' supply chain and manufacturing processes would not be of concern to the average consumer in the past. Only in the recent century, as consumers have become more active and aware, have they become more selective in their choices; this has inspired forward-thinking organisations to integrate sustainability into their core businesses and increase their market share (Lazlo, 2005). Competition has influenced other organisations to do the same to remain competitive. Lazlo (2005) observed these new planetary ethics as involving radical rethinking for organisations and the need to transform their business model from shareholder to stakeholder management. He noted that organisations will need to become transparent to build on the market share and contemplate the requirements, concerns, and demands of a much wider audience. In traditional Western industrial models, a linear focus on the business process has ignored the web of connections and the effects they can have on all living things.

Organisations working towards sustainability are developing a restoration and preservation policy rather than focusing on the consumption of natural resources. In today's economic evolution, leaders must integrate the concept of the interconnection of natural and social webs to enlighten all forms of stakeholders and organisational behaviour (Capra, 2002; Senge et al., 2008).

2.3.3 Wilber's integral vision

Wilber's integral vision and his theory of everything (2001) established a sequential fusion of human evolution, which he characterised as an integral vision. He exhibited this fusion visually in four quadrants (see Figure 1). His central philosophy suggested that excluding any of the four quadrants when observing reality limits our comprehension of reality and thereby jeopardises our sustainability. The four quadrants comprise both individual and social behaviours. The left quadrants represent the individual's subjective/internal world (I) and the shared culture (we). The right quadrants represent the individual's objective/external world (It) and society (Its). He stated that 'each of these domains displays an evolving order or ladder of increasing consciousness tracing life from the earliest expression at the sensor-motor level to the most advanced post-rational level' (p. 136).

Young (2002) disclosed that Wilber's work is distinguished by its cross-cultural and multidisciplinary inclusiveness while being grounded in individual practice and experience. Wilber's theoretical system has limits, but he has forged a multidisciplinary, integrative, and systematic approach that supports a munificent and encouraging view of human nature. Fisher (1997) identified critics of Wilber's work; one major criticism is that his work lacks respect to hierarchical ontologies and structures that could lead to the devaluation of lower ranked groups (Rothberg, 1986; Frager, 1989). Fisher pointed out Schneider (1989) as the main critique of Wilber's work. Schneider (1989) claimed that Wilber's model cannot be scientific, as it disregards the principles of imperfection in science, as his claims are ultimate and absolute (May, 1988; Ellis and Yeager, 1989). Fisher (1997) argued, although most of Wilber's critics regarded his work as non-scientific, Wilber has never 'thrown away science, scientific premises, or experimental evidence for claiming truth' (p. 44).

For the objective of this study, Wilber's model helps create a chronological roadmap, as his model allows for the understanding of the micro to the macro connections. In sustainability management, there is a need to understand the web of connections to create collaborative teams made up of multi-level stakeholders (Capra, 1996; Brown et al., 2019; Freudenreich et al., 2020; Krznaric,2014). Wilber's, Integral Vision Represented by All Quadrants, all levels (AQAL), can be adapted to help leaders in change management

see beyond their field of vision and be able to develop innovations needed for change. By implementing an adapted version of Wilber's model, change managers can have a bird's-eye view of the organisation and all its connections, both internally and externally. The model will aid in the development of a proper strategy to implement change. This research incorporates Wilber's model as part of the proposed strategic tools to work with the designed artefact. As in today's evolving sustainability markets, there needs to be a shift in mindset to be able to tackle the demands of climate change. Pavez et al. (2020) advised that the new shift in mindset 'is one of interconnectedness between individuals, organisations, society, and the natural environment'. This comes from 'awareness that businesses are embedded in much larger social, cultural, political, and ecological systems, where the role of firms is not only profit maximisation but also contributing to creating a flourishing world' (p. 2).

Figure 1: Integral Vision Represented by All Quadrants, All Levels (AQAL) (Source: Wilber's, 2001)
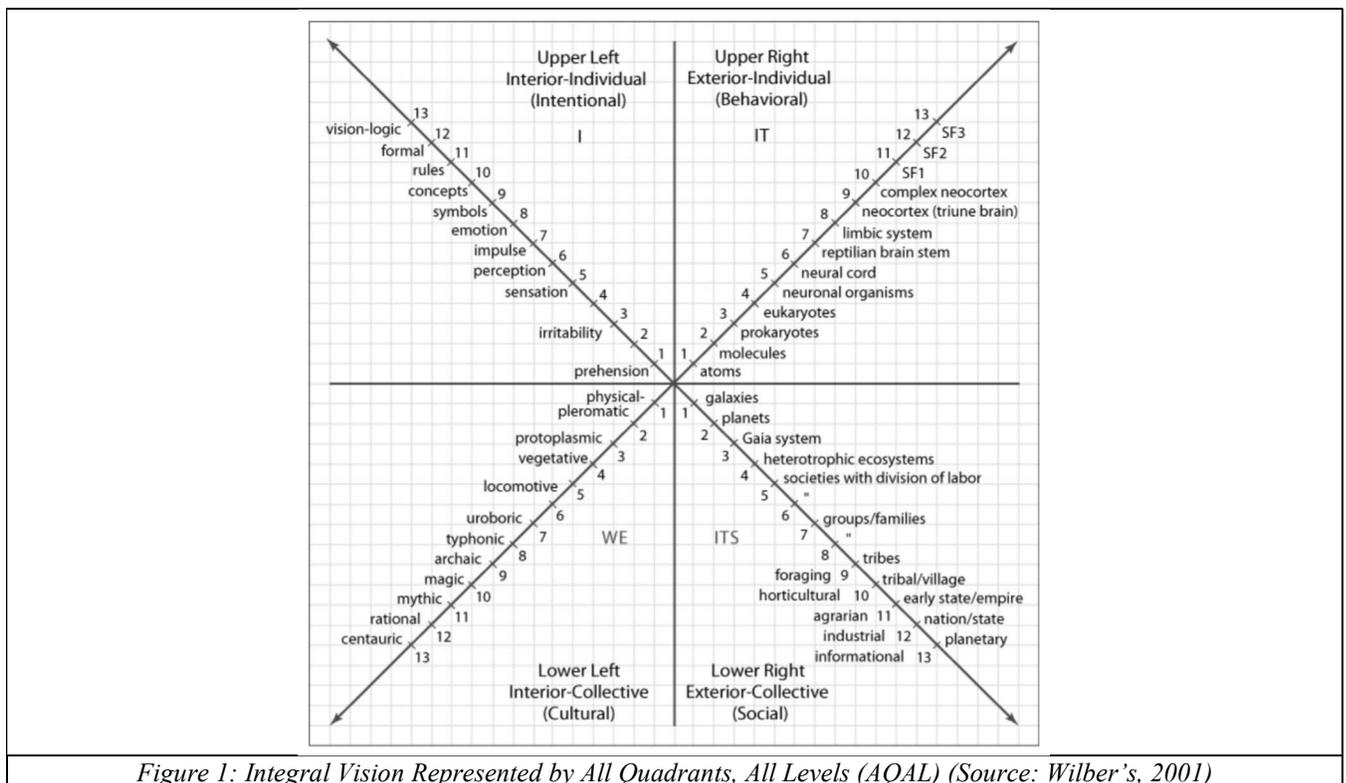
2.3.4 Empathy and Sustainability

As organisations are influenced to become more sustainable, a paradigm shift in thinking will also be required within the business, where awareness of the social web and nature's interconnections is recognised (Capra, 2002; Senge et al., 2008). Hallin et al. (2016) argued that it is no longer possible for a business to simply talk about sustainability, as it has clear implications for business decisions. They stated

that it is increasingly essential for companies and organisations to continue learning (Argyris and Schön, 1978). Operating in a fast-paced state of flux will require that organisations cultivate the ability to stand firm in their purpose while also engaging in dialogue and partnerships with stakeholders (Sroufe, 2018). Their discoveries show that organisations will need to become more human-centred. They categorise a human-centred organisation as one that has four principles of leadership: purpose, empathy, systems approach and resiliency. Sustainability leaders will need to understand how to influence others, and they will need to overcome unconscious resistance in the form of judgment, cynicism, and fear (Fry and Egel, 2021; Hargreaves and Fink, 2006). Schein's (1992) advised that there are 'basic underlying assumptions' and 'espoused values' that are ingrained in the organisational culture and that the 'members will find behaviour based on any other premise inconceivable' (p. 22).

Scholars such as Clark (1980), Berenguer (2007), Pahl and Bauer (2013), Czap et al. (2012), and Schultz (2000), have noted the need for enhancing compassion and that empathy is vital for sustainable action to occur; this is interpreted as a means to acknowledge others, surpass differences across social and spatial borders by creating mutual identities. Emerging research asserts that building empathy within society and the natural world stimulates positive social and ecological identities and actions (Krznaric, 2014; Rifkin, 2009). Brown et al. (2019) argued that empathy requires concepts of place, community, and identity, as well as an understanding of the consequences of the impacts of environmental change on the natural world and other populations; they assess that only with empathy would coordinate collective action be possible. This current research aligns with Elsbach and Stigliani's thinking (2018) that design thinking builds empathy into organisations and that empathy represents a vital characteristic of the design thinking process and is an 'important emotional signal of cultural values of collaboration and user focus in organisations' (p. 27). Scharmer (2007) contended that our 'blind spot conditions us… the inner place or source from which a person or social system operates' (p. 22). He claimed that these blind spots prevent us from constructing a desirable future, as they shape our worldview and appear in society, in science, and in our daily process. He further posited that these assumptions limit our response to emerging problems, as they cause reactive and fragmented thinking patterns. Brown et al. (2019) argued that empathy is critical but thus far is a neglected variable in sustainability research because of its central role in human–environment relations. Clark (1980) suggests that empathy can be trained to allow for the reduction of social tension, conflict and negative social behaviour.

Scharmer (2018) developed the Theory U model of a seven-stage process for personal and organisational paradigm shifts (see Figure 2). His model consists of two selves: 'Oneself is connected to the past and the

second self-connects to whom I could become in the future' (p. 25). He advocated for the importance of engaging this future self, distinguished from the past self. This self operates from a deeper source in a non-linear interaction that

Figure 2: Theory U: Seven Ways of Attending and Co-Shaping (Source: Scharmer, 2018)
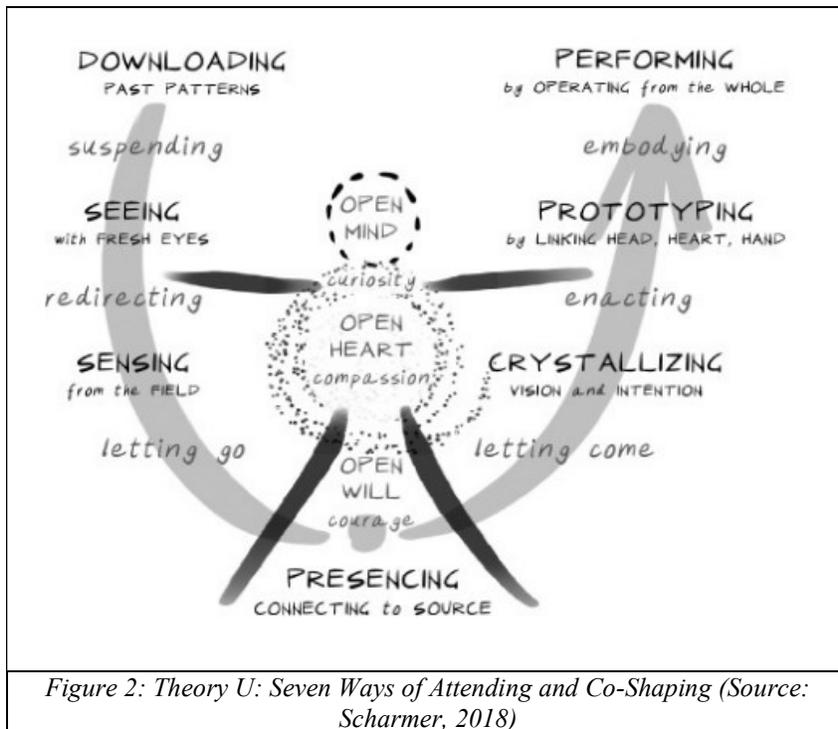
combines the mind, the heart, and the will. Scharmer advised that there needs to be a shift in how we think, feel, and operate as we let go of the old beliefs for organisational success in a 21st-century economy. He recommended a new systematic approach to the current linear model with a shift in thinking to 'presencing' (p. 29) where an evaluation of this state of mind is considered for individuals, organisations, and governments (Senge, et al., 2004; Scharmer et al., 2002). He suggested a new way of regarding solutions to current problems by 'co-sensing,' 'co-presencing,' and 'co-creating;' here there is a suspension of traditional behaviours by integrating emotion, will, and thought to stimulate this collective process. He argued that this will be necessary when there is a challenge to the current status quo, and stakeholders must overcome unconscious resistance. When the suspension of traditional behaviour is accomplished, it becomes possible to crystallise solutions to the challenges. Scharmer's theory enables the development of empathy as one open's mind, feelings, and actions and agrees that different mindsets will need to be established in an organisation to help create a continuous learning and purposeful one. Leaders and organisations must shift from a linear pattern of thinking. This means that organisations must build a strategy with empathy at all levels. According to the 2010 UN Global Compact-Accenture CEO Study 'A New Era of Sustainability', 93% of CEOs see sustainability as important to their company's future success. Sustainability management leaders are pushing for full sustainability, and organisations need to push past just moderate levels of sustainability, which is the dominant method in today's economy. Moderate levels of sustainability occur when only partial integration of environmental, social, and governance initiatives are embedded into an organisation and society. Full sustainability is achieved when there is a unified perspective that balances personal needs

with others in mind, and as environmental, economic, and social concerns become a part of organisational and societal culture.

2.3.5 Doppelt's seven interventions for sustainability

Leaders in the sustainability movement would agree that progress has been slow and moderate. Doppelt's (2003) research thoroughly assessed sustainability leadership's efforts of sustainability adoption. Through his qualitative analysis, he reviewed the core principles of success and failures. He researched over 25 public and private organisations' approaches to sustainability, working with US-based and European (EU) corporations, including were Interface, Xerox, Starbucks, and Nike in the US and IKEA, Scandic Hotels, and Henkel in the EU. Doppelt (2010) revealed that these and other organisations were selected because they had obtained awards or certifications associated to sustainability. They were 'included in Portfolio 21, a sustainability-focused mutual fund, are listed on The Natural Step (TNS) organisations adopting TNS, or are included on the Dow sustainability index' (p. 38). Through his work experience and research, he named elements that may lead organisations to either fail or level in their sustainability endeavours and those that strengthen the evolution of sustainability initiatives. In alignment to this current research, Doppelt (2010) found that not only do organisations need to review production systems, but it will also require a whole new organisational design. He stated that 'employees at all levels of the organisation must be meaningfully engaged in system-wide planning and decision making' (p.35). This is for both private and public organisations, where he found:

> 'Executive and line staff fail to grasp the fundamental paradigm shift in production models and organisational designs required for sustainability' and that 'they do not understand that sustainability often entails whole new business models, few organisations institute meaningful culture change efforts'. (p. 35)

Doppelt's findings show that there are two main 'core steering mechanisms' required for the transformation of organisational culture. First is 'governance systems', which he defined as an organisation's, from any sector or any size, distribution of power and authority through its information, decision-making, and resource allocation channels. The second is 'leadership', where experienced leadership is essential to convert the production model, organisational design, governance system, and organisation culture. He noted that 'when an organisation lacks an effective governance system or sufficient leadership, its culture will remain frozen around the take-make-waste production model and a

mechanical, patriarchal organisational design' (p37). His findings are condensed into seven blunders and interventions of sustainability listed in Figure 3 and.

Doppelt (2003) revealed that most organisations seeking to improve environmental and socio-economic issues inevitably make seven critical 'Sustainability blunders.' The first is **patriarchal thinking,** which leads to a false sense of security. This form of governance approach assumes that a vertical line of authority and compliance with government regulations are sufficient to achieve sustainability. The organisation would have a top-down, leader-driven approach, where everyone depends upon the leader's opinion and with no significant level of thinking or creativity is done. The second is a **'silo' approach** to environmental and socio-economic issues. This exists in the conventional economic model, where organisations are 'viewed as collections of separate parts that can each be managed independently' (2010, p. 50). In this model, organisations are built-in divisions and compartments that create pockets of work that lack connectivity and ultimately hinder the level of learning and connections between stakeholders. The third is the lack of a **clear vision of sustainability**. Doppelt argued that the most consistent trait in high-performing organisations is a clear understanding of the shared purpose and vision of what they are striving to achieve. In his findings, most organisations attempting to adopt sustainability norms lack a clear vision, but exemplary ones are exceptionally clear about their purpose.

1. Patriarchal thinking
2. A "Silo" approach
3. No clear vision of sustainability
4. Confusion over cause and effect
5. Lack of information
6. Insufficient mechanisms for learning
7. Failure to institutionalize sustainability

Figure 3: The Seven Blunders for Sustainability (Source: adapted from Doppelt, 2003)
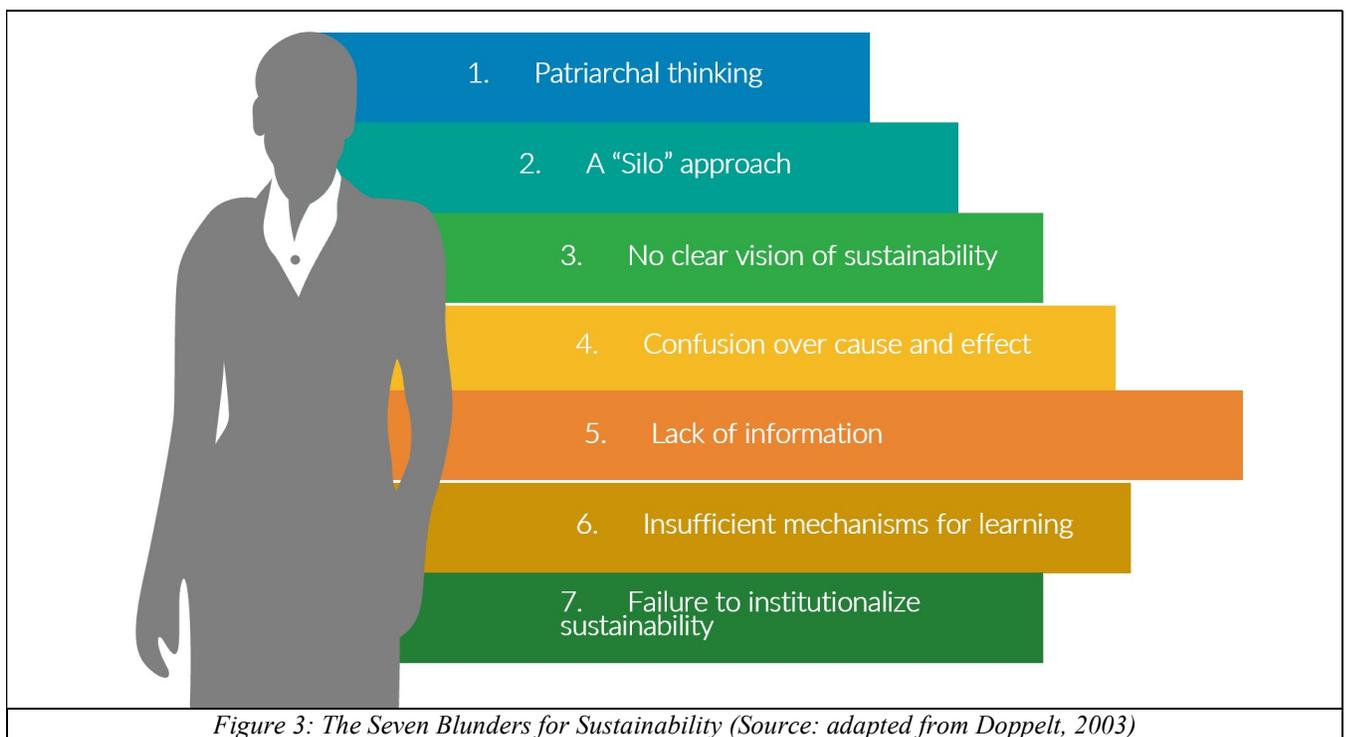
The fourth is when organisations fail in implementing sustainability efforts because of **confusion over cause and effect**. These organisations' believe they know the solutions to their environmental and related social welfare problems, but they do not know what causes the problems in the first place' (p. 52). As organisations focus on the problems, they do little to detect and eliminate the cause of the unsustainable practices. Still, businesses need to deal with the cause, not only the effect. The fifth is the **lack of information,** where evolution is impossible without widespread awareness and backing by internal and external stakeholders for required multi-layered efforts towards environmental and social sustainability. Doppelt (2010) concluded that 'people will resist these changes unless they clearly understand the need, purpose, strategies, and expected outcomes of the effort and believe it will succeed and benefit the organisation and themselves' (pg. 53). The last two blunders are **insufficient mechanisms for learning** and the **failure to institutionalise sustainability**. Doppelt asserted the need for 'Sustainability-based thinking, perspectives and behaviour to be incorporated into the everyday operating procedures and culture of an organisation' (p. 54), or there will be a failure to institutionalise sustainability. Reviewing the key information from his findings, it can be said that for an organisation, key factors, such as communication, brand, and community, need to be built into management strategies to address these seven blunders as a continuous learning mentality is developed.
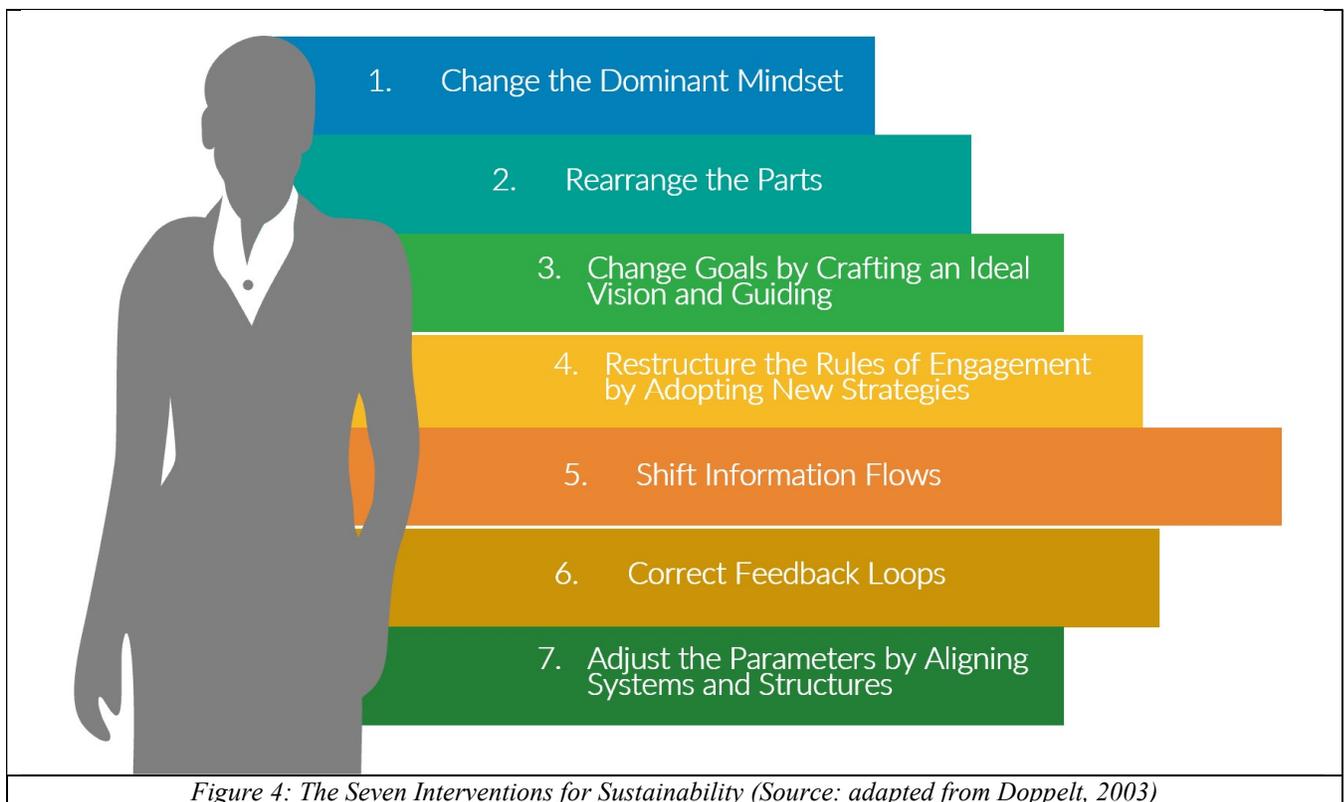
Figure 4: The Seven Interventions for Sustainability (Source: adapted from Doppelt, 2003)

Doppelt reassures that even though the seven sustainability blunders are challenging to surmount, they can be remedied. He developed seven interventions that leadership can utilise to aid in developing these strategies. Doppelt's first essential intervention is to **change the dominant mindset through the imperative of achieving sustainability**. Employees' false sense of security when the organisation complies with regulations is challenged and replaced by a commitment to a shared pledge. Second, Organisations need to **rearrange the parts** by organising sustainability transition teams (Capra, 2002; Hallin et al., 2016; Senge et al., 2008). He stated that 'the most important initial step when organising transition teams is to get the right people involved' (p. 127). He asserted that this is vital to the achievement of any change procedure. This is done by including stakeholders from all functions, departments, and levels of the organisation and major external participants in the analysis, planning, and execution of initiatives. Thirdly, organisations need to **change goals by crafting an ideal vision and guiding sustainability principals** as it reorients an organisation's purpose and intentions. Doppelt asserted that leaders and transition teams must engage and collaborate to set a clear vision and adopt unwavering sustainability principles before focusing on initiatives and their details. Next is the **restructuring of the rules of engagement** to adopt a new approach after embracing the new purpose and goals. This will require an alteration of the rules that determine how things get done and involve developing new strategies, procedures, and implementation plans. Next is **shifting information flows** through the organisation by diligently conveying the need, purpose, benefits, and strategies for attaining sustainability. This ensures that all stakeholders are emotionally engaged, become internalised, build transparency, and open doors to understanding and sharing. Lastly, leadership will need to measure and **correct feedback loops** as they **adjust the parameters by aligning systems and structures.** This can be done by inspiring and rewarding learning and innovation. Doppelt (2010) indicated that his findings reveal 'that organisations making the most rapid progress towards sustainability overcome barriers through continual learning' (p. 215). He asserted that organisations need to continuously incorporate new methods of thinking and behaving into how they perform their business, and that leadership is essential to successful alignment. This study aligns with Doppelt's thinking and philosophy.

2.3.6 Laszlo's eight disciplines of value creation

Doppelt's (2003) research focused on leadership interventions, Laszlo's concentrates on the business model, and values creation for sustainability. Through his qualitative research, Laszlo (2003) extracted an integrated sustainability model by tracking a hypothetical CEO's journey (see Figure 5). Laszlo (2003) suggested, as Doppelt (2010) suggested, that for organisations to be successful in the leap towards

sustainability, they will need both a change in mindset and practical initiatives incorporated into operations. His integrated bottom-line model reveals the evolution from a silo to an integrated business model that incorporates unified environmental, economic, and social initiatives with the drive for profit. One of Laszlo's main conclusions is associated with the shift in focus from shareholder to stakeholder supervision. His model shows that the initial economic model, profit, and quarterly reports are the most critical priorities, while sustainability value creation occurs in the model's final evolution stage. This is where organisations create collaborative teams that include internal and external stakeholders to ensure that their core enterprise has a minimum influence on their environmental footprint and a positive social influence throughout the production procedure. He agreed that as these businesses evolve into an integrated model, they become more competitive and profitable.
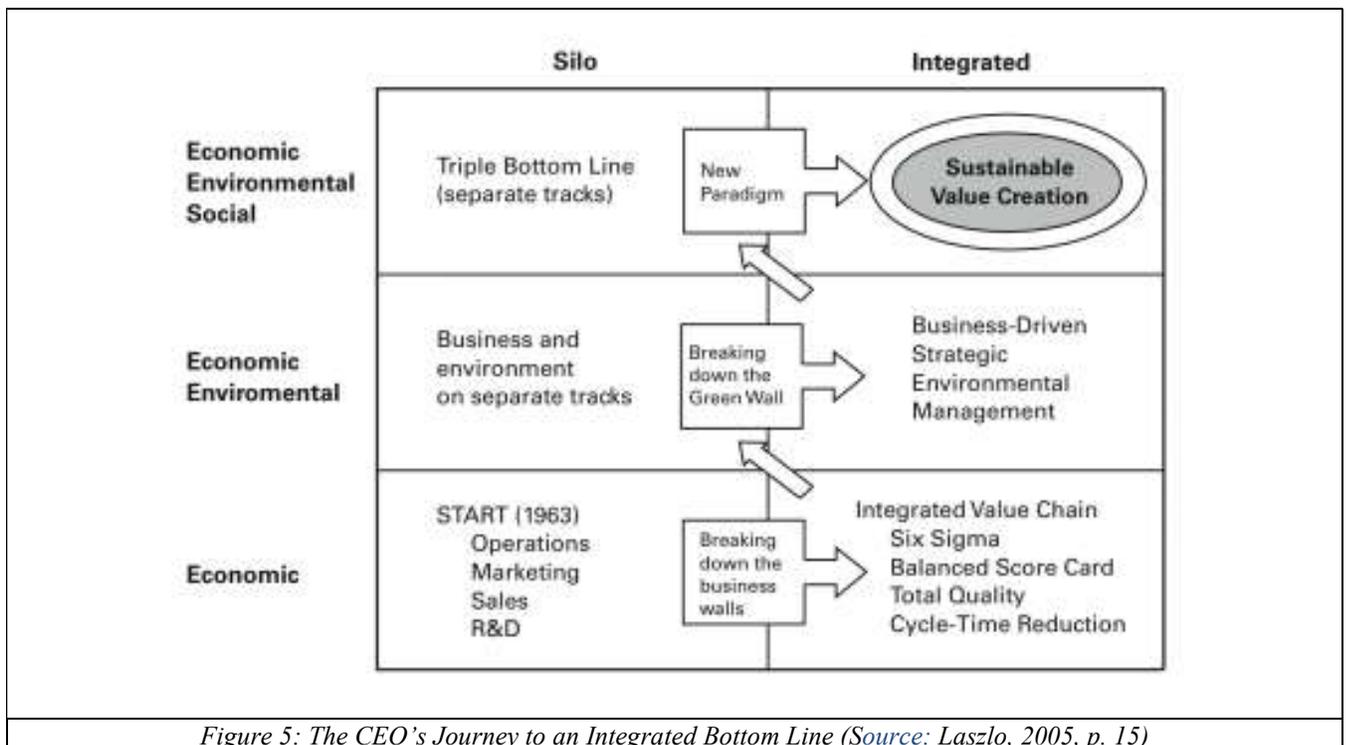
Figure 5: The CEO's Journey to an Integrated Bottom Line (Source: Laszlo, 2005, p. 15)

Laszlo additionally uncovered that businesses pursued a parallel procedure for the establishment of sustainable value. From this discovery, he identified eight disciplines of value creation, with the seventh serving as a revaluation process and the last is building sustainable capacity (see Figure 6). His model is broken into 'two subprocesses'—'discovering value opportunities' and 'creating value'—comprise of three disciplines each, and they are connected in turn by two process disciplines that offer the dynamic feedback loop needed to establish an investigative model.

The first subprocess illustrates how organisations achieve an awareness of the organisation's status and their existing market standing with an understanding of future demands, challenges, and opportunities (disciplines 1 and 2). From this insight, sustainable value goals are then set (discipline 3). This then links to the second subprocess, which incorporates the design of the value creation initiative (discipline 4), the development of the business case (discipline 5), and the application of the plans, recognised as capturing the value (discipline 6). The final two disciplines validate results, capture learning (discipline 7), and develop sustainable value capacity (discipline 8). Laszlo's model shows that findings move through the subprocess of discovering value opportunities before any sustainable capacity is built.

Scholars such as Wilber (2001), Scharmer (2018), Doppelt (2003), and Laszlo (2005) have advised that a shift thinking is required to move the sustainability agenda forward for the health of societal communities and our planet. The current school of thought that has evolved is in creating positive-impact companies (PCIs); these are companies 'that demonstrate a strong commitment to making a positive impact in economic, social, and environmental terms' (Pavez et al., 2020, p.1). Pavez et al. disclosed that these PICs are purpose-driven as they seek to be profitable and 'use forces of the market to positively transform the world' (p. 1). They build on Laszlo's model of values creation for sustainability to transition an organisational focus from shareholder value 'to a search for effectiveness in creating shared value, and finally, to embodying caring and wholeness as a basis for creating positive-impact value' (p.2).
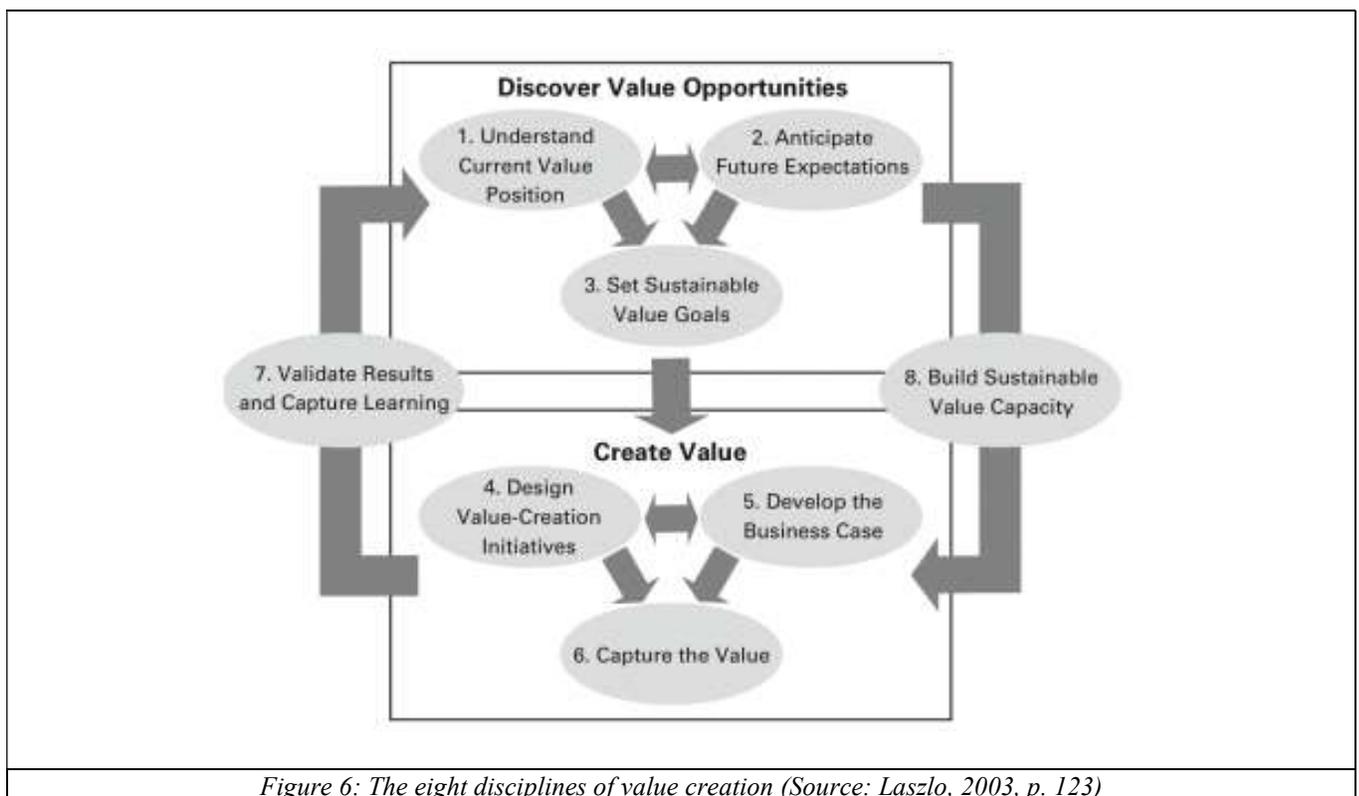
Figure 6: The eight disciplines of value creation (Source: Laszlo, 2003, p. 123)

2.3.7 Section synthesis: Evolution of perception and theoretical frameworks

Only in recent decades has the issue of sustainability discussion and role transformed our conversation and been tied to the health of our people and the planet. In 2019, the new paradigm of purpose brought it all to the next level and tied them together. Zu (2019) asserts that in recent years, there has been a fundamental shift in organisations from a 'for-profit' model to 'for-purpose' one. He discloses 'that many employees, customers, investors, communities, and other stakeholders are asking profound questions about the structure of society and the role of the corporation in that society' (p. 2). These and other megatrends, such as climate change, responsibility, compliance, and population growth, to name a few, represent challenges and opportunities for organisations' future. The complicated range of social, environmental, and economic issues challenges decision makers at each level to discover innovative, feasible resolutions that contemplate all the interconnected parts of each obstacle (Zu, 2019). Leaders understand the need to implement integrated initiatives that are developed at the local level and understand the global effects of those decisions and actions. This involves a radical rethinking of organisations, where leaders need to transform their accountability systems to improve their relationships with natural and social resources (Pavez et al., 2020). They also need to transition from shareholder to stakeholder management (Michelon et al., 2012). Zu (2019) declared that purpose is concerned with the 'WHY' and is created from the viewpoint of CSR, shareholder, and stakeholder theories; 'therefore, it is the purpose, cause, or belief that drives every organisation, and even every individual career' (p. 3).

As this section has revealed, leaders must integrate natural and social web interrelationships to inform all forms of individual and organisational behaviour. Wilber's model helps create a chronological roadmap, as his model allows for the understanding of the micro to the macro. The literature has also shown that there is a need for enhancing compassion and that empathy is vital for sustainable action to occur (Czap et al., 2012; Pahl and Bauer, 2013). Empathy requires concepts of place, community, and identity as well as an understanding of the consequences of the impacts of environmental change on the natural world and other populations (Brown et al., 2019). It also determines the capability and likelihood of collaborative action for pro-environmental choices. This will allow organisations to continue learning. Operating in a fast-paced state of flux will require that organisations cultivate the ability to stand firm in their purposes while engaging in dialogue and partnerships with stakeholders (Zu, 2019). This research follows the mindset that leaders and organisations must shift from a linear pattern of thinking and build a strategy with empathy at all levels (Senge et al., 2004; Scharmer et al., 2002).

Doppelt (2003) affirmed the need for sustainability-based thinking, perspectives, and behaviour to be merged into an organisation's standard operating procedures and culture. Organisations will require the development of a clear picture of sustainability principles for success and evolution; this also necessitates organisations' sustainability transition teams to rearrange parts and develop a change system that is continuously in a forward motion as new knowledge is generated. Leadership will require creating an organisational-wide shift in mindset and practical initiatives integrated into operations as they shift focus from shareholders to stakeholder management.

2.4 Strategy and Strategic Thinking

In sustainability management, developing holistic strategies is crucial to an organisation's success, as it requires setting goals, mobilizing resources, and being adaptive. What is strategy? Freedman (2013) defined it as a process that involves establishing targets and priorities, determining activities to achieve the goals, and mobilizing resources to implement the measures. Strategy includes strategic planning and strategic thinking activities that describe how resources will be used and goals achieved as the organisation adapts to its environment or competition (Candy and Gordon, 2011; Mintzberg and Quinn, 1996, Freedman 2013, Luca, 2020). Andrews (1980) defined corporate strategy as a pattern of decisions that sets and guides an organisation's objectives, purposes, or goals. He asserted that strategy aids in the production of policies and plans as it defines the business market and human capital needs, as well as the nature of the social and philanthropic contributions it intends to make. In sustainability management, new policies must be established, as initiatives are aligned with objectives, purposes, and goals.

Mintzberg (1994) adopted Andrews' views, further stating that strategy materialises as intentions collide with and accommodate a shifting reality over time. He contended that people use strategy' most commonly in four different ways: as a plan to get from here to there, as a pattern of activities over time, as positioning in the marketplace, or as around the period. The literature has revealed that sustainability management will require organisational repositioning and planning for successful integration (Shuayto and Miklovich, 2014). Michael Porter (1986) defined strategy as a formula that will allow a company to be competitive and define its goals and policies to meet those goals. He maintained that strategy is 'about being different.' He added, 'It means deliberately choosing a different set of activities to deliver a unique mix of value' (p. 64). These concepts build on Steiner's (1979) conclusions of strategy. Steiner stated that strategy refers to the organisation's primary direction based on purpose and mission in coordination with top management

actions. It consists of the essential steps necessary to realise these directions, answer the organisations' questions and achieve them.

As sustainability leadership attempts to integrate initiatives into strategic planning, external influences, and internal strengths and weaknesses need to be considered (Engert et al., 2016; Eccles et al., 2012). Without this vision and understanding, actions are purely tactical and can quickly deteriorate into nothing more than a wasted effort (Mintzberg and Quinn, 1996; Freedman, 2013; Luca, 2020; Porter, 1986; Mintzberg, 1994; Stiner,1979). Strategy is a general framework that requires a clear understanding of the ends to be obtained; it guides the actions to be taken and is shaped by those actions. It is a term that refers to a complex web of thoughts, ideas, insights, experiences, goals, expertise, memories, perceptions, and expectations.

2.4.1 Strategic positioning

Organisations need to understand the macro and microenvironments that affect their business. This gives them the ability to position the organisation for growth opportunities and resiliency. A key tool for analysing the broad macro-environment of an organisation considers six critical factors: political, economic, social, technological, ecological, and legal (PESTEL); this tool investigates both non-market factors and markets' economics. As these elements are understood, it will be necessary to identify the key drivers for change that are most important to help minimise threats and seize opportunities for that organisation (Johnson et al., 2017). These will help companies understand their target sector, external stakeholders, and competition. As sustainability managers attempt to influence their organisations, they need to reposition the organisations in their markets. Strategic positioning emerged from three distinct sources that are interconnected. These are: positioning of product or services, positioning of service to a particular group or consumer, and accessibility to them. These different sets of activities help create a unique and valuable position for the organisation (Porter, 2009). Liedtka and Kaplan (2019) advised that design practices help businesses imagine new opportunities where integrating human-centred design into strategy will offer a problem-solving approach focused on empathy, possibility, and iteration. They asserted that successful strategies start with understanding the market and new opportunities; often, the organisational strategy process is linear and views only the company's current portfolio of products and services.

For micro-environment analysis, an understanding of resources, internal stakeholders, and culture is of great importance (Martinez et al., 2019). The crucial role of companies in achieving sustainability has

been stressed and discussed both on the strategic (Roome, 1998; Hart, 1995, 1997) and the influential levels (Bennett and James, 1999; Schaltegger and Burritt, 2000). Through the sustainability lens, this positioning in the marketplace relates to environmental, social, and governance issues. As previously referenced, the evolving world economy is transitioning from a shareholder to a stakeholder focus. Stakeholder groups can be both internal and external to the organisation, and they can be broken into five groups: economic, social/political, technological, community, and internal. In designing a strategy, it is imperative to understand which stakeholders are the most persuasive in their area of expertise (Freudenreich et al., 2020). It is also imperative to analyse who the key blockers are, repositioning of certain stakeholders, and maintaining the level of attention or power of some key stakeholders (Freeman, 2010; Mendelow, 1991; Bidhan et al., 2010; Walker et al., 2008; Johnson et al., 2017). To understand this web of connections, Wilber's (2001) integral vision four-quadrant model can be used as a stakeholder mapping tool that considers stakeholders' power, level, and influence to set strategies.

In a micro-environment, culture relates to a common expression that is coherent between all stakeholders. It can be broken down into two subdivisions: organisational subculture and organisational identity. Munck (2001) stated that organisational culture is the way things are done. It consists of four layers, including value, beliefs, behaviours and taken for granted assumptions. Organisational subculture refers to differences in national/regional offices, between departments or functional groups. These subcultures can create silos in an organisation that can hinder communication, collaboration, community, and growth (Rondinelli, 1982; Nelissen and Selm, 2009; Nelson, 2003).

Culture should be part of organisational strategy, as it can be a source of competitive advantage and can be somewhat modified. Johnson et al. (2017) categorised the cultural web of an organisation into seven elements: paradigms, rituals, and routines, stories, symbols, power, organisational structure, and control systems. They disclose that organisational culture is made of assumptions held in common and taken for granted, the rituals and routines, the stories that are told by all stakeholders that convey the symbols, and what is important to the organisation. These symbols are objects, events, or people that convey, maintain, or create meaning. Further, the organisational structure and control systems give individuals or groups power to persuade, induce, or coerce others into following certain courses of action. The evaluations of these elements can reveal whether sustainability managers can influence the cultural web, thereby altering organisational behaviour and transition to a more sustainable culture.

Johnson et al. (2017) asserted that 'indeed, aligning strategic positioning and organisational culture is a critical feature of successful organisations' (p. 172). Organisational identity refers to the branding and messaging that is communicated, as well as the beliefs of all stakeholders regarding who and what the business stands for. It is critical for an organisation to be able to govern its identity because it is essential for recruiting, guiding employees, and attracting customers to grow its bottom line as it secures its positioning in the market it operates (Burke, 1976; Cacioppe and Mark, 2005; Bordia et al., 2004; Johnson et al., 2017). As part of a holistic strategy, sustainability management will need to be tied to organisational identity and embedded into its culture.

2.4.2 Strategic thinking

Strategic thinking is a combination of cognitive psychology, understanding how systems behave, interact with their environments, and influence others through collaborative engagements (Olson and Simerson, 2015). Strategic thinking aids in the maintenance of purpose and direction in the growing economic demands an organisation faces (Horthwath, 2014). As leadership faces these fluctuations, they will need to be creative and strategic thinkers, as their goals, tactics, and actions will depend on internal and external environments and other influences (Holloway, 2009). Bouhali et al. (2015) stated that strategic thinking is downward, focused on ensuring that meaning and purpose are diffused throughout the organisation and that it must be central to the future health of a business. This study disagrees with this line of thinking and argues that strategic thinking also needs to be bottom-up, where employees at all levels understand the larger strategy and utilise strategic thinking to aid in creative innovation to achieve organisational goals. Design thinking methodology is a tool to aid in the development of creative, adaptive stakeholders who deploy company-wide strategic thinking.

Scholars such as Liedtka (1998), Bonn (2001), Graetz (2002), and Horwath (2014) have suggested that organisations will need to develop creative, adaptive stakeholders who are encouraged to develop strategic thinking at all levels of the organisations. They advocate establishing and integrating strategic thinking at the individual and organisational levels to create and sustain a competitive advantage (Liedtka, 1998; Bonn, 2001; Graetz, 2002). Porter (1987) defined strategic thinking as glue that holds many systems and initiatives within a company together. Mintzberg, (1994) stated that strategic thinking needs the use of intuition and creativity to produce an integrated perspective of the organisation. Bonn (2001) identified holistic understanding, creativity, and a vision of the future as the three elements that need to be present

for strategic thinking to occur. Strategy that is coherent, unifying, integrative, and creates the direction of the business and resource utilisation will need strategic thinking.

2.4.2A Systems thinking

In the systems approach methodology, the focus is strictly on the whole of the organisation, as opposed to the parts that make up the totality (Liker, 2004). Systems thinking allows change agents to examine organisational systems holistically and understand their interconnections and how they affect each other (Reed, 2006). Systems thinking methodology has progressed since the earlier research of the 1970s (see Figure 7). It is a framework that addresses complex problems and designs while aiding in the comprehension of the interrelationship between connections and existing patterns. Systems thinking enables the sustainability change agent to grasp and manage situations of complexity and uncertainty to define answers (Godfery, 2010). Checkland and Haynes (1994) described systems thinking's evolution to a soft systems methodology (SSM) and noted that it developed in real-world situations to humanise the systems thinking approach. SSM consists of a learning cycle and seeks models to solve real-life problems. Checkland and Poulter (2006) developed seven inquiry steps to improve the system through social learning and action development (see Appendix B).

In the SSM learning cycles for action, change agents need to think about a problematic condition, not necessarily a problem. Management in SSM must understand the web of connections and find out about a situation through analysis, models, and pictures. SSM finds solutions that consider all stakeholders and discovers compromised solutions to fit the organisation's culture (Checkland and Poulter, 2006; Checkland, 1999). It brings together the development of a holistic view of systems-based organisations that incorporate a cross-section of the organisation's stakeholders while considering efficiencies in that design. As sustainability management requires the transition and evolution of systems on a social, environmental and governance front, all involved in the change management of sustainability should have this critical thinking process (Porter, 2009). SSM learning cycles allow for a constant evolution and refinement of systems that are developed, with ownership being passed on to affected stakeholders.

Porter's (2009) development of his systems thinking complex adaptive systems (CAS) approach was influenced by soft systems thinking methodology (SSM). He identified complex adaptive systems as an approach that is a web of connections that is complex and works together. Porter concluded that in today's turbulent market, the complex adaptive system is the one needed for, should be used and taught to sustainability management leaders. However, they will need to understand all approaches to design and

develop the best strategies. A concern that was raised is that not all organisations are created the same, and a one-size-fits-all methodology is not possible. The author added that with an understanding of the complexity of systems, the realisation of the addition of bottom-up learning and non-linear systems is necessary. Bausch (2001) stated that SSM advocates that improvements in systems are only attainable by clarifying objectives, identifying key stakeholders, understanding holistic views, and directing a collaborative discussion to develop outcomes.

Porter's (2009) complex adaptive systems (CAS) approach has a four-part system that covers principles and assumptions, theories, methodologies, and strengths and weaknesses. He advised that, as sustainability leaders consider these parts, their success will require ongoing learning and bottom-up evolution, developing appropriate incentives, monitoring outcomes, and making adaptations as needed. This study aligns with Porter's philosophy and thinking that sustainability management leaders should focus on transforming organisational systems to develop a network of connected stakeholders that are self-organising and establish empowered learning networks with bottom-up processes; these change agents should have a stewardship style of leadership.

Figure 7: Systems Thinking Evolution in Strategic Thinking
(Source: Adapted from Checkland and Haynes, 1994, p. 191, modified from Porter, 2009, p.327))
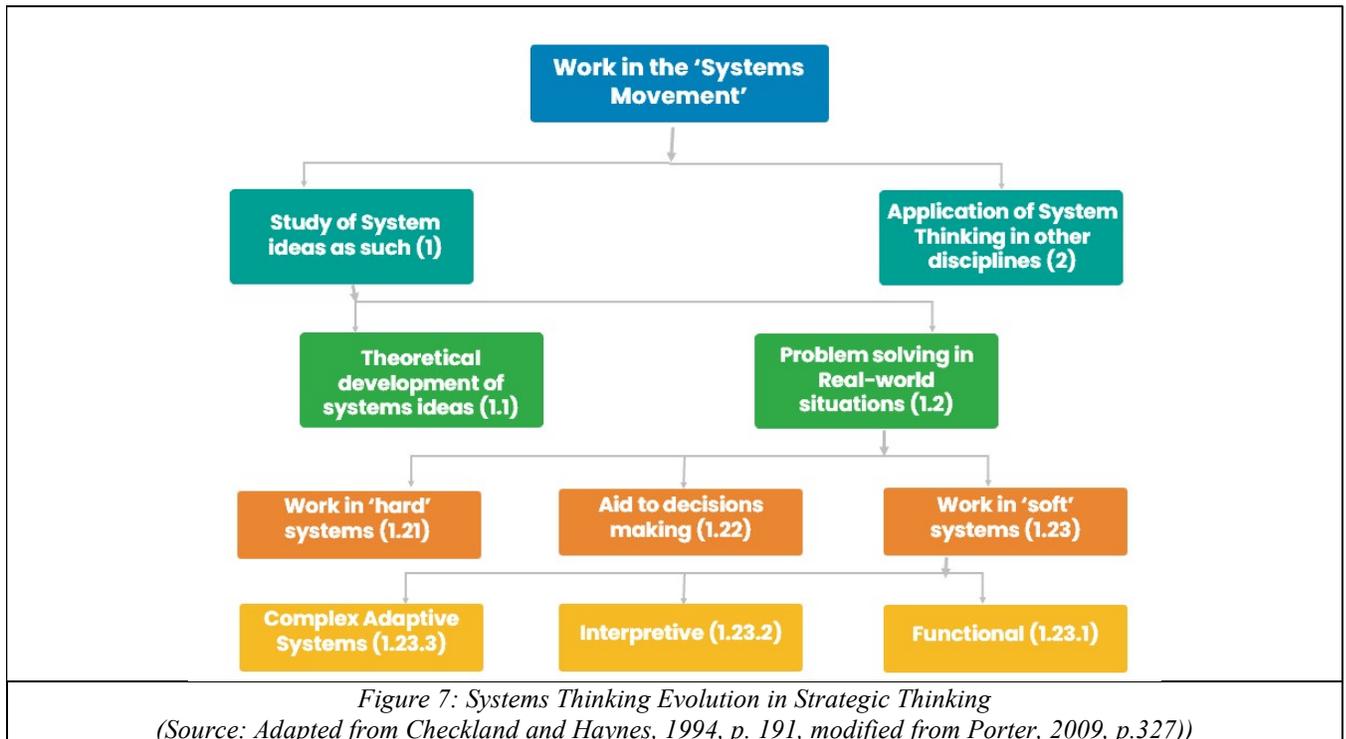
2.4.3 Section synthesis: Strategy and strategic thinking

As illustrated, strategy, strategic positioning, and strategic thinking are necessary tools in the deployment of sustainability management. In sustainability management, the literature indicates that there needs to be an understanding of macro and microenvironments. Leadership is required to influence all stakeholders and organisational culture. The literature has shown that strategy is a general framework that provides guidance for actions to be taken and is shaped by those actions. Organisations must understand the macro and the microenvironments that affect their business. This gives them the ability to position the organisation for growth opportunities and resiliency. For micro-environment analysis, an understanding of resources, stakeholders, and culture is of great importance. In these environments, culture relates to a common expression that is coherent among all stakeholders.

Reviewing the presented literature and Johnson et al.'s (2017) seven elements of the cultural web, the study connected five to the overall needs for holistic sustainability management strategy development. These are stories, symbols, rituals and routines, organisational structure, and control systems. With the comprehension of the cultural web, its application with the understanding of systems, and strategic thinking approaches, it can be deduced that each element is interconnected and can be applied at multi-level and dimensional scales. Based on further understanding of the web of connections on a system level, these elements seem to fit into three categories that sustainability management leaders must focus on and consider: communication, branding, and community (see Figure 8). Of the five elements, the strategic thinking of these elements should be considered and replicated in some of the three categories.

Communication
- Stories
- Symbols
- Control Systems
- Organizational Structures

Branding
- Stories
- Symbols
- Rituals and Routines

Community
- Rituals and Routines
- Organizational Structure
- Control Systems
- Stories
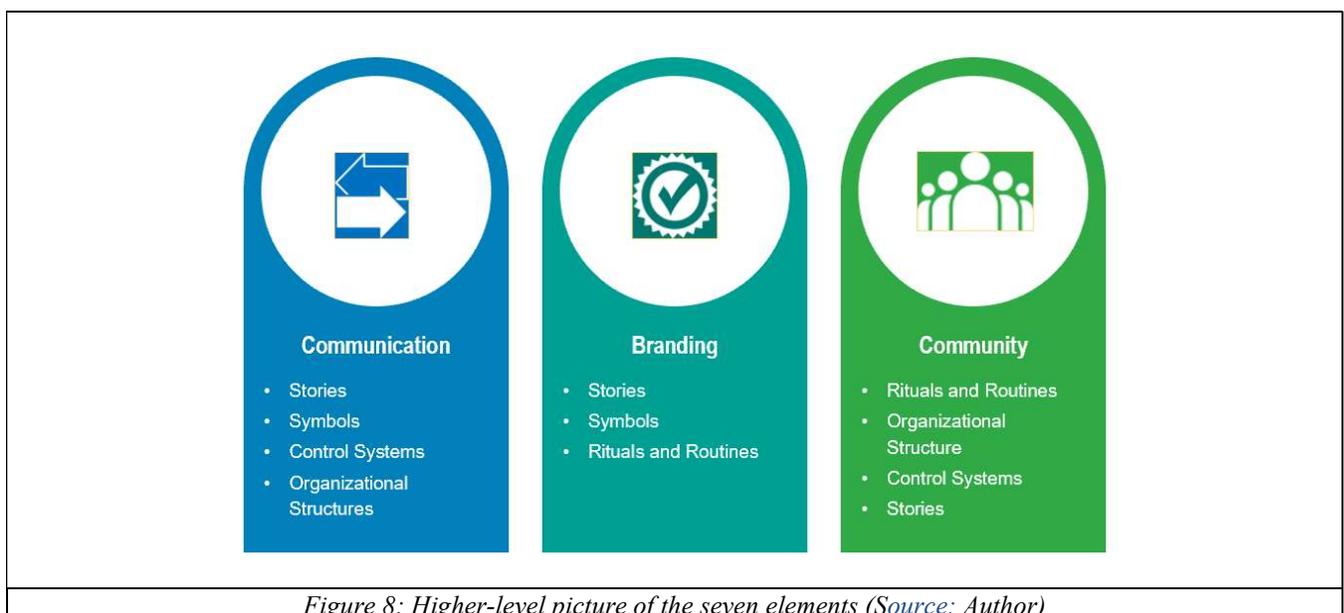
Figure 8: Higher-level picture of the seven elements (Source: Author)

Culture should be part of organisational strategy as it can be a source of competitive advantage and can be somewhat modified. To help build on this concept, it is critical for an organisation to govern its identity, as it is not only the core of its culture but it is important for recruiting, guiding employees, and attracting customers to grow its bottom line as it secures its positioning in the market it operates. It will be imperative for leadership to build strategies that influence communication, community, and brand identity and evolve it, continuously transforming in a changing marketplace.

These strategies should be coherent, unifying, integrative, and create the direction of the business and resource utilisation, hence the need for strategic thinking. Strategic thinking should be both downward and upward, focused on ensuring that meaning and purpose are diffused throughout the organisation, and it must be central to the future health of a business. Leaders must be creative strategic thinkers, as the goals, tactics, and actions often change depending upon the internal and external environment and other influences.

2.5 Design Thinking

Design thinking is the capability to apply creativity to the formulation and resolution of obstacles and challenges (Stickdorn and Schneider, 2012). It helps produce incremental shifts by bringing together participatory, human-centred, and integrated design methods to help play a pivotal role in transforming individuals, collective attitudes and behaviours (Jones, 1992; Camou and Green, 2016; Chick and Micklethwaite, 2011; Liedtka and Kaplan, 2019; Elsbach and Stigliani, 2018). Bouhali et al. (2015) advised that 'in today's innovation-driven economy, understanding how to generate great ideas is an urgent managerial priority' (p.73). Wallas (1926) was the first significant author to explore the creative method and produced a theory around the creative process's four stages. His philosophy developed from investigations of other innovators and reflections on his professional observations. Wallas's (1926) creative process includes four activities: preparation, incubation, illumination, and verification.

Figure 9: Four Stages of the Creative Process (Adapted from Source: The Art of Thought, Wallas 1926)
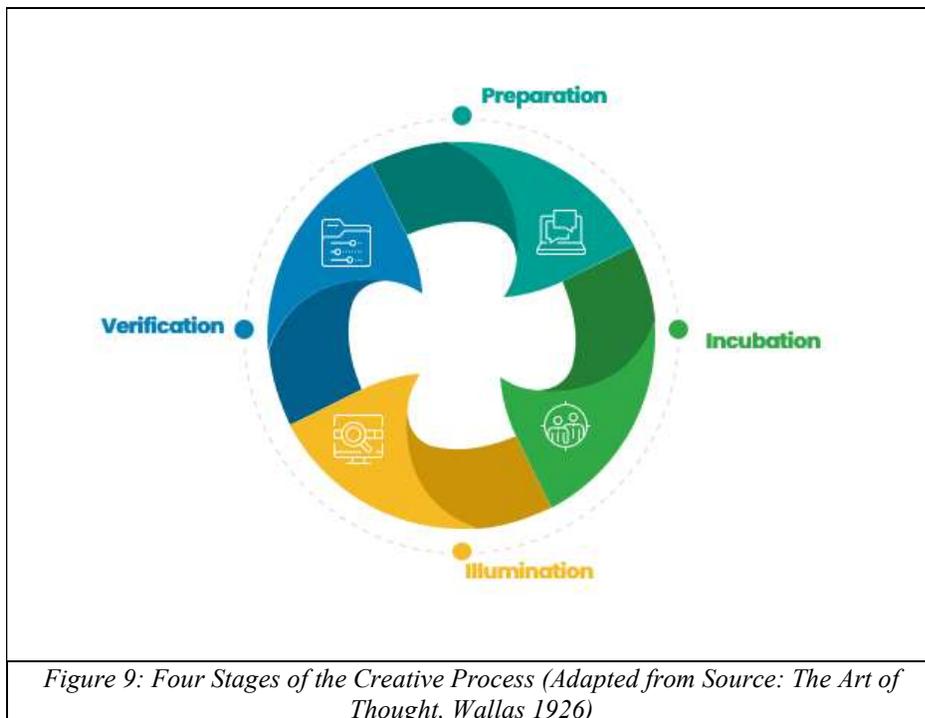
He advised that preparation comprises research, planning, and framing the key issues; this would focus on a thorough investigation and gathering of resources to create a solid foundation for idea generation. The incubation stage is about processing the collected data, reflecting on the problem, and absorbing the information gathered (Schön, 1983). Wallas (1926) revealed that this next step was influenced by French polymath Poincaré (1913) and described illumination as where one seeks to review the evidence to generate quality ideas based upon the information gathered at all stages. The final stage, verification, focuses on testing ideas to develop and address vulnerabilities. His approach facilitates understanding of the relationships of organisational activities and aids in preparing the following steps to drive quality outputs at every stage of the model (see Figure 9: Four). These foundations are built into all design processes and formulate the design thinking method of this research. Over time, an increasing number of management scholars have become interested in design, as it can encourage innovation and produce a competitive advantage for businesses (Cross, 1982; Ravasi and Stigliani, 2012; Perks et al., 2005; Liedtka and Kaplan, 2019; Buchanan,1992). Understanding the creative process and its continuous improvement method of problem solving are the foundations of design thinking.

2.5.1 Designerly thinking
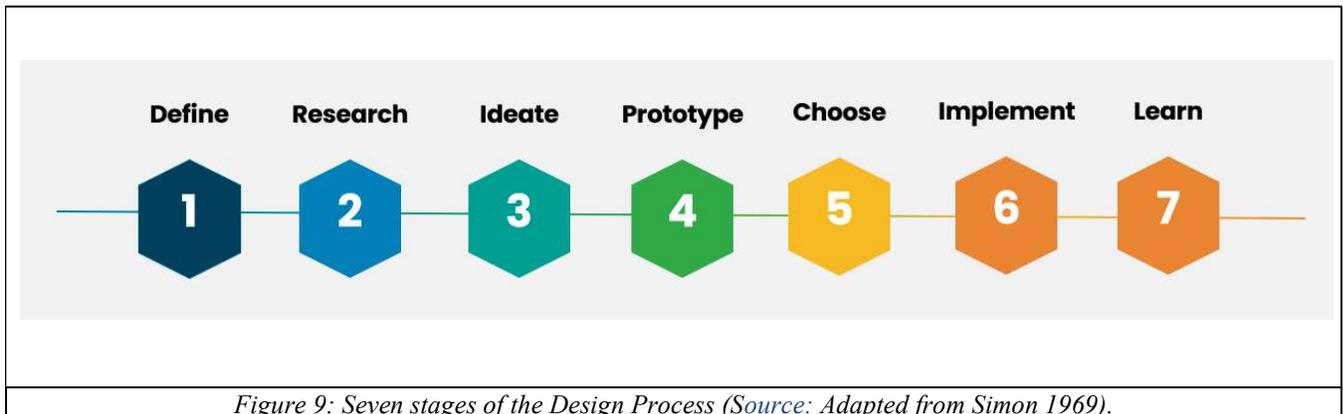
Figure 9: Seven stages of the Design Process (Source: Adapted from Simon 1969).

The origins and foundations of design thinking stem from designerly thinking. These foundations began with Herbert A. Simon in 1968 at the lecture titled 'The Science of Design: Creating the Artificial'. In this speech, he framed design as a problem-solving approach where one searched for criteria to achieve a goal. In his book *The Sciences of the Artificial* (1969), he established a design process that consists of seven stages: define, research, ideate, prototype, choose, implement, and learn; thus, he formulated the methodology of how design professionals could play a vital role in problem-solving (see Figure 9). He also revealed a rational model of decision-making for problem-solving, which he identified as a design theory that emphasised the influence that external elements have on making rational decisions. By understanding this methodology, a dilemma can be moulded, and associations can be generated by constructing the correct queries, which leads to the generation of actionable ideas that provide the best potential solutions to a problem. Other scholars (listed in Table 1: Some) have followed Simon's path and built on his theory and methodology.

Some leaders of Designerly	Core Concept
Simon 1969	The science of the artificial
Schon 1983	Reflection in action
Buchanan 1992	Wicked problems
Lawson 2006 & Cross 2006 & 2011	Designerly ways of knowing
Krippendroff 2006	Creating meaning

Table 1: Some Leaders of Designerly (Source: Author)

In his 1983 book *The Reflective Practitioner*, Schon challenged both scholars and practitioners to re-evaluate the role of technical expertise vs. 'artistry' in developing professional excellence. Then in 1984, the first reference of design as a strategic tool was made

by Kotler and Rath (1984), but it took 20 years for the notion to come to mainstream environments and have any sustained debate (Camou and Green, 2016; Fraser, 2007; Junginger, 2007; Martin, 2007a; Boland and Collopy, 2004b) with 'wicked problems' (Camillus, 2008) and design thinking (Brown, 2009; Holloway, 2009). Verganti (2008) revealed that the definition of design is fluidic, making it a challenge for scientific investigation. He found that the dominant definition utilised today was offered by Krippendorff in 1989, who formulated it from the etymology of the word with a focus on what matters. He revealed Krippendorff's definition of design as follows: 'the etymology of design goes back to the Latin de + signare and means making something, distinguishing it by a sign, giving it significance, designating its relation to other things, owners, users or gods. Based on this original meaning, one could say: design is making sense (of things)' (p. 440). He noted that this definition allows the precise linking of the design to other theories of innovation.

The foundations of this theory started from Simon's (1969) foundational work about the nature of design, and then design theorists' publications began in the 1980s, becoming more numerous around 1999, and reaching a high point in 2009 (Johansson-Skoldberg et al., 2013; Elsbach and Stigliani, 2018). From that time, books providing elaborate arguments where the author demonstrates proficiency in the field started to be published; some books are theory driven, while others presented cases and examples that detailed and developed theory or were recipes for how to do design thinking for practitioners or textbooks for students with simplified arguments, diagrams, and checklists (Simon, 1969; Rowe, 1987; Ambrose and Harris, 2010; Leidtka and Ogilvie, 2011; Johansson-Skoldberg et al., 2013). The articles developing theory on design thinking are published in design journals, in particular UK-based design studies and US-based design issues. Two well-known US-based journals have included articles on the subject: Harvard Business Review, which is known for its prestige among US executives and managers, and Design Management Review, which is known for its longstanding focus on 'demonstrating the strategic role of design in business' (www.dmi.org).

2.5.2 Design thinking foundations

For decades, the meaning and functions of design have been explored and extended, which created multiple definitions of design (Simon, 1969: Schön, 1983; Suchman, 1987; Sutton and Hargadon, 1996; Cross, 2006; Boland to and Collopy, 2004; Kelley, 2001). An influential definition of design was developed by Simon (1969), who described it as a process that combines engineering and management in a holistic approach that explored 'what things ought to be,' rather than 'what they are,' but this was later

challenged as it did not include social considerations (Schön, 1983; Suchman, 1987). To Simon (1969), design was a 'rational problem solving' approach. Later in 1983, Schon differentiated this methodology as a 'reflection in practice' and emphasised the reliance on professional expertise and intuition to solve problems. The evolution of design thinking merges both philosophies to create understanding through critical reflection through practice.

The discourse of designerly thinking and design thinking has two distinct orientations. Designerly thinking ties theory and practice from a design viewpoint and is suitably rooted in the academic field of design (Johansson-Skoldberg et al., 2013; Elsbach and Stigliani, 2018). Simultaneously, design thinking has become a simplified version of designerly thinking, or a way of portraying a designer's methods incorporated into an academic or practical management treatise. Designerly thinking as the creation of artefacts was developed by Simon (1969). Johansson-Skoldberg et al. (2013) disclosed that to Simon, design is about creation and that it comprises all cognizant activities to create Artefacts. His principal concern was about research and the character of design research, while other sciences dealt with what already existed. His influential work, The Sciences of the Artificial, answered that question and legitimised an experimental approach to design research in academia. This research will use the foundations of his work as part of the methodology for the study; the combination of this theory with action research constitutes the foundation of the methodology.

In 1992, the article 'Wicked Problems' by Buchanan discussed ways professional designers need to think in dealing with such difficulties. An example is a class of social systems problems with fundamental issues that do not have a single solution and where much creativity is needed to find resolutions (Ho, 2001; Ambrose and Harris, 2010; Shamiyleh, 2010; Junginger, 2007; Johansson-Skoldberg et al., 2013). Buchanan was influenced by Rittel and Webber's (1973) wicked problem approach. He was the first to take a designerly perspective on design thinking as a variation to the current model of the time, which had two distinct phases: an analytic step of problem definition and a synthetic sequence of problem-solving. As Wylant (2010) observed, design thinking is the discipline of steering through many contextual exercises of placements to understand 'how sense can be made of something and given this, the designer is then in a position to choose which contexts should dominate and the manner in which they should' (p. 228). Lawson and Cross were both major players in the design thinking realm. Their work is connected to the path of the reflexive tradition started by Schon (1983). Lawson (2006) developed a model with several process-driven steps that describe the complex processes of designing (289-301). However, Cross's (2011) emphasised the repetition of design strategies (p. 78). Findings show that design thinking research

has traditionally emphasised the pragmatic effects of using design tools to solve business problems (Porcini, 2009; Rylander, 2009; Ben Mahmoud–Jouini et al., 2016; Matthews and Wrigley, 2017; Elsbach and Stigliani, 2018) but has largely overlooked the potential benefits of incorporating design as a key component of organisational culture (Elsbach and Stigliani, 2018). Aftab and Rusli (2017) stated that research through design is where 'the practise of design helped in not merely thinking about what to make but encouraged the designer to use the making to create new insights' (p.1061). This research aligns with Elsbach and Stigliani's theory that design thinking would have potential benefits when incorporated into organisational culture.

Simon's (1969) design science methodology develops tools he called artefacts, which are the solution's attributes. For Krippendorff (2006), design and designers' work is a matter of creating meaning, and the artefacts are the medium for communicating that meaning. He argued that artefacts create communities between practitioners; they construct and create connections between other artefacts, where the primary aim of communication is to stay viable and justify its viability to others. He equated the artefact to a tool that aids in the understanding of where the design process needs implementation and aids in bringing meaning to the subject at hand. In 2009, Verganti built on Krippendorff's work to include innovation processes. He argued that innovation, in essence, is as important as technological innovations, and reflections on that process are also essential. His research illuminates the collaborative and social processes required for innovation to occur. Design has had a constant evolution in meaning and practice to the development of activities and tools. Hatchuel (2001) concluded that it has become a key component of market leadership, as it offers a mixture of inductive, deductive, and abductive reasoning for problem-solving and value creation. It has evolved from design practice to procedure to methodologies and, since the 1990s, to design thinking. This study follows these scholars' theories and philosophies, where artefacts are the designed and solutions are developed for organisations' issues in the form of activities or tools. These are constructed through practitioner collaboration, inductive, and abductive reasoning, and innovations to existing systems.

2.5.3 Origins of design thinking theory

Design thinking has developed from designerly thinking and has seen rapid growth in the 21st century. It offers a methodology that supports and challenges creativity to produce innovative solutions, strategies, systems, and prototypes of subject areas' interdependence. In the early 2000s, the design thinking approach spread to the business community. Leaders such as Lockwood (2010) investigated how to

establish and execute the design thinking method within organisations to drive business success, shifting from design practice into more strategic approaches (Brown, 2009; Liedtka and Kaplan, 2019; Martin, 2007; Kumar, 2012; Johansson and Woodilla, 2009), whereas his contemporary, Mozota (2011) examined design thinking's benefits on management practices and the benefits of working with designers to drive success. Dunne and Martin (2006) stated that the work of authors in recent decades has aided in the expansion of the discipline to those not in a design-related background to become design-driven leaders; these include Brown (2008, 2009), Martin (2007, 2009); Liedtka and Kaplan, (2019) Kelley (2001), and Boland and Collopy (2004). Three different origins of design thinking theory are identified in Table 1.

Some Leaders of Design Thinking	Three different origins of design thinking theory
Kelley, 2001, 2005; Brown 2008, 2009; Lockwood, 2010;	Design thinking as design company IDEO's way of working with design and innovation
Dunne & Martine , 2006; Martin, 2007, 2009; Borja de Mozota, 2011;	Design Thinking as a way to approach indeterminate organizational problems, and a necessary skill for practicing managers
Boland & Collopy, 2004a; Buchanan, 1992; Kelly, 2001, Boland & Collopy, 2004; Liedtka & Kaplan, 2019	Design Thinking as a part of management theory

Table 1: Three Origins of Design Thinking Theory (Source: Author)

One of the leading authors that influenced this movement is Brown (2008), CEO of IDEO at the time, who wrote the book *Change By Design*. He detailed steps in the process of design thinking and advised on how a design practice perspective can be utilised using an organisations unique formula of a blend of methodologies, work culture, and infrastructure. His work at IDEO, one of the largest design companies and markets itself as 'an innovation company,' provided the fundamentals of case studies and practical experience brought trust to his work's foundations. This work boosted innovation discourse and from that led to the popularity of design thinking (Johansson-Skoldberg et al., 2013; Bruce and Bessant, 2002; Feldman and Boult, 2005; Ward et al., 2009; Stevens and Moultrie, 2011; Filippetti, 2011; Menguc et al., 2014). This methodology opened doors to non-designers to the way designers process information for their tasks and a new way of thinking for the practice of management and management innovation (Johansson-Skoldberg et al., 2013; Brown and Martin, 2015; Cooper et al., 2009; Gruber et al., 2015; Rauth et al., 2015). Brown's (2008) simplified design thinking process is an ongoing cycle of idea generation, forecasting results, testing, and generalising. It became a way to approach undefined

organisational problems, which became a necessary skill for practicing managers familiar with intellectually grounded discussions (Martin, 2007b; Martin, 2009; Dunne and Martin, 2006; Liedtka and Kaplan, 2019). Brown's description of the circular process is represented in Figure 10 below:

Figure 10: Design Thinking Model (Source: Tim Brown, 2009)
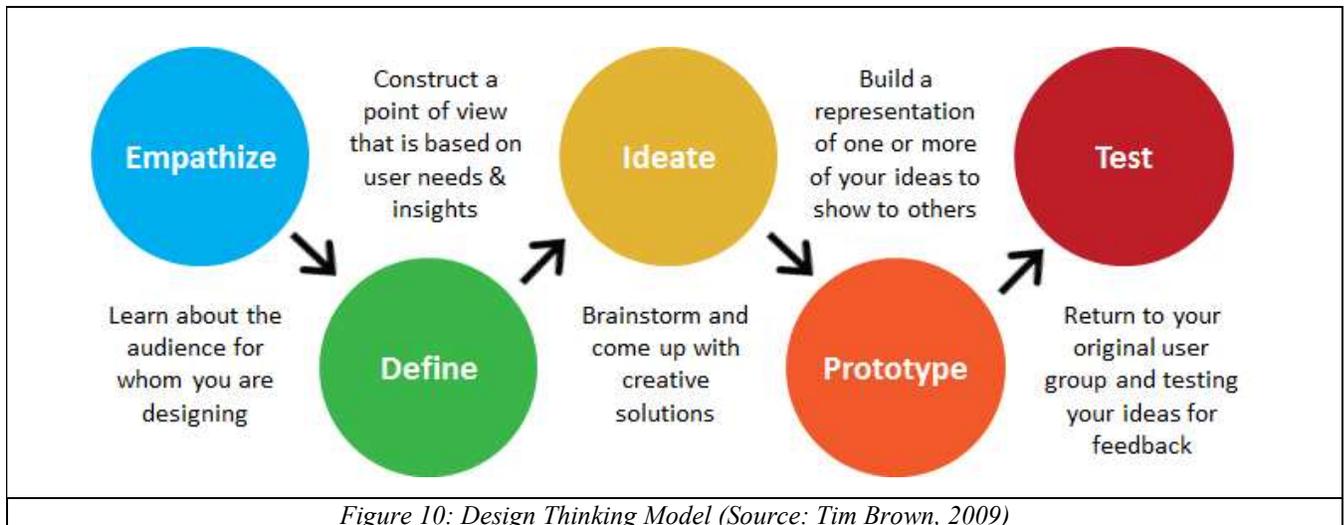
Scholars and leaders in the field have credited him with influencing work in strategy, organisational change, and development as well as advancing a collaborative culture of free-flowing ideas between multi-disciplinary groups (Body, 2008; Boland et al., 2008; Chen and Venkatesh, 2013; Kolko, 2015; Michlewski, 2008; Stigliani and Ravasi, 2012; Tischler, 2009; Wilkie et al., 2010; Sato et al., 2010; Leidtka and Ogilvie, 2011; Fraser, 2007). Baeck and Gremett (2011) claimed that design thinking is about practice, outcomes, and processes. It enhances performance in multi-disciplinary teams, helps them examine problems uniquely, and combines empathy, creativity, and user feedback to make finding solutions more accessible (Baeck and Gremett, 2011; New and Kimbell, 2013). For Neumeier (2009), design and design thinking are for developing holistic strategies that help increase the quantity of viable options and their deployment. Scholars have varied definitions of design thinking for organisations; this allows for greater opportunity and adoption of design philosophy within the business community. Curedale (2013) defines design thinking as an approach to support innovation and intelligent change that is human-centred driven by creative and analytical thinking, customer empathy, and iterative learning (pg. 18). He further advises that design thinking aids in innovative solutions while balancing design considerations and two modes of thinking (analytical and creative thinking).

2.5.4 Importance of design in strategic planning and organisational culture

Sustainability management leadership would benefit from looking at design and sustainable design in a business context and understanding the importance of design in strategic planning and organisational culture (Dziersk, 2007). Design is human-centred and is initiated by what humans need or might need, making life easier or enjoyable, making technology useful or usable, and understanding culture and contexts. Design Thinking (Brown, 2008) considers users' needs and preferences and perceives design as a team-based and collective approach to development. Scholars argue that this expansive view of design is what underpins innovation, and that companies will do well in incorporating design thinking into all phases of the business process (Dumas and Mintzberg, 1989, 1991; Romme, 2003; Cross, 2011). In present-day research, there is a gap in understanding how design thinking might become an essential cultural component of organisations and how it can be an essential tool for organisations' cultures (Elsbach and Stigliani, 2018). Design thinking tools produce both emotional experiences and physical artefacts. Reflections on these help the organisations' stakeholders understand why and how design thinking tools were effectively used in their organisation. Scholars argue that design thinking tools significantly influence the cultures of the organisations in which they are used by affecting the norms, values, and underlying assumptions about the right way to work in those organisations. It helps develop strategic alliances, bringing together two or more groups to share resources or activities to pursue a common strategy. This creates a collective network that thinks about strategy in terms of collective success and individual organisation (Johnson et al., 2017). This unified vision and conclusions are made into collective interpretations. These are vital to organisational routines' ability to adapt to changing conditions and are essential to understanding central concerns in their environment (Dutton and Dukerich, 1991; Edmondson et al., 2001; Cohen et al., 2014; Gavetti and Warglien, 2015). Boland and Collopy (2004b) distinguished design thinking as a 'decision attitude' in which managers and decision-makers utilise expectations and orientations stakeholders bring to a project.

Designers have influenced the sustainability movement in the United States. In the early 1990s, calls for design to make radical changes in the built environment gained momentum, and in the early 2000s, design for green infrastructure, manufacturing, and the built environment became more widespread. A sizable percentage of the industry has committed to integrating environmental and social issues into product development, resource management, and social equity through this momentum. In traditional terms, 'designer' refers to a wide range of occupations, from fine artists, architects, craftsmen, and engineers to inventors. This drive has recently refocused design importance to business, resulting from passing

legislation and recognising brand importance to the bottom line's growth and organisations' longevity (Brown, 2009). Still, there is little evidence of holistic design adoption in existing systems. Overall design has a powerful influence on social conditions, sales in the marketplace, and economic conditions for development. It has great potential to support sustainable innovation and cultivate processes that indefinitely support human well-being. Verganti (2008) proposed that organisations should build their competitive advantage by strengthening and manipulating their networks of long-term relationships alongside the set of communication channels used to guarantee access to specialised knowledge (d'Ippolito, 2014). The development of proper channels and collaboration internally and externally will be a crucial design strategy towards a cultural shift in any organisation. Stakeholders need to comprehend the complexity of change, the parallel connections of systems in the process, and the variants in the change process as they simultaneously communicate the impact of these changes (Cummings and Worley, 2005; Greenwood and Hinings, 1988; Miller and Friessen, 1984; Mohrmann et al., 1989; Romanelli and Tushman, 1994). Weick and Roberts (1993) follow this mindset and advise that as collaboration and communication increase organizational errors decrease.

Sustainable design is an all-encompassing concept that can be understood as incorporating (a) more innovative practices and greater levels of innovation, (b) ethics and the socio-economic dimensions of sustainability, and (c) ecological principles. According to Sherwin (2004), thinking like a designer creates a sustainable advantage in an organisation. This sustainable design thinking helps establish a long-term strategic vision of a corporation's future products and operations; it enables the organisation to shape more sustainable production patterns and consumption (Sato, 2009, 2010; Lockwood, 2009). It helps a company's ability to increase innovation, add value, attract customers, and reduce environmental impact. Different frameworks and approaches have been designed and developed to help organisations follow this path (Martin, 2009; Lockwood, 2009). Some examples are 'the five capitals approach' and 'the natural step framework'. These are but a few designed models that exist; understanding what others have designed and finding the connections is the next step to designing and developing a strategic plan for a cultural shift towards sustainability (Hoy and Hoy, 2003; Borja de Mozota, 2011; Hoffmann et al., 2012).

2.5.5 Design influences on the function and sustainability of holistic systems

Design and innovation allow businesses to grow their top-line sales, evolve, and transform their business model, and their entire company to better compete in the new emerging market of sustainability (Walton et al., 2010; Lockwood, 2009; Birchell-Spencer, 2010). Forward-looking companies will have to innovate at the systems level while looking for new materials, technologies, and business growth, for example, as

they restore environments. These companies need to find ways to have their employees, vendors, and customers follow their new mission, vision, and goals (Fraser, 2009; Leavy, 2010). As sustainability leaders forge a new green market paradigm, they must consider that the global economy is aiding in the growth of consumers' individualised power and their ability to influence trends and markets. With this new paradigm, goodwill propels many sustainable brands where consumers feel empowered to be able to reward or boycott companies' behaviours. This means that companies must be proactive in developing standards, having transparency in their actions and overall performances (Appelbaum et al., 2012; Burke, 1982; Burrell and Morgan, 1979).

It has been argued that when evaluating current business practices, a holistic system design needs to be created and implemented (Goleman, 2013; Khan et al., 2017; Klapper et al., 2018). Barnum (2013) stated that sustainability means doing 'less bad' for many businesses and that there will be a need to fight this existing reality and make these accepted models obsolete. He concluded that corporations have become myopic in their vision of their businesses' effects on the environment or the consumer. Commentators such as Cooper et al. (2009) and McDonough and Braungart (1991, 2002) argued that in business, there needs to be a cross-disciplinary design team to help create a process to align everyone in an organisation, look at existing frameworks, see where there is a need for redesigning systems, and better understand the broader effects of the business. Giddens (2009) discussed the green movement and the confusing variety of philosophical standpoints that exist. He claimed that a lot more order needs to be brought into this clutter of ideas and concepts. He points out that 'responding to climate change will prompt and require innovation in government and the relation between the state, markets, and civil society' (p. 94). A new movement is creating the next industrial revolution, where society needs to find innovative ways to look at human, financial, manufactured, and natural capital (Hawken et al., 1999; Bell, 2008).

Understanding design and innovation is key to business growth. Design influences the way organisations think of stakeholders' needs and empowers business operations and other business units. Design gives the ability to learn through doing, so action research is utilised by change agents to self-reflect and improve their understanding of their own practice through research through design and the incorporation of multidisciplinary stakeholders' collaborations (Coghlan, 2006; Aftab and Steven, 2016; Van Manen, 1990). Design is a collective experience; it influences behaviour, creates new ways of perception and depends on social interactions as the source for feedback (Aftab and Young, n.d.; Curedale, 2013; Joyce and Paquin, 2016). Organisations need a new roadmap to understand the changes they need to make. First, they need to comprehend the existing map, design a new one, then see where the differences are, and

analyse what changes need to be done first for the maximum results (Johnson et al., 2008). As these road maps are being designed, sustainability leadership will need to understand the importance of 'brand' to their organisation and company culture. An organisation needs to leverage the design process to see how much innovation potential was inherent in the brand as it connects with its' consumer base; the organisation needs to utilise emotional branding that is about inspiration, personality, and connection (Gobe, 2007). A brand represents an organisation as a whole, from its internal clients to its external ones. The right design must come from the heart, the brand community, and the best of the corporate culture.

2.5.6 Section synthesis: Design thinking

Design thinking is the capability to apply creativity to the formulation and resolution of obstacles and challenges. It aids in the creation of incremental changes by bringing together participatory, human-centred, and integrated design approaches to help play a pivotal part in evolving individuals, collective attitudes, and behaviours. The origins of design thinking come from designerly thinking and the science of design. Simon's science of design theory introduced the idea of design as a problem-solving approach that searches for measures to accomplish an objective. A challenge can be shaped through a series of decision-making steps, and associations can be initiated by asking the right questions, leading to actionable ideas generated to provide the best potential solutions to a problem. The meaning of design and its purposes have been investigated and developed over the past few decades. It is a simplified version of designerly thinking, or a way of describing a designer's methods incorporated into academic or practitioner management. Design thinking methods and procedures can improve performance in multi-disciplinary teams, assist in making individuals and groups see problems uniquely, and help make the development of finding solutions more accessible.

Design and design thinking can help organisations develop more holistic strategies that seek to increase sustainable solutions. Overall, design has a powerful influence on social conditions, sales in the marketplace, and economic conditions for development. Understanding design and innovation is key to business growth. Design has influenced the way businesses think of stakeholders' needs and how the growing importance of design has empowered business functions and other business units. Design thinking brings organisations the ability to innovation, problem-solving, influence, create a human-centred design, generate a competitive advantage, and develop organisational strategy. Design and innovation give businesses the opportunity to compete better in the new emerging market of sustainability. As they build on the needs that the sustainability market is continually demanding, organisations must be proactive in

developing standards, having transparency in their actions and overall performance. In this new evolving sustainability market, organisations will need a new road map to understand the challenges, evaluate current business practices, and develop holistic system design innovation strategies.

Simon advised that all cognizant design activities create artefacts. His influential work, The Sciences of the Artificial, legitimised an experimental approach and answered these questions to design research in academia. Krippendorff defined an artefact as a tool that facilitates understanding where the design process needs implementation and aids to bring meaning to the subject at hand. This process allows for the collaborative and social processes required for innovation to occur. The artefact becomes a medium for communicating significance and a tool that aids in understanding where the design process needs implementation and aids to bring meaning to the subject at hand. This research is built on design science research methodologies with a combination of action research and holistic design thinking methodology (HDTM) action cycles, as explained in the methodology section, Chapter 3.

2.6 Organisational Change Management

2.6.1 Organisational change

As Cooperrider and Srivastva (1987) have argued, change is an ever-present feature of organisational life, both at the operational and strategic levels, and so it cannot be separated from organisational strategy or vice versa. This idea has also been explored by other authors, such as Hiatt (2006), Kotter (1996), Senge et al. (1996), 1996; (2004), and Rieley and Clarkson (2001). Moran and Brightman (2001) defined organisational change management as 'the process of continually renewing an organisation's direction, structure, and capabilities to serve the ever-changing needs of external and internal customers' (p. 111). Graetz (2000) stressed that few would dispute that the primary task for management today is the leadership of organisational change, as in this century has seen 'increased globalisation, deregulation, the rapid pace of technological innovation, a growing knowledge workforce, and shifting social and demographic trends' (p. 550). Senior (2002) agreed with Graetz's assumption and asserted that organisational change management is becoming a highly required managerial skill due to these evolutions. Others in the field are addressing this as well, and they agree that the pace of transformation has never been greater than in the current business environment (Balogun and Hope Hailey, 2004; Burnes, 2004; Carnall, 2003; Kotter, 1995; Luecke, 2003; Moran and Brightman, 2001; Okumus and Hemmington, 1998; Paton and McCalman, 2000; Senior, 2002). They asserted that there is an understanding that internal or external

influences prompt change and affect all industries, and successful change management should be accepted as a necessity for organisational success in a highly competitive and continuously evolving environment (Kotter, 1996; Luecke, 2003; Carnall, 2003; Balogun and Hailey, 2004; Burnes, 2004; Okumus and Hemmington, 1998).

2.6.2 Early theories and approaches

Rieley and Clarkson (2001) suggested that early theories and approaches to change management suggest that if organisations were continually changing, they could not be effective or improve performance. Luecke (2003) also posited that traditional ideas follow the notion that people need routines to be effective and improve performance. He emphasised that it is essential for organisations to be in a state of continuous change in today's business environment and that stakeholders can adapt to that state and that mindset become part of organisational behaviour (Burnes, 2004; Rieley and Clarkson, 2001). Change process took their foundations in the work of Leifer and Lewins. Leifer (1989) noted that change affect internal and environmental conditions, while Lewins (1947) posited change as sequential phases called unfreezing, moving, and freezing. This thinking initiated the **planned approach** model of change that recognises the need to discard old behaviour, structures, processes, and culture before effectively adopting new methodologies (Bamford and Forrester, 2003; Eldrod II and Tippett, 2002; Burnes, 2004). Scholars, such as Judson (1991), Kotter (1995), Galpin (1996), and Armenakis et al. (1999), have built on this work and described multi-phase models for change agents to follow in executing changes.

The **emergent approach** is another concept of change that emphasises change as a learning process that should not be perceived as a series of linear events. This approach highlights that change develops through the relationships of a multitude of variables within an organisation. It stresses that change should be an open-ended process of adaptation to changing circumstances and conditions, as change is unpredictable in nature (Burnes, 1996, 2004; Dawson, 1994; Altman and Iles, 1998; Davidson and De Marco, 1999; Dunphy and Stace, 1993). Some other models are Beer et al.'s (1990) six-step change management model, a detailed systems approach for change; Judson's (1991) five steps model; and Kanter et al. (1992) ten commandments, which hold the view that there is not one single approach, as all organisations are unique in their process and culture; and Hiatt's (2006) ADKAR, a model that represents reinforcement, awareness, desire, and knowledge and ability. Table 2 presents a sample of other models with more detailed descriptions. All these models have steps that practitioners can follow to effect change. Judson's 1991 model consists of five phases and focuses on planning, communication, and building acceptance of

the new behaviour, while Kotter's 1995 model has eight steps that focus on operations, collaboration, and developing champions; its focus is also on building communication strategies and a new vision for the organisation (Appelbaum et al., 2012). Galpin's (1996) model suggest that a new vision would need to be created, communicated, tested, and refined before the final rollout of recommendations.

Stouten et al. (2018) analysed and identified 10 steps or success components from seven leading change models. Based on their findings, they concluded that change management must assess the opportunity or problem motivating the change as they formulate and communicate a clear, persuasive vision. Then leaders must develop, monitor, and promote change-related information and have the ability to strengthen the change process (Pryor et al., 2008). These managers must institutionalise change in company culture, practice, and management succession by selecting and supporting a guiding change coalition to empower others to act. They must identify short-term wins and use them as reinforcements of change progress. These 10 factors can be analysed into 3 major areas of focus: communication, branding, and community in an organisation. Some key terms that relate to each include branding—motivate, clear vision, promote change; communication—monitor, strengthen, reinforce; and community—mobilise, empower, coalition.

Models for Organizational Change Management		
Author	**Model structure**	**Description of Model**
Judson (1991)	Comprised of five phases	(1) analyzing and planning the change; (2) communicating the change; (3) gaining acceptance of new behaviors; (4) changing from the status quo to a desired state; and (5) consolidating and institutionalizing the new state.
Kotter (1995)	Eight steps for change agents to follow in implementing fundamental changes in how an organization operates	(1) establishing a sense of urgency by relating external environmental realities to real and potential crises and opportunities facing an organization, (2) forming a powerful coalition of individuals who embrace the need for change and who can rally others to support the effort; (3) creating a vision to accomplish the desired end-result; (4) communicating the vision through numerous communication channels; (5) empowering others to act on the vision by changing structures, systems, policies, and procedures in ways that will facilitate implementation; (6) planning for and creating short-term wins by publicizing success, thereby building momentum for continued change; and, (7) consolidating improvements and changing other structures, systems, procedures, and policies that aren't consistent with the vision; and (8) institutionalizing the new approaches by publicizing the connection between the change effort and organizational success.
Galpin (1996)	Comprised of nine wedges that form a wheel	(1) establishing the need to change; (2) developing and disseminating a vision of a planned change; (3) diagnosing and analyzing the current situation; (4) generating recommendations; (5) detailing the recommendations; (6) pilot testing the recommendations; (7) preparing the recommendations for rollout; (8) rolling out the recommendations; and (9) measuring, reinforcing, and refining the change.
Armenakis et al. (1999)	Two models that incorporate elements of both Lewin's (1947) work and Bandura's (1986) social learning theory	First Model - five components: (1) discrepancy (i.e., we need to change); (2) self-efficacy (i.e., we have the capability to successfully change); (3) personal valence (i.e., it is in our best interest to change); (4) principal support (i.e., those affected are behind the change); and (5) appropriateness (i.e., the desired change is right for the focal organization).

Table 2: Models for Organisational Change Management (Source: Adapted from Armenakis and Bederian, 1999)

As observed in the various models, the encouragement of stakeholders to enact new behaviours to achieve desired change will be required to successfully implementing change. If change is not delivered properly, resistance and denial responses could produce feelings of stress and cynicism in stakeholders that would result in reduced organisational commitment. Armenakis and Bedeian's (1999) study suggested that understanding and tracking behaviour change will be necessary for achieving desired modifications. They concluded that there are five observations in organisational change management literature. They found that organisational change analyses tend to be limited in scope and only focus on one set of considerations at a time. Furthermore, when creating change, an incremental approach should be taken, as organisations differ in their response. They concluded that there is a need to understand the likelihood of individuals enacting behaviours necessary for successful change and that current research in the field of organisational change has yet to draw on findings in related areas. Lastly, the use of qualitative methods in conducting organisational change research is growing.

Other authors have developed methodologies for aiding in the understanding of change management through metaphors. For example, Lewins (1947) referred to organisations as organisms of change that can be frozen and unfrozen like ice. Cameron and Green (2015) maintained that a good way to recognise the many facets of a changing organisation is by thinking about an organisation as a metaphor to allow the opportunity to stretch our thinking and deepen our understanding. This allows stakeholders to see things in a new way, connect to change, and act in a new way. Other authors and their models in the field of organisational change and the metaphors are illustrated in Table 3.

Models of Approaches to Change and Associated Metaphor				
Model or Approach	**Organization Metaphor**			
	Machine	**Political System**	**Organism**	**Flux and Transformation**
Lewin: Three Step Model	X		X	
Bullock and Battan: Planned Change	X			
Kotter: Eight Steps System	X	X	X	
Beckhead and Harris: Change Formula			X	
Nadler and Tushman: Congruence Model		X	X	
William Bridges: Managing The Transition	X		X	X
Carnall: Change Management Model		X	X	
Senge: Systemic Model		X	X	X
Stacy and Shaw: Complex Responsive Process		X		X

Table 3: Models of Approached to Change and Associated Metaphor (Source: adapted from Cameron and Green, 2015, p. 105)

2.6.3 Organisations systems thinking approach

Senge's (1990) influence on organisational change is his systems thinking approach and his establishment of creating a learning organisation and establishing profound change. His research focused on what the elements are in place for change to occur, what barriers are in place to cause a block, and how organisations maintain transformation through different development phases. Senge et al. (1996) designed and developed a 10-system decree to help leaders implement change and understand organisations as systems. Bicheno and Holweg (2009) focused on system thinking change management and concluded that sustainability has become a big theme in this area as it fits into the wider ideas of change; however, they warned the traditional notion of 'unfreeze, change, refreeze' new ways of working is not enough in today's economic environment. They advised that organisations need a new way of thinking in which they are continuously unfrozen, so adaption will also be constant. They recommend Senge's 10 system laws to managers for understanding systems and avoid implementation pitfalls, as summarised in Table 4.

Understanding Systems	Decree
1: Behavior grows better before it grows worse	Management is deluded (and rewarded!) by short-term results. Why? Because the whole system is not fully understood.
2: Cause and effect are not closely related in time and space.	If there is a problem in the office, the solution lies in the office...Very likely not so.
3: Dividing an elephant in half does not produce two small elephants.	Again, a warning on reductionism.
4: Faster is slower	Perhaps the supreme implementation law! Take time to achieve buy-in. The essence of what policy deployment should be about.
5: Small changes can produce big results, but the areas of highest leverage are often the least obvious.	This is about leverage. Look to Malcolm Gladwell in The Tipping point of 'maven's in an organization who have great influence despite their apparent lowly status.
6: The easy way out usually leads back in.	There are many quick and easy solutions to problems in organizations, they are all wrong. Juhani's law states that 'the compromise will always be more expensive than either of the suggestions it is compromising'.
7: The harder you push, the harder the system pushes back.	Systems bite back. Most systems are in a state of natural balance. When a factor is altered others compensate.
8: There is no blame.	Start with the process rather than the person. It is win, win, or walk away, seek ways in which both sides will win. Compromise is essential.
9: Today's problems come from yesterday's solutions.	This could be a re-statement of the push down, pop up principle. Attack one problem, stemming from past actions, and other pops up. This is the fundamental reductionist rather than holistic thinking.
10: You can have your cake and eat it too, but not all at once.	Essential message, you can have short lead-times and high quality and low cost, but it takes time to achieve.

Table 4: 10-system decree, Understanding organisation as a system (Source: adapted from Bicheno and Holweg, 2009, p. 204).

Senge's theory states that organisations need to understand their systems holistically and be innovative in their thinking. They will need to implement small initiatives to show progress as they look at larger holistic strategies; this is done to leverage and influence stakeholders as the change is being implemented. Growing too fast, or making too many changes at one time, without the proper foundations, will throw the organisation out of balance. Businesses need to have a larger strategy and work towards them as they test initiatives and create policies. Senge concludes that issues are cultural. They can be embedded in the organisation for a long time; management needs to understand this and find innovative solutions that can work within that paradigm; doing this can help create solutions that use compromise and create an environment that accepts change rather than a hostile one from stakeholders. Nonaka (1994) followed Senge's philosophy that organisations need to create learning environments. He emphasised that shared knowledge by individuals and organisations is imperative for synergetic expansion and the creation of knowledge. He stressed that as organisations deal with changing environments, they ought to be able to

process information efficiently and create information and knowledge. He identified innovation as the key form of organisational knowledge creation and defined innovation 'as a process in which the organisation creates and defines problems and then actively develops new knowledge to solve them' (p. 14). Nonaka's theory stresses the need for understanding web of connections between organisational layers, for example, project-system layers, business-system layers, and organisational knowledge-base. He posited that the collaboration of multi-disciplinary teams through this web will promote knowledge creation and innovation. Design thinking methodology can be a tool to aid in the process of creating a learning organisation on a systems level, as well as on a project level, and it will aid in developing an organisation that can constantly adapt to change.

Balogun and Hailey (2004) noted that 70% of all change programmes currently initiated tend to fail as they tend to be ad hoc, reactive, and irregular. Scholars such as Miller (1982), Miller and Friesen (1984), Cummings and Worley (2005), and George and Jones (2002) have explored the theory that organisational change management is the business's movement from one state to the desired future that involves separating from existing alignments. Todnem (2005) argued that there is a wide range of contradictory and confusing theories and approaches that cause disorientation regarding how to successfully implement and manage organisational change. Payor et al. (2008) advised that organisations need more than a model that simply helps in the change management process; a comprehensive strategic systems model with executable elements at the tactical level is recommended. To be successful, organisations will have to streamline processes and relationships as they eliminate non-value-added activities and empower people at all levels in the organisation as they are held accountable for their decisions (Senior, 2002; Graetz, 2000). There is a lack of a valid holistic strategic framework as organisations find the need for leaders to anticipate and invent the future.

Sustainability issues and difficulties have advanced systems thinking theory in the practical and educational frameworks of change management (Senge, 1990; Senge et al., 1996; Collopy, 2019). Porter's (2009) study focused on theories and their implications for sustainability; he deduced that there are three conceptual and practical perspectives on systems and sustainability (see Table 5). His analysis of the three approaches shows that the first, the functionalist, is a traditional linear thinker and leader who only evaluates solutions for a specific area of study. In the interpretive approach, managers review adjoining systems and their connection to the area of observation. Porter (2009) advised that change management in the 21st-century economy will need to utilise complex adaptive systems, an approach that identifies a vast web of connections that is complex and works together. His complex adaptive systems stress the

development of a densely connected network of stakeholders that are self-organising, and of building and empowering learning networks that monitor results and adapt when needed. He emphasised the bottom-up process and evolution of non-linear systems and concluded that in today's turbulent market, the complex adaptive system is the one that is essential for, should be taught to, and used by sustainability management leaders. According to him, managers will need to understand all approaches to design and develop the best strategies as a 'one size fits all reality or methodology is not possible'(p. 344).

Three Conceptual & Practical Perspectives on Systems & Sustainability

Adapted from Three Views of Systems Theories (Source: Porter, 2009, P.329)

	Functionalist	Interpretive	Complex Adaptive Systems
Principles and Assumptions	Linear cause and effect.	Systems and boundaries in conflict require further critical inquiry.	Densely connected network of agents, self-organization, and emergence. Ongoing learning and bottom-up evolution.
Theories	Hard systems theory, General system theory	Soft systems theory, Critical systems thinking.	Complexity theory, Non-linear systems, Complex adaptive systems.
Methodologies	Determine mathematical linkages and cause and effect Optimize system function	Surface assumptions, explores tensions between conflicting interpretations.	Building and empowering learning networks and bottom-up process. Providing appropriate incentives. Monitor results & make adaptions as needed.
Strength and weaknesses	Oversimplifies social and human factors and actors' subjectivity.	Assumes eventual consensus and improved sustainability results.	Well suited for today's turbulent marketplace. Shift to stewardship style of leadership.

Table 5: Adapted from Three Views of Systems Theories (Source: Porter, 2009, p. 329)

2.6.4 Organisational culture change and leadership

Organisational culture is interconnected to change management practice, as it encompasses day-to-day activities and is imperative to incorporate change into everyday behaviour. It refers to how stakeholders' and managements' attitudes, work ethic, and actions are perceived in the workplace (Liff and Posey, 2004; Mann, 2010). Mann (2010) defined culture as a 'hypothetical construct' (p. 3) that is made up to understand what is seen and experienced. However, according to Liff and Posey (2004), culture can be influenced and changed; they stated that this influence can come from the structure, leadership, social interactions, and even the workplace's design. Organisations to create a desired culture based on their missions, visions, and new initiatives. Beer et al. (1990) argued that to achieve cultural shifts, change

measures must be incorporated into a broad section of the organisation, as they are measured and communicated to create routines to introduce and sustain change. These ideas have also been explored by authors such as Kanter et al. (1992), Edmondson (2002), Kotter (2005, 2012), Beer (1980), Judson (1991), and Rerup and Feldman (2011). New and Kimbell (2013) further advise that 'cultural engineering' (p.3) is driven by communication of specified values, sharing of information, skill and assumption.

Lewin's (1951) study brought a better understanding of the dynamics of change in organisational culture with his field theory. Considered the founder of action research and group dynamics, his research initiated the foundations of organisational development (OD) conceptualisation, which was a relatively new way of thinking about the interactions of stakeholders with their social and work environments. He suggested that teams should be the focus, as they are the building blocks of organisations, not individuals. Scholars noted that stakeholders' resistance to the unknown affect behaviour and change initiatives. They suggested that when change is implemented, stakeholders' fears and mistrust needs must be addressed. They asserted that leadership must build strategies that consider risk, the consequences of transformation, and influence stakeholder behaviour, as they identify champions, engage stakeholders, and communicate new processes as change is managed. Addressing these strategically will result in a more productive labour force and positive change efforts (Burke and Litwin, 1992; Schaltegger et al. 2019; Vlasov, 2018; Cacioppe, 2000).

For leadership-driven change management to have any real influence on stakeholders' commitment to change, it is necessary to construct and implement relevant support mechanisms (Meyer et al., 2007; Martinez et al., 2019; Freudenreich et al., 2020). Employees need to feel that change is inevitable and is influenced by internal systems, not external ones (Laurin et al., 2012; Proudfoot and kay, 2014). Corporate social responsibility plays a positive role in change management, as it brings in the perception of fairness and equality to all stakeholders' mindset. These beliefs are important to acceptance and commitment by all involved (Daly and Geyer, 1994; Bernerth et al., 2007; Hiatt, 2006; Kanter et al., 1992; Kotter, 1996; Rodell and Colquitt, 2009). These leaders/change agents need to exemplify new behaviours and be role models for change (Soenen et al., 2017; Melkonian et al., 2011). Social movement research shows that encompassing employee beliefs while creating a transitional identity that retains elements of the current identity and captures elements of the changed state will help evolve a new change-supporting organisational identity (Clark et al., 2010; Kellogg, 2012; Stouten et al., 2018). Businesses need to understand and fulfil their key stakeholders' expectations to gain access to vital resources and be successful (Fuoli, 2017).

As Oreg et al. (2011) argued, stakeholders in an organisation need to comprehend their ability to influence and affect change, as well as the degree of control and autonomy that they can exercise. These ideas have also been explored by authors, such as Mathieu and Zajac (1990), Frese et al. (2007), Hornung and Rousseau (2007), and Parker et al. (2006), in a strand of literature that examines inclusive change and the role of stakeholder autonomy in supporting such shifts. Leaderships tend to have a more favourable attitude towards the change when they have the ability to understand, consider, and communicate corporate and individual benefits to stakeholders, which will increase the chances of acceptance (Lau and Woodman, 1995; Rousseau and Tijoriwala, 1999; Michela and Vena, 2012; Bartunek et al., 2006; Soenen et al., 2017). From a leadership stance, this will require governance that can become involved in the pragmatic requirements of addressing real problems, developing theoretical considerations of complex issues, and understanding effective, long-term solutions.

Hargreaves and Fink (2006) contemplate seven principles for consideration by change management: depth, length, breadth, justice, diversity, resourcefulness, and conservation. They argued that change programmes must be rooted in the needs, desires, and abilities of the local communities while building trust and collaborative relationships. The authors stated that leadership should design programmes that can evolve, adjust, spread, and withstand the test of time, as they will require all stakeholders' long-term commitment. They stressed the need to include sustainable development that encompasses justice, diversity, and conversation. They posited that when the creativity, initiation, talents, and determination of both internal and external stakeholders are engaged, programmes will be successful. On the subject of sustainable development, they suggested that leaders must first develop transparency and build trust in community issues and relationships to reduce uncertainty in interdependent relationships (Rafferty and Simons, 2006; Mayer et al., 1995; Rousseau et al., 1998). Link (2006) is in agreement with this philosophy and describes the leaders of environmental, economic, and social sustainability as being able to mobilise people and resources to achieve a real impact. Sachs (2005) advised that long-term systemic perspectives need to be designed, developed, and addressed before smaller initiatives are tackled in sustainability development. He argued that short-term solutions tend to cause lasting unintentional consequences that can offset immediate benefits or relief. Based on this perspective, the author assumed that sustainability leaders must have the fortitude to stay positive, foster, and sustain a collective vision of a hopeful future with the resiliency to bear the strain of criticism and isolation as they continuously influence and recognise the needs of all stakeholders.

2.6.5 Section Synthesis: Organisational Change Management

Leadership pushing sustainability must embody some special attributes, behaviours, and values. They must understand all stakeholders and be able to influence change adoption to occur. They require building proper support mechanisms and creating a safe environment that encompasses the perception of fairness and equality in the mindset of all stakeholders. These leaders/change agents need to exemplify new behaviours and be role models for change while creating a transitional identity. They are required to have organisational stakeholders comprehend their ability to influence and affect change, as well as the degree of control and autonomy they can influence. The primary task for management today is the leadership of organisational change, as this century has seen increased globalisation, deregulation, the rapid pace of technological innovation, a growing knowledge workforce, and shifting social and demographic trends. Organisational change must be considered a learning process that is not perceived as a series of linear events. This management is interconnected with an organisational culture. Companies need to understand the importance of cultural alignment and their systems holistically to be able to be innovative in their thinking. Organisational culture is in the day-to-day activities; it is essential to incorporate change into these everyday behaviours that should be communicated, measured, and involve a broad section of the organisation. It is important that change leaders are able to grasp the notion that culture is about the way things get done in an organisation, and this requires attention to the company's ethics, processes, procedures, and systems.

Organisational change analyses tend to be limited in scope and only focus on one set of considerations at a time. Furthermore, when creating change, an incremental approach ought to be taken, as organisations differ in their response. There is a need to understand the likelihood of individuals enacting behaviours necessary for successful change, and that current research in the field of organisational change has yet to draw on findings in related areas. Organisations need to understand their systems holistically and be innovative in their thinking. They will need to implement small initiatives to show progress as they look at larger holistic strategies; this is done to leverage and influence stakeholders as the change is being implemented. Growing too fast, or making too many changes at one time, without the proper foundations, will throw the organisation out of balance. Businesses need to have a larger strategy and work towards them as they test initiatives and create policies. Change management in the 21st-century economy will need to utilise complex adaptive systems, an approach that identifies a vast web of connections that is complex and works together. Change agents ought to have the awareness that organisations are unique and cannot have a one size fits all reality or methodology. Sustainability leaders as the change agents of

an organisation will need to be able to motivate, set a clear vision, promote/monitor/strengthen/reinforce change, mobilise/empower/create coalitions, deliver meaningful messaging, build networks, and develop learning organisations in a non-linear system.

2.7 Conclusion

This study is founded upon critical analysis of emerging themes that derive from a review of literature, personal, and professional experience, an initial case study, and professional UK interviews. The themes include the importance of design thinking strategies to organisations undergoing cultural change, the current barriers to implementation of sustainability initiatives, and the market policies that are creating a need for more effective strategies for sustainability management and leadership. The literature review has highlighted the need for a new integral design thinking strategy framework that can bring together an effective practice that streamlines the change management process and guides organisational culture change. The literature review's main aim was to provide a deep understanding of the factors currently impacting organisational change management practice, which concentrated on sustainability management leadership, focusing on strategy, design thinking, and change management processes. In summarising previous research, several themes have emerged that influence the focus of the investigation. Figure 12: Summary show some of the themes represented. The knowledge gained from the literature about sustainability management has highlighted a lack of a comprehensive systems model that is strategic yet has executable elements at the tactical level. It has established the evolution of a new movement that is creating the next economic revolution, where society needs to find innovative ways to look at human, financial, manufactured, and natural capitals. Organisations will need to develop sustainability strategies to change behaviours in thinking, acting, or working as they modify their values in a new climate change era.

The literature shows that sustainability leaders need to understand what these expectations could be for their initiatives and ventures and then follow through with the right planning and control tools. McGarth and MacMillan (1995) advised that assumptions will lead to any organisation's ventures or initiatives' downfall. Organisations need discovery-driven planning that offers a systematic way to uncover dangerous implicit assumptions that would otherwise slip unnoticed and thus unchallenged into plans. Discovery driven planning involves benchmarking, strategic translation of operations, assumption testing, and overseeing milestones managed through cross-disciplinary collaborative efforts and knowledge sharing (McGarth and MacMillan, 1995). Brown and Wyatt (2010) showed that design thinking

incorporates constituent or consumer insights in depth and advocated for rapid prototyping that all aimed at getting beyond the assumptions that block effective solutions. An organisation needs people who think like designers and who have a passion for giving away best practices and helping others do great work. These individuals can not only be the idea makers, but they will also need to be the change agents. It may be helpful to embrace both design thinking as a concept and innovation catalysts as enablers (Martin, 2011). Drucker (1985) defined innovation as the efforts to create purposeful, focused change in an enterprise's economic or social potential, and that most innovation results from a conscious, purposeful search. With this initial understanding, the author has attempted to explore and stipulate the strategies and knowledge that people in the role of sustainability management will need to have to harbour any effect on their surroundings and the organisation as a whole.

As this study took a deeper review of the literature's five areas of focus, the development of further understanding of the direction sustainability management leaders need to follow was established. The literature has also demonstrated the challenges that sustainability leaders face as they try to navigate their work in an organisation. Some areas of focus that have emerged for sustainability change agents are as follows:

- Leaders must understand the organisational system's connection to the business, human, natural, and social aspects of organisational behaviour.
- Leaders should shift their focus from shareholders to stakeholder management.
- Leaders must create a roadmap to understand the changes they need.
- Leaders must create a clear vision of sustainability.
- Leaders are required to embed empathy into the organisational culture.
- Leaders need to create a continuous learning organisation.
- Leaders need to reorganise the organisational responsibility to disseminate sustainability into the needed sectors.

Consequently, it is at the heart of corporate strategy to produce, build, and execute an integral design thinking strategy that can help manage and develop the needed change management process. However, the literature has suggested a lack of developed organisational sustainability strategies, but this is becoming more important, as the current economic crisis is extremely fluid. Change will occur because past best practices are no longer sufficient to deal with the world's challenges. A new reality is inevitably driving companies to implement practices that are more responsible to people and the planet because they are more profitable (Sroufe, 2018; Vlasov and Chromjaková, 2018; Lux, 2014). Sustainability is becoming

an economic driver and a competitive advantage for organisations and corporations. Companies or enterprises are constantly involved in design, from their products and services, performing tasks to creating new ones (Porter and Kramer, 2019; Klapper et al., 2020). Thus, companies looking to become sustainable should employ sustainable design principles.

Common success factors within sustainability management strategies shown in the literature demonstrate that developing design thinking strategies will give leaders the ability to visualise the unseen, learn what to focus on, what to use, understand what tools are needed, and how to apply them. Management can utilise this as a tool to change goals by crafting an idea vision and guiding change. Leadership needs to involve people from every function, department, and level of the organisation and key external stakeholders in the analysis, planning, and implementation of target initiatives. Multidisciplinary teams are needed to carry out tasks and requirements and communicate effective application and process change. When change is being implemented, it should not be perceived as a sequence of linear actions within a given time frame but as an uninterrupted, open-ended process of adjustment to fluctuating circumstances and conditions. This will help streamline processes and relationships, eliminate non-value-added activities, empower people at all levels in the organisation, and build accountability.

Sustainability management is also becoming a part of organisations' management strategies, where economic growth and expenditure decrease environmental impact while maximising resource conservation and reuse. This new management model focuses on the future, unlike existing ones that only focus on the present (Joyce and Paquin, 2016). With these new management tasks, new sets of processes must be designed. Here is where strategies and building a culture of acceptance become key to all sustainability initiatives for an organisation or municipality (Kolk, 2016). Design influences strategy and clarifies stakeholders' needs, as it enables the incorporation of new ideas throughout the corporation to improve efficiency and streamline production (Freudenreich et al., 2020; Boons et al., 2013). Organisations are increasingly engaging in design thinking or design-driven innovation (Brown, 2008; Johansoon-Skoldgerg et al., 2013; DeFillippiet al., 2016) with the expectation that design will play an important role in the development of strategy and planning of an organisational cultural shift.

Figure 12: Summary of Emerging Themes in the Literature (Source: Author)

Issues

- Society, business, and government need to change behaviors in thinking, acting, or working, as well as modifying their values in a new era of climate change (McKibben, 2011)
- Initiatives are being implemented in a singular and isolated manner, so they fail to evolve to the next level (Doppelt, 2003; McDonough & Braungart, 1991, 2002)
- There is yet little evidence in the field of approaches that integrate all the diverse components of sustainability (Seelos & Mair, 2005a)
- Few companies have developed Sustainability strategies but consider them important (Unruh et al, 2016)
- New movement that is creating the next industrial revolution where society needs find innovative ways to look at human, financial, manufactured, and natural capitals. (Hawken et al, 2000; Giddens,2009)
- Lack of a comprehensive, systems model that is strategic, yet also has elements that are executable at the tactical level (Payor et al, 2008)

Challenges

- Leaders must incorporate the construct of the interdependence of natural and social webs, or systems thinking, to inform all forms of individual and organizational behavior (Capra, 2002; Senge et al, 2008)
- Need to enhancing empathy (Schultz, 2000; Berenguer, 2007; Czap et al, 2012; Pahl and Bauer, 2013)
- Need for businesses and organizations to continue learning (Hallin et al, 2016)
- Lack of a clear vision of sustainability (Doppelt, 2003)
- Organizations need to rearrange the parts by organizing sustainability transition teams (Capra, 2002; Hallin et al, 2016; Senge et al, 2008)
- Organizations need to shift focus from shareholder to stakeholder management (Laszlo, 2005)
- Organizations need a new road map to understand the change they need (Johnson et al, 2008).

Effective Practices

- Developing design thinking strategies will give leaders the ability to visualize the unseen, learn what to focus on, what to use, understand what tools are needed and how to apply them (Bolton, S, 2011)
- Involving people from every function, department, and level of the organization — and key external stakeholders — in analysis, planning, and implementation (Capra, 2002; Hallin et al, 2016; Senge et al, 2008)
- Change should not be perceived as a series of linear events within a given period of time, but as a continuous, open-ended process of adaptation to changing circumstances and conditions (Burnes, 1996, 2004; Dawson, 1994)
- Organizations will have to streamline process and relationships ,eliminate non-value-added activities, empower people at all levels in the organization, and build accountability (Senior, 2002; Graetz, 2000)
- Change goals by crafting an idea vision and guiding (Doppelt, 2003)

2.7.1 Conceptual framework: Integral design thinking (IDT) foundations

Following a thorough analysis of the literature, the author reviewed patterns of meaning within the data relating to developing a platform and refining the initial research questions. This initial analysis discovered the main themes and concepts associated with each focus area that led to the foundations of the developed integral design thinking (IDT) framework. Further extraction of patterns was achieved through analysis and coding to identify broader themes through the review of literature relating to issues, challenges, and effective practice. Figure 11 demonstrates the conceptual framework of the breakdown to a higher concept that was applied to each heading of the literature review. Below are short overviews of each section, with concepts and themes conceptualised.

The sustainability-defined literature findings show that the main themes are climate change, new world economy, social activism, organisational positioning, need for culture change, and new paradigm needed. In terms of sustainability, the conclusions reveal that in the new world economy, climate change and social activism influence the direction of what organisations need to focus on and how they need to position themselves in their marketplace. These elements have pushed these businesses to focus on change initiatives and find solutions to alter all stakeholders' behaviours to lead to organisational culture change. Further themes were developed after an additional review of connections to understand the operational aspects of the pieces. For sustainability, this study uncovered that strategic thinking, empathy, and design thinking positively affect these areas' progress.

The new world economy literature findings show the main themes as building empathy, continuous change, a learning and collaborative organisation, shifting mindsets, integrate into operations, and stakeholder management. In terms of the evolving economy, change agents need to know how to build empathy and collaborative teams and create a continuous learning organisation as they change the operating systems' mindset. These elements have pushed these businesses to focus on change initiatives and find solutions to alter all stakeholders' behaviours to lead to organisational culture change. Further themes were developed after an additional review of connections to understand the operational aspects of the pieces. For the new world economy, the research uncovered that empathy, community, and communication positively affect these areas' progress.

The strategy and strategic thinking literature findings show that the main themes are: complex web, understanding macro, and micro, influencing stakeholders, influencing culture, identity management, communication, community, creative, strategic thinking, agile. These elements have pushed these

businesses to focus on change initiatives and find solutions to alter all stakeholders' behaviours to lead to organisational culture change. Further themes were developed after an additional review of connections to understand the operational aspects of the pieces. For strategy and strategic thinking, the research uncovered that influence, connections, and collaboration positively affect these areas' progress.

The design thinking literature findings show that the main themes are innovation, problem-solving, artefact, influence, human-centred design, generating a competitive advantage, organisational strategy, collaborative. These elements have pushed these businesses to focus on change initiatives and find solutions to alter all stakeholders' behaviours to lead to organisational culture change. Further themes were developed after an additional review of connections to understand the operational aspects of the pieces. For design thinking, the research uncovered that unity, strategic thinking, and design development positively affect these areas' progress.

The change management literature findings show main themes as motivate, clear vision, promote change, monitor, strengthen, reinforce, mobilise, empower, coalition, meaningful messaging, network of change agents, learning organisation, non-linear systems. These elements have pushed these businesses to focus on change initiatives and find solutions to alter all stakeholders' behaviours to lead to organisational culture change. Further themes were developed after an additional review of connections to understand the operational aspects of the pieces. For change management, the research uncovered that branding, communication, and community positively affect these areas' progress.

In the author's view, the underlying factor for sustainability managers is change management. This study has led to an understanding of the gaps in sustainability management and the formulation of the foundations of the IDT holistic strategy framework. These core imperatives will encompass branding, communication, and community. These are the major themes that surfaced from the literature review on change management analysis, but they are also connected to all other examined sections. The author assesses from findings that there is a need to enhance compassion and that empathy is vital for sustainable action to occur. As design thinking foundations are to empathise, this will be the foundational methodology of the designed framework. Further, the author's hypothesis that, in sustainability change management, the influence of systems thinking methodology, particularly Porter's (2009) soft systems thinking complex adaptive systems approach in combination with design thinking methodology, will help these change agents comprehend the foundations of a holistic vision of the organisation to be able to create the strategies needed for evolution. This will be discussed further in Chapter 7.

Figure 11: Literature Review Highlight Summary Section Word Analysis (Source: Author)

The author's discoveries reveal that there is a gap in a holistic strategy for sustainability management but findings show that other scholars' methods are beneficial tools to aid in the strategic thinking process for managers as they pursue behaviour change management. A review of existing guidance for the field concentrating on sustainability change management shows that scholars have focused on targeted processes, and there is a gap to aid in the critical thinking of strategy development. After reviewing existing methodologies and approaches, four thought leaders were prominent and aligned with the study's inferences of critical thinking needs for sustainability leaders. They are Wilber's integral vision, Scharmer's U theory, Doppelt's seven interventions for sustainability, and Laszlo's eight disciplines of value creation. How the present research will adapt their methodologies and philosophy to the current study will be discussed in chapter three and seven.

2.7.2 Research aims and objectives

The review of literature has highlighted a gap terms of robust research and rich evidence that might inform and support practitioners as they initiate change for sustainability management. The review has revealed that current scholars have focused on relatively bounded themes and issues of 'how-to implement'. However, there is a gap in terms of the critical thinking process and robust efforts to address the critical question of 'where to start' for sustainability leaders that are moving into key positions. This research aims to focus on these larger themes and concentrate on the critical thinking process of individuals initiating change methods for building holistic strategies for cultural shifts in sustainability management. The aim of the research is to include a holistic strategy framework that can bring together an effective critical thinking methodology that streamlines the change management process and guides organisational culture change for sustainability management professionals and change agents in the field. The notion of sustainability is a complex, sometimes contested and perpetually evolving one. 'Sustainability' as defined in this research references environmental, social, and governance (ESG) factors in an organisation. In the current study, it is the focus of an organization to bring accountability of their actions for profitability and growth. This study was of a cross-national nature, where exploratory interviews in the UK were utilised as a benchmark to guide the study. The study sets out from a fundamental point of inquiry, asking to what extent and how does design thinking and its associated operating modes and tools provide opportunities to move towards a more powerful version of inclusive and stakeholder-directed change? Unlocking employees' creativity and innovative potential while engaging them in the process of organisational and cultural renewal may provide a useful way forward; this is the theme that the study is designed to investigate. It will also investigate the importance of design and design thinking in strategic planning,

organisational change management and organisational culture, and how this influences the functions and sustainability of holistic systems. The ideas will be tested via real-world sustainability scenarios/environments, and it is hoped that the framework created from the lessons learned will have a more generic application, as sustainability management affects diverse industries and organisational type. The research is underpinned by three key research aims and associated objectives:

(RA1) To examine the ways in which and the extent to which design thinking approaches and related tools might support innovation and culture change processes (especially those that contain both top-down and bottom-up [stakeholder-managed] elements).

The objectives to be addressed in relation to this aim include:

•   To identify the importance of design thinking in business strategising in general
•   To examine the influence of design thinking in innovation development
•   To understand the influence of design thinking in change management (and culture change processes)

(RA2) To critically analyse the effectiveness of the organisational approaches, methodologies, and tools deployed with respect to innovation and change management processes.

The objectives to be addressed in relation to this aim include:

•   To identify key factors driving sustainability-oriented organisational change and re-positioning
•   To understand the extent to which employees/stakeholders are involved in creating and shaping change processes
•   To define mechanisms that aid the facilitation of top-down and bottom-up organisational innovation

(RA3) To identify the core and most highly effective strategies for the implementation of cultural shifts in sustainability initiatives.

The objectives to be addressed in relation to this aim include:

•   To identify and examine the design thinking process and approaches
•   To identify and examine change management processes and approaches
•   To examine the connections of designed artefacts and design thinking approach to each

CHAPTER 3: Operationalisation of the study – Methodology, Tools, and Framework

3.1 Introduction

Chapter 3 establishes the study's orientation, theory, and methodology utilised in the formation of the research and case study discovery. This research's foundational framework was underpinned by the literature findings, exploratory interviews, professional work assumptions, and a probing case study. The literature review influenced the direction and selection of design science research (DSR) methodology and revealed that designers utilise similar action research attributes. Hence, the methodology for this research employed DSR and action research cycles. In this chapter, the steps taken in the process are discussed, and the data collection research techniques are delineated and introduced.

This chapter is organised in the following format:

- The orientation of the study
- Design science research methods, foundations, and research model development
- The rationale for the study
- Analysis and data collection techniques
- Ethical considerations
- Conclusion

3.2 Research Strategy

To address the research questions, the methodology for the study is underpinned by bringing together an action research approach and a design science research approach as the main research philosophy embedded into the process. This study used a combination of case studies and expert interviews mentioned in the research overview as the primary mechanism for data gathering. The research assumption began in 2014 and developed over a period compiled from observations in the field and professional experience. The author focused on understanding what barriers exist and what strategies are needed to aid in the implementation of behaviour change for sustainability management leadership in an organisation. The literature points out that leaders must integrate the formulation of the interconnection of natural and social webs, or systems thinking to notify all forms of stakeholders and organisational behaviour (Capra, 2002; Senge et al., 2008). As a design practitioner and researcher with a master's degree in design management, one recognises the power of the design process and methodology. Design thinking as a process helps

create incremental changes with the ability to apply creativity and find solutions to problems and challenges. It brings an approach that is human-centred and participatory, and integrated design approaches have been shown as central in transforming individual and collective attitudes and behaviours (Chick and Micklethwaite, 2011). As design thinking, design science research is described as 'improvement research' due to the significance of resolving real-life problems and quantifying them versus baseline and intended measures. This research methodology followed the design thinking process in congruence with the development of a holistic strategic framework. This framework will be briefly discussed during the breakdown of the methodology process.

Authors such revealed that organisations, even with attempts to steer the company towards sustainable practice, frequently do not have a holistic strategy of implementing true cultural change. When implementing sustainability initiatives, they do not consider the web of connections or critical factors that impact the adoption process. The methodology for this research has been designed to develop a holistic thinking strategy framework and better understand where sustainability leadership focus is needed as these change-agents implement transformations. This study was oriented to assemble qualitative data that illuminated the understanding of attitudes, perceptions, and sustainability leadership challenges. During the research study, artefacts, and other strategic initiatives were designed, developed, and implemented to test how these influenced behaviours (these will be discussed in detail in Chapter 5).

The researcher must always connect the process to the aims and objectives, as the procedure is a rigorous cycle; the techniques are integrated methodologies of principles based on socio-economic, sociotechnical, and socio-political limitations across the human sciences (Vaishnavi and Kuechler, 2004; Marshall, 1997; Crotty, 1998). The literature reveals that organisations operate in a competitive environment that is constrained by market, economic, and organisational limitations. With this in mind, the researcher needs to be adaptable and adjust processes to accommodate these limitations as they are discovered (Gray, 2004). Some strategies used in this research included creating better communication and educational targets for specific groups or individuals that indicated any restrictions to the process. These ranged from informal meetings, educational workshops, and the creation of marketing information; these are further discussed in Chapter 5. Throughout the research process, the author developed a collaborative relationship with organisational stakeholders to further clarify the value and valuation of what is being developed.

Marshall (1997) developed the scientific research process as a continuous cycle for the collection of data, validation, and reassessment of activities. This five-step process is for organisational and stakeholder

examination (Gill and Johnson, 2002). Figure 12 illustrates Marshall's process on the left and the interpreted method utilised by the author on the right. The author's scientific research process would be a continuous cycle in which the researcher would act as an observer and collect data. Then the development of theories of the phenomenon is reviewed, followed by defining objectives, generating questions, formulating a hypothesis, and assembling data, as a connection of the information to overall research central features is made and reassessed. Vaishnavi and Kuechler (2004) state that these research endeavours 'contribute to understanding a phenomenon' (p.4). They assess that, through design activities in the design science research process, new knowledge is revealed. Research in an organisation only confirms, clarifies, or develops on theory to become a collaborative union between the author and the organisation to quantify the values produced (Gary, 2004).

Figure 12: Scientific Research Process (Source: Interpreted from Marshall, 1997) Author's study of the scientific process
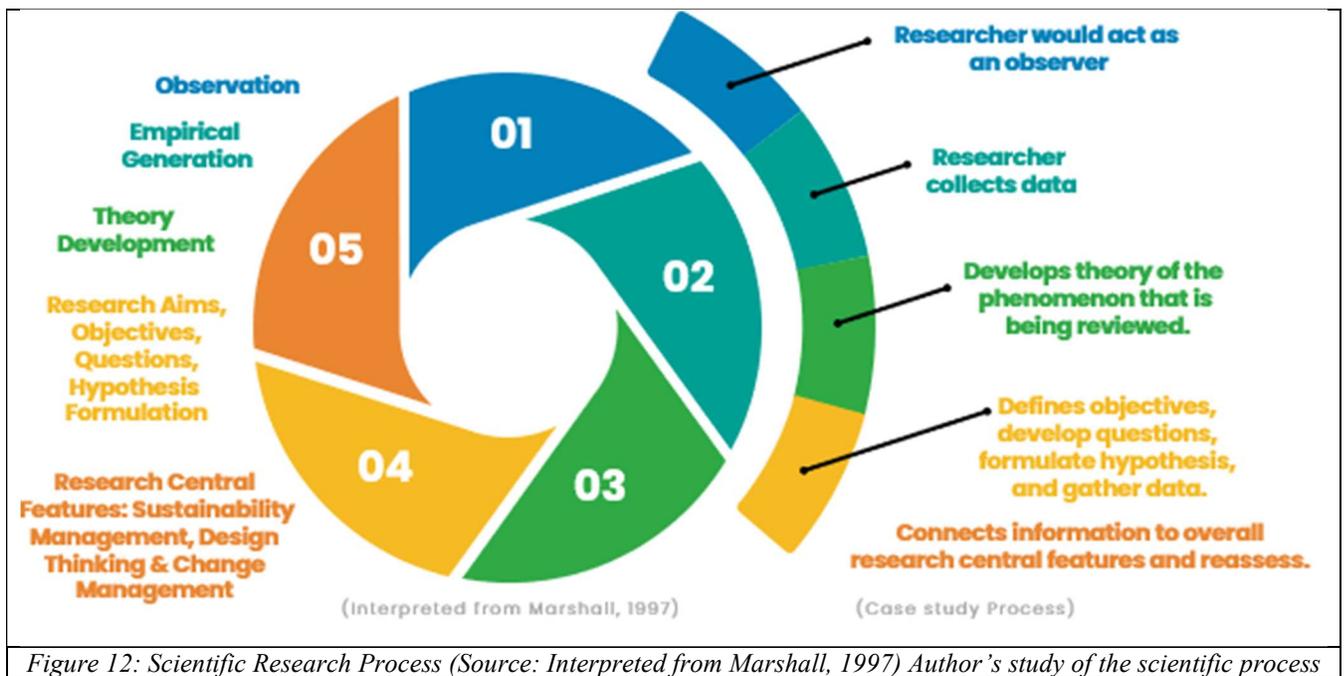
3.2.1 Generating research theory

Figure 13: Inductive VS Deductive VS Abductive Reasoning (Source: Author)
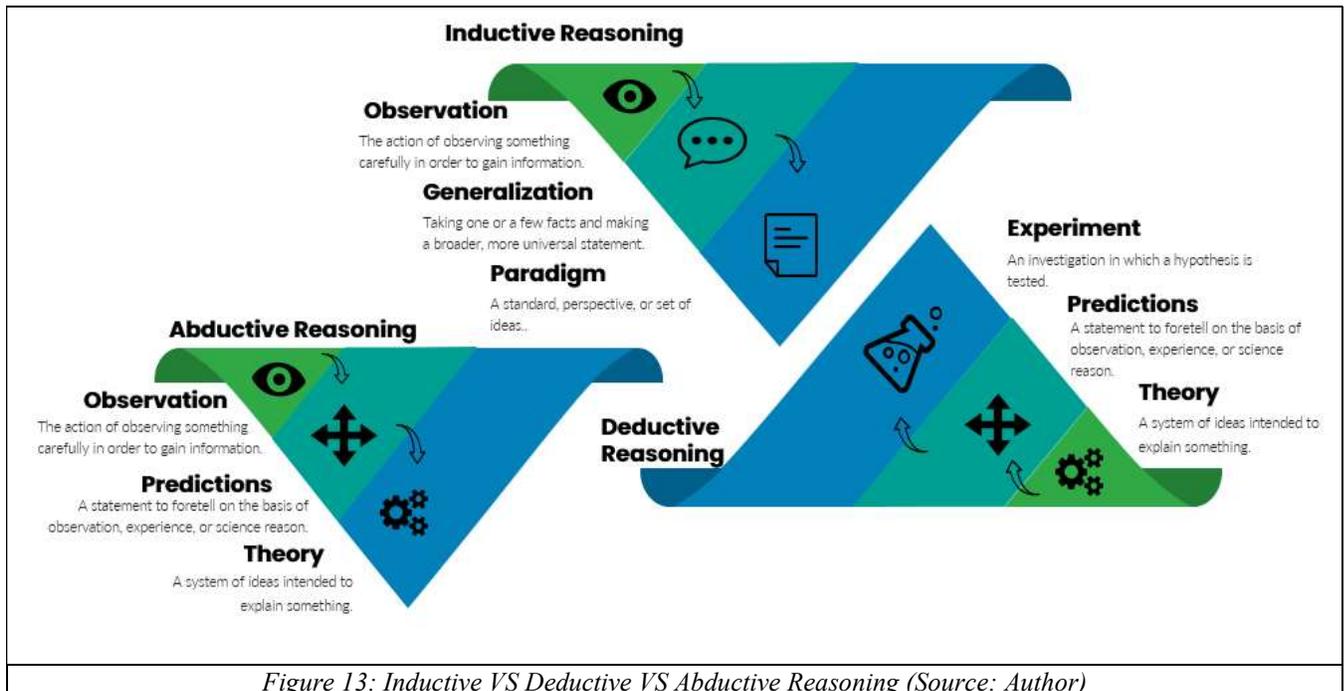
The bases of this research's methodology are founded on DSR with action research cycles; the development of this will be discussed later in this chapter with more in-depth details of how it was applied to this study. In DSR the development of new theory is accomplished by constructing artefacts by observing and engaging in action within the case organisation, and then implementing them for subsequent reanalysis and evaluation. The scientific approach to the paradigm of inquiry could be said to consist of induction, deduction, and abduction; in induction analysis, researchers sorts through fragmented data to find connections and understand current circumstances; in deduction analysis, the initiation of research commences with a general observation and work backward to examine details; in abduction analysis researchers develops inferences from observations and create an explanatory hypothesis from that observation requiring explanation (Buchler, 1955; Gray, 2014). Figure 13 shows the differences between the three approaches. Bell (1999) revealed that abduction and action research align in practice, as in abduction, the reasoning is developed from observations to develop foundations of theories, and in action research, the researcher observes behaviours to do the same. Yin (2009) stated that in the inductive approach, the researcher must focus on assimilating the data collection patterns to comprehend the various variables. He advised that it is difficult and takes time to develop theory and contends that explanatory research will help uncover the issues or challenges being investigated, develop the methods of exploration, incorporate discoveries from the inquiry, and formalise conclusions.

To Gray (2014), theory is merely predictive or exploratory in nature; thus, the researcher must have strength in the predictive analysis as theory is developed. He argued that the theory will be discarded and replaced if it is not predictive and crises arise. Gray (2004) concluded that the researcher will automatically develop the argument of interconnecting parts and pieces, establishing the overall theory and relationships. An assessment can reveal whether the findings in the data corroborate the validity of the theory or whether it needs to be discarded, or perhaps a new phenomenon could be produced that adds to the original investigation, expanding its value. The conceptualisation of paradigms helps to further shape and develop the research. Gray (2014) described theory as interconnected concepts, meanings, and proposals that represent a methodical view of phenomena by identifying associations among variables to explain and forecast trends. He acknowledged that research in an organisation or on its stakeholders could seek to reveal relationships between two variables or strategic initiative; he further concludes that these connections are universal in nature, can be employed across many disciplines, and are found in research associations (Kerlinger and Lee,2000). For Gill and Johnson (2002), theory has many layers. They stated that it is an accumulated body of knowledge and represents an understanding that should be viewed critically and acts as a prototype against which existing business processes can be evaluated. They further assessed theory as a body of work in which insignificant or misleading ideas can be explained and inform innovative concepts and innovations.

Based on these findings, this research foundation is concluded to be both inductive and abductive in nature. This is formulated based on the fact that the foundations of the study resulted from the literature review, exploratory research, observations, artefacts created, and data evaluation from the artefact implementation. In action research, where abductive analysis has been done, an establishment of multiple theory foundations could be formulated to create multi-dimensional perspectives for current or future researchers to build upon. Induction analysis starts to take shape when new phenomena are formed, and the researcher forms belief while collecting data and sorting through data and observation (Marshall, 1997; Yin, 2009). Thus, the selected exploration methodology of a design science philosophy with an action research approach is both abductive and inductive in nature. The combination of sustainability management, change management principles, strategy, and design thinking processes all need to comprehend the connection of transformation in the workplace. Additional theories that become revealed, such as Dopplet's seven interventions of sustainability or Laszlo's eight disciplines of value creation process, could be individually implemented in sustainability management with success (Doppelt, 2003; Laszlo, 2005). The framework has taken these theories and adapted them as tools to aid in the strategic

framework implementation for future researchers/professionals; this will be discussed further in Chapter 6.

In the current research, a strategy framework was developed regarding the integration of design thinking into organisational change management implementation to aid cultural shifts. As scientific knowledge was created by combining the original central concepts, this led to the theory that integral design thinking (IDT) strategy framework is about people, not simply technical processes and procedures. This study is explanatory in nature and built upon a qualitative research investigation that uncovers itself during several phases of the design science research investigation. The problems were verified via exploratory case studies, leadership interviews, and literature review. This led to the identification of the design and development of the artefact IDT strategy framework. The research case studies' problem statement has been uncovered through continued literature review, leadership interviews, field investigation, and observation, all of which directly impact the theory behind the designed artefact.

3.3 Design Science Research Methods, Foundations, and Research Model Development

This section will discuss the foundations and development of the research model utilised in this study. It will begin with a brief history and evolution of design science research and the adaptation from others' work to the transformation of the model of this current body of work.

3.3.1 Design science foundations

DSR foundations derive from the information systems, computer science, and engineering design research community, where the pursuit for comprehending and improving human performance was sought and have been adapted to other markets (Van Aken, 2005; Geerts, 2011; Oates, 2006). It encompasses the construct of novel or innovative artefacts that are utilised to understand behaviour through an analysis of their use and/or performance (Cross, 1999; Kuechler and Vaishnavi, 2008). The scientific research process for examining research, subjects such as organisation and their systems that need resolutions, starts with observation to heuristic generalisation and then develops theory towards research aims and features (Gill and Johnson, 2002). Vaishnavi and Kuechler (2007) noted that DSR cycles generate understanding through the testing of discoveries gained from specific art or creation. They stated through this artefact development, the researcher can identify why the issues exist, why things are not working, and be able to understand 'always-incomplete-theories that addictively motivated the original design' (p. 12). They

stressed that building theory is unpredictable in nature, and that DSR aids the innovation of computer programs' and software systems' technological artefacts to form positivist and interpretive/qualitative opinions (Vaishnavi and Kuechler, 2004).

Jarvinen (2007) highlighted that the first phase of DSR originates with the intension to problem-solve/improve any activity's performance. The researcher will initiate the study with an awareness of a real problem (Vaishnavi and Kuechler, 2007; Järvinen, 2007; Offerman et al., 2009; Holmstrom et al., 2009). Figure 15 exemplifies the DSR cycles and the knowledge generation methodology. Jarvinen (2007) and Vaishnavi and Kuechler (2007) agreed that this process maps steps vital to any design effort and that it creates artefacts founded on theory and existing knowledge to produce new methods, models, frameworks, constructs, instantiations, and more. They instructed that after the artefact is designed, an evaluation process needs to be done for validation where analysis and assessment of the original hypothesis, research aim, or problem statement are measured. Vaishnavi and Kuechler (2007) stated that 'this phase exposes an epistemic fluidity that is in stark contrast to a strict interpretation of the positivist stance' (p. 21) and that the analysis either validates or refutes the hypothesis. They further stress that unlike traditional research methodology where this step creates final conclusions, in DSR, this is the starting point for the researcher. As represented in Figure 14, the assessment and data findings are looped back for another round of evaluations, where further literature review and artefact development is done based on new conjectural data. This process is continuous until the researcher's revises; the theoretical expectations are validated and deems the artefact performance is satisfactory (Hevner, 2007; Vaishnavi and Kuechler, 2007). Research findings are reported at this final stage, and knowledge is shared for future development by the researcher or other scholars, or applied to similar studies.

Figure 14: Design Science General Cycle (Source: Reinterpreted from Järvinen, 2007; Vaishnavi and Kuechler, 2007)

Figure 15: Design Science Research process model (Source: Reinterpreted from Peffers et al., 2006)
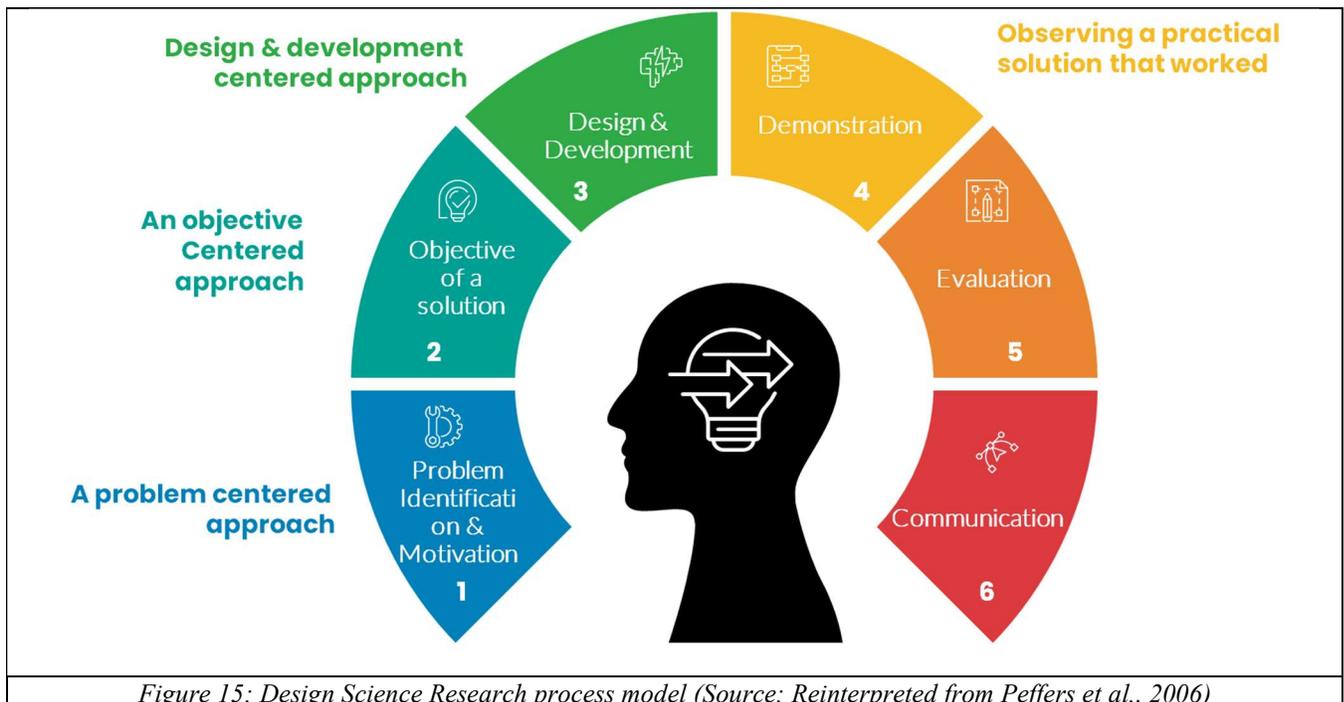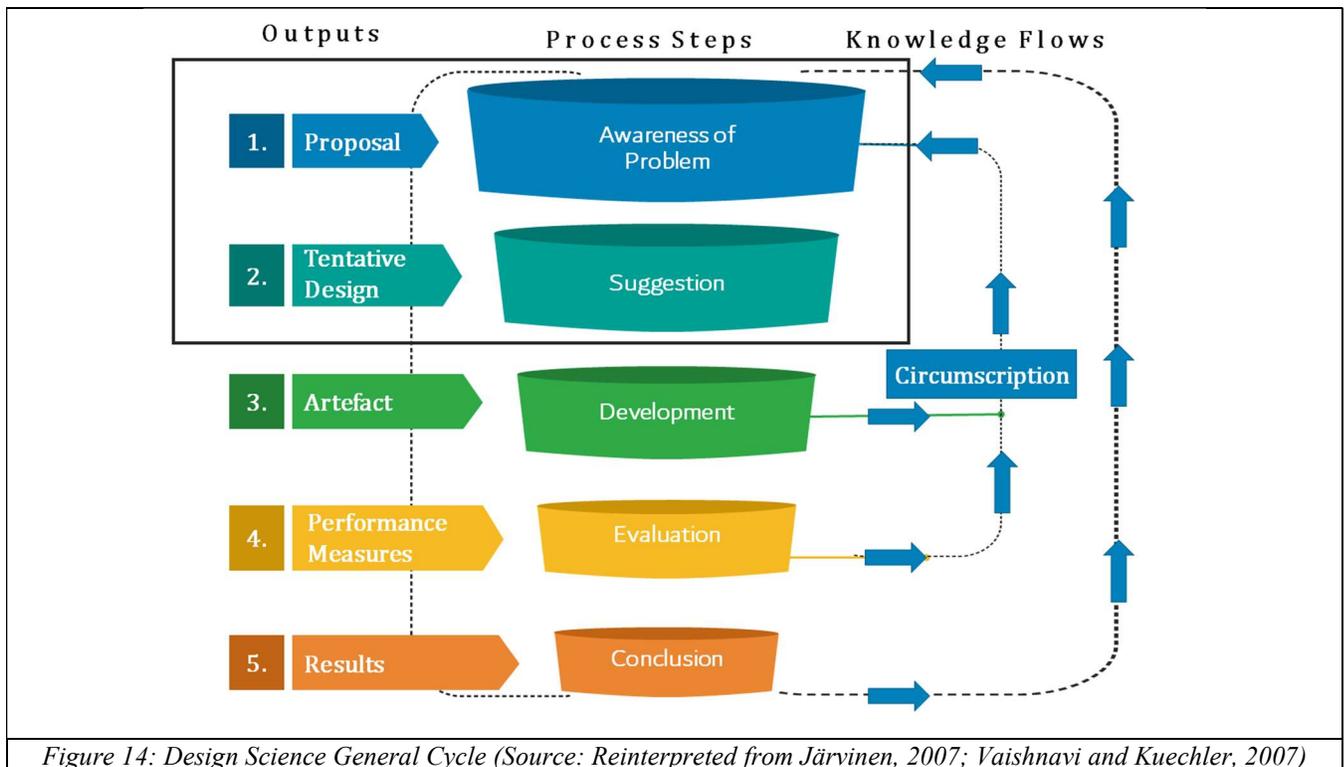
Peffers et al. (2006) developed a similar framework where the design science research process model consists of six stages or forms of activity, as shown in Figure 15. Their method is arranged in apparent progressive order; however, there is no expectation that the order should be followed. The process can

start from any step from one to four and the final steps five, evaluation, and six, communication, would then be utilised at the end of each approach. They asserted that research can start at any step and move onward, that if starting at different points of the model, the researcher would then be developing different approaches for their work. Step one is a problem-centred approach, where the researcher had a theory from observation of a problem or the influence of other scholars' work. Step two is an objective-centred solution, where the expectation falls short of current work activities, and a re-evaluation and improvements are desired. Step three is a design- and development-centred approach, where the artefact has not yet been fully formulated in the current research or is taken from another domain to solve a problem. Step four is observing a practical solution, where the researcher discovers or has a solution that is considered appropriate for their research and 'can work backward to apply rigour to the process' (p. 93). These concepts and foundations were built into this study's research model, and the concepts were applied throughout the research methodology and practice.

3.3.2 Design science research guidelines and framework

It is argued that design science research has a complementary and distinct paradigm in behavioural science that aids in the comprehension of the interactions between people, technology, and organisations (Hevner et al., 2004; March and Smith, 1995). Hevner et al.'s (2004) research disclosed that behaviour-science paradigms seek to find 'what is true' and design-science paradigms seek to create 'what is effective' (p.98). Their research led to the development of seven guidelines for DSR in the field of information systems (IS); however, they contended that it can be applied by all researchers utilising design science methodology. They further advised that researchers must apply creative skills and judgment to ascertain when, where, and how to employ each guideline in a particular research project. Their seven guidelines are as follows: 1. design as an artefact, 2. problem relevance, 3. design evaluation, 4. research contributions, 5. research rigor, 6. design as a search process, 7. communication of research (see Appendix O for the original guideline summary). Table 6 is the authors' interpretation, modification, and refinement of guideline order and descriptions for DSR used currently in research exploration in sustainability management. These modifications were influenced by the literature review and needs revealed to the author for the development of an artefact. The current research has eight guidelines, and an additional guideline number seven (research in action through case study implementation) was added before the final step. The author's identified guideline steps are as follows: 1. problem relevance, understanding the problem relating to research aims and objectives as well as the needs associated with the relevant case study; 2. design an artefact, solutions to specific problem areas associated with the case study research; 3.

design evaluation, testing of the proposed solutions; 4. research rigor; 5. research contributions; 6. design a search process; 7. research through action; and 8. communication of research.

Guidelines	Description
Guideline 1: Problem Relevance	The objective of design science research is to develop a solution or solutions relevant to solving real life business problems.
Guideline 2: Design an Artefact	Design Science research should produce a viable artefact in the form of a construct, an instantiation, a method, or a model.
Guideline 3: Design Evaluation	The value, quality and effectiveness of a design artefact should be rigorously demonstrated in a well-executed evaluation method.
Guideline 4: Research Rigor	Design Science research relies upon the application of rigorous research methods in both the construction and evaluation of the designed artefact.
Guideline 5: Research Contributions	Effective design science research should provide clear verifiable contributions in the areas of the design artefact, its foundation and methodologies used.
Guideline 6: Design as a search process	The search for an effective artefact requires utilization of all available means to reach the desired outcome while abiding by proper regulations and organizational principles.
Guideline 7: Research in Action through Case Study Implementation	The value, quality and effectiveness of a design artefact should be rigorously demonstrated in a well-executed evaluation method.
Guideline 8: Communication of Research	Design Science research must be presented effectively to all case study participants.

Table 6: Sustainability or ESG Management Design Science Research Guidelines
(Source: Adapted from IT-DSR Guidelines by Hevner, et al., 2004, p.83)

Based on these eight steps, a three-phase process was established. The three-phase process is to identify the problem, design the artefact, and evaluate the solution. The process in undertaking DSR is to first identify the problem in Phase 1. The next step is the development of a solution in the designed artefact in Phase 2. Walsham (2012) advised that the goal of DSR is to create new artefacts that improve the productivity and effectiveness of organisations, stakeholders, and individuals. March and Smith (1995) categorised artefacts as constructs, models, methods, or instantiations. Baskerville et al. (2018) advised that artefacts can be produced on three levels: in the form of products or processes, in the form of emerging design theories such as constructs, design principles, models, and guidelines, and in the form well-developed theories under study. They further stated that in DSR, theorising is an expected norm, and the artefact can justify findings and be compared to prior research, allowing the researcher to reflect and generate ideas for broader impacts of the embedded knowledge to wider applications. The final is Phase 3 design evaluations. This process assesses the artefact around testing products or feedback from stakeholders through action research observation and action. The action research process was added to

create constant improvements, as it aids in identifying problems, developing solutions, and uncovering what worked or did not work.

Hevner et al. (2004) disclosed that DSR is a process for resolving challenges in a more effective or efficient way or for addressing an unexplained problem in a unique and innovative way. Offermann et al.'s (2009) research focused on management research and information systems. They recommend that the researcher combines the research perspective and methodologies with participative action research through case studies and observation while developing the DSR. They warned that 'What has been lacking is a formalisation of a detailed research process for design science that takes into account all requirements' (p.86). Their developed framework was adapted by Schultz (2016) for the facilities' management industry (see Figure 16). This thesis research builds upon Schultz methodology/approach, framework and proposes a design science research framework with an action research approach for the environmental, social, and governance (ESG) management industry (see Figure 23). After a comprehensive literature review, initial interviews, and case study explorations, Shultz's (2017) framework was selected, as it had the foundations and process that aligned investigation in management and combined case studies and observation data collection. The literature review revealed that the DSR framework has different phases and steps, as illustrated in Schultz's model below.
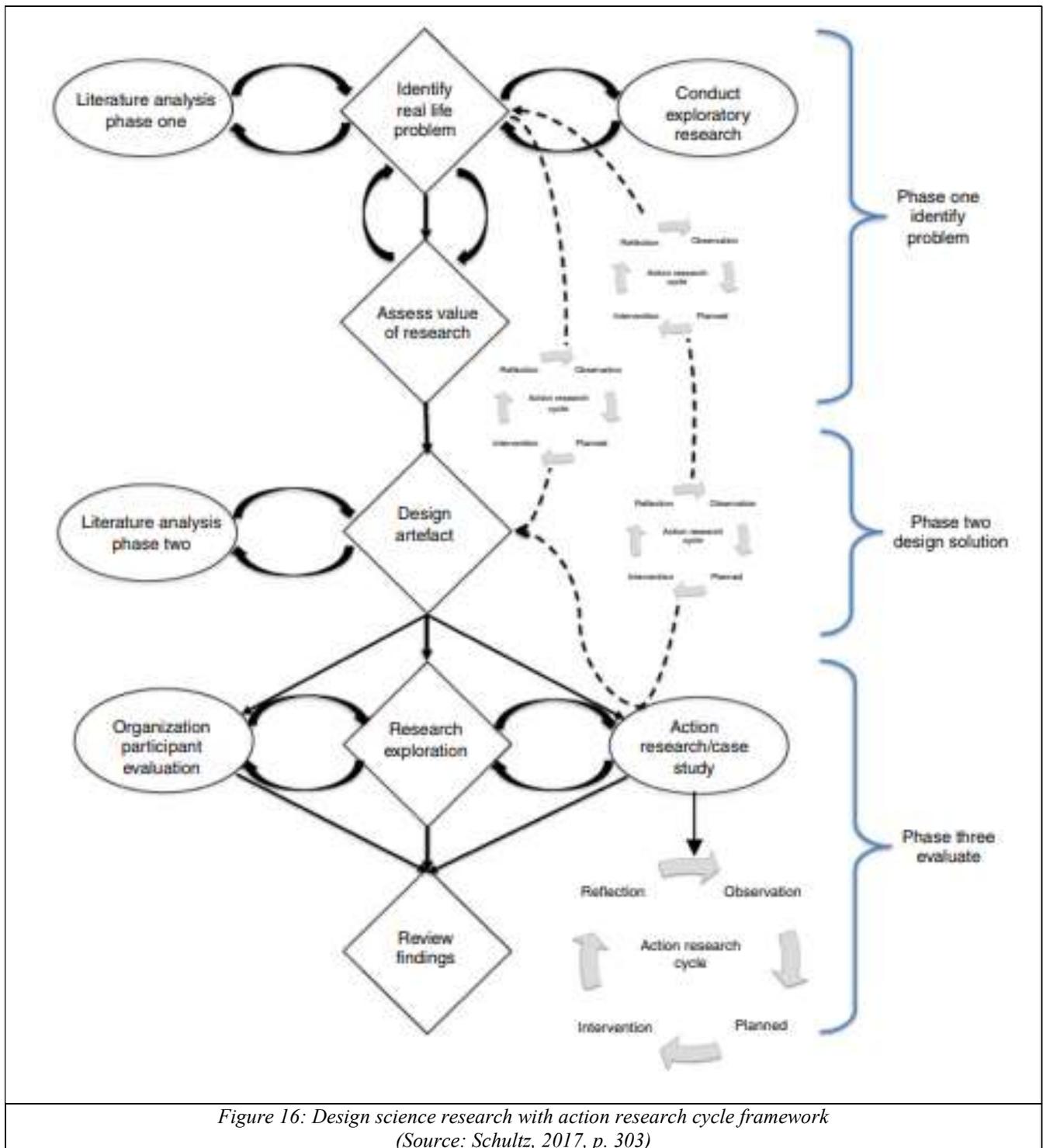
Figure 16: Design science research with action research cycle framework
(Source: Schultz, 2017, p. 303)

The present study adapted the above-mentioned framework to one used in Schultz (2017) (see Figure 23), and the current methodology applied throughout the research has three phases: 1. identify problem, 2. design solution, 3. evaluation. For each phase, various steps were considered in order to develop outcomes that are then applied to the next phase. This approach was applied to the primary study as well as to the

case studies. In the initial phase, real-life problems associated with the investigation are identified. Upon entering the case study organisation, the researcher worked closely with the company's stakeholders performing investigative research that aided in determining needs and gaps that are to be addressed. In this phase, the literature analysis and exploratory research were also conducted. The literature analysis was performed to obtain a clearer insight into the investigation, case organisation, and research approach. In exploratory research, the researcher established collaborative teams and interviewed key stakeholders to further define the benefits of the study to the organisation and its members. As in design thinking methodology, continuous evaluation cycles looping literature analysis, and exploratory research to problem identification were conducted. The gears with revolving arrows resemble Schultz's (2016) ongoing improvement cycle plan, research, check, and accomplish (PRCA). This is more design thinking oriented, and the gears resemble empathise, define, ideate, prototype (EDIP). As the process developed, the author continuously connected the findings to the aims and objectives to assess the value of the research. At the conclusion of this phase, all information gathered was moved to Phase 2, designing the artefact.

In Phase 2, an artefact development was initiated and another in-depth literature review was performed to better align organisational strategies with the proposed solutions. In a single case study, multiple artefacts can be developed to address connected solutions and would need to be evaluated in an individual as well as in a holistic manner, as the analysis was conducted to solve the problems. Though a collaborative process, the design and development of the artefact was established to alleviate the problem statement(s). Hevner et al. (2004) stated that an artefact exemplifies the designer's understanding of the problem and solution and represents an experiment. They contended that it is in the execution where the nature of the problem, the environment, and the possible solutions are learned; they further stress the significance of developing and implementing prototype artefacts. The current study found that there are insufficient theoretical foundations for constructing an artefact that has had a significant impact on sustainability and ESG management for an organisation; thus, this research provides foundations for other researchers in the field.

In Phase 3, evaluation, the artefact was tested to verify its value, dependence, and significance to the strategic goals. At this time, the author acted as an action researcher, as the organisation's stakeholders utilised the artefact. Coghlan and Brannick (2010) stated that, in action research, the researcher aims to create knowledge or theory and take actions to develop both an action and a research outcome. They noted that this differs from traditional research, where participants may be the subject of the study and stressed

that one of action research qualities is its collaborative foundations, where organisational stakeholders actively participate in the process of investigation and solution development. The artefact application's accomplishment is defined by how well it was designed to alleviate the original statement problem. The success of the artefact will depend on the design, implementation process, and duration of the research study. The final step in the evaluation process would be reviewing the findings and presenting them in a thesis or to the organisation and stakeholders in a case study.

The foundations of this present research's methodology were influenced by Havner's (2007), Jarvinen's (2007), Offermann's et al. (2009), and Schultz's (2017) research philosophies. As revealed in this narrative, substantial research, collaboration, and analysis were done prior to adopting this process and implementing the first designed artefact that included an additional literature review to support findings and the methodology for both the principal thesis and case studies.

3.3.3 Action research and methodology framework

Action research pursues the engagement of complex dynamics encompassed in any social context. Simon (1996) advises that action research methods aid in transforming current situations into preferred and desirable ones by gathering rich data and utilising design approaches. Stinger (2014) further assessed how it aids in the revelation of effective solutions to concerns and challenges through a continuing investigation cycle. He advised that action research provides stakeholders with the methods to take systemic action to solve specific problems in a collaborative approach to inquiry and investigation. He disclosed that this type of approach allows stakeholders who share social values to formulate effective solutions as they clarify their situation to the problems they face. Stinger (2014) defined the social values associated with the collaborative process as democratic, equitable, liberating, and life-enhancing, where it facilitates the expression of people's full human potential. All stakeholders involved in the process of investigation should be affected by the problem and that the researcher should be a facilitator as participants' engagement deepens and solutions are developed. This develops a consensual community and aids in 'changing the social, organisational, and personal dynamics of the research so that all who participate benefit from the outcomes' (p. 15).

Stinger (2014) further highlighted that this form of collaborative investigation can be utilised systemically throughout the business and improved in the future when other possible issues emerge. He developed a basic interacting action research spiral that includes three main actions: look, think, and plan, stressing that an action research cycle should be a continuous process of observation, reflection, and action. The

researcher concludes each step, 'they review (look again), reflect (reanalyse), and re-act (modify their actions)' (p. 9). These cycles can also be seen as processes of planning, implementing, and evaluating in a project. Underpinned by this approach, the current study ventured to influence the direction of movement (and effects) of several cases and encounters. According to McNiff (1994), the early influencers of action research methodology include 'Rapoport, 1970; MacDonald and Walker, 1974; Elliott, 1981; Ebbutt, 1983; Ruddock and Hopkins, 1985; and Carr and Kemmis, 1986' (p.27).
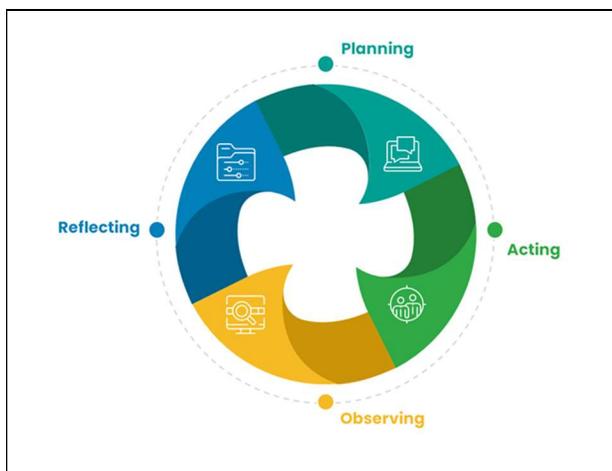
Figure 17: Source: Lewin's Action Research Cycle (Adapted from McNiff, 1994, p. 22)
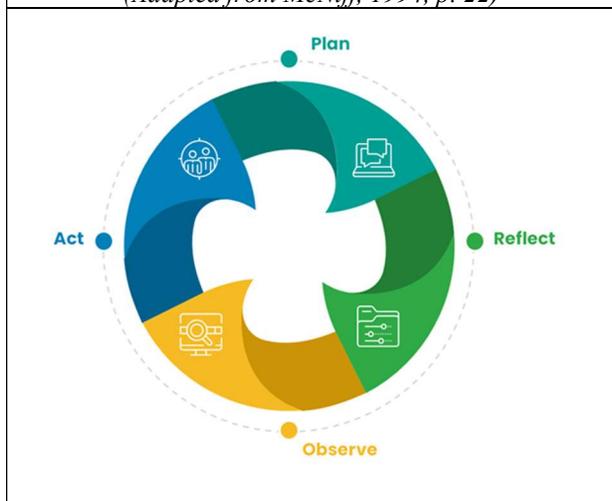
Figure 18: Action Research Cycle (Source: Adapted from Burns, 2007, p.12)

Lewins (1947) was one of the primary architects of action research, whose work focused on group dynamics, stress, identity, power, and leadership; he developed his theory on the belief that engaging stakeholders in inquiries that affected their lives are the most effective ways for research advancement (Bandura, 1986; McNiff, 1994; Bell, 1999; Jarvinen, 2007). Burns (2007) disclosed that action research combines various investigation viewpoints across businesses, human services, education, and social schemes. He further noted that through triangulation of various sources, multiple perspectives, and involving a cross-section of stakeholders, action research pursues the understanding of change dynamics. Jarvinen (2007) stressed that action research approaches will vary depending on the collaboration design and research problems. He used a combined framework arising from the works of Lewins and Burns, whose four steps follow classical action research cycles, and Susman and Evered (1978), who designed a five-step action research cycle model (see Figure 17, Figure 18, and Figure 19). Figure 19 reveals Lewin's action research theory portrays a four-phase spiral: 'planning, acting, observing, and reflecting' (McNiff, 1997, p. 22; Coghlan and Brannick, 2010, p.7). Burns' (2007) offered the same action research cycles as Lewins, except for juxtaposing and modifying his action research cycle to plan, reflect, observe, and act (see Figure 20). This

research study adopted an observation, planned, intervention, and reflection utilised in Schultz's (2016) research, which will be discussed further in the next section.

Figure 19: Susman and Evered's Process of Action Research
(Source: Adapted from Susman and Evered, 1978, In Järvinen, 2007, p. 39)
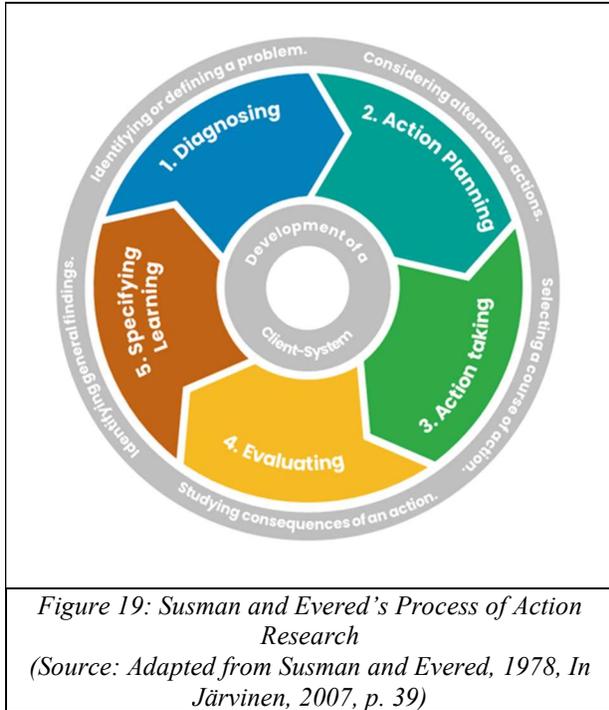
There appears to be a deficiency of models and frameworks in sustainability/ESG management research in both design research and action research. A search for a research framework that combines the two aspects of research in sustainability management yielded no results. As previously mentioned in Section 3.3.2 and shown in Figure 16, DSR with an action research cycles framework was conceived from an extensive literature review and adaptation from Schultz's (2017) research of design science research processes in facility management. Exploration of the findings revealed that combining design sciences with an action research fits the needs of this study on organisational research case investigations. The action research cycle chosen for this thesis that best accompanies the research examination is shown in Figure 20.

Figure 20: Action Research Cycle Selected for this Research
(Source: Adapted from Shultz, 2017)
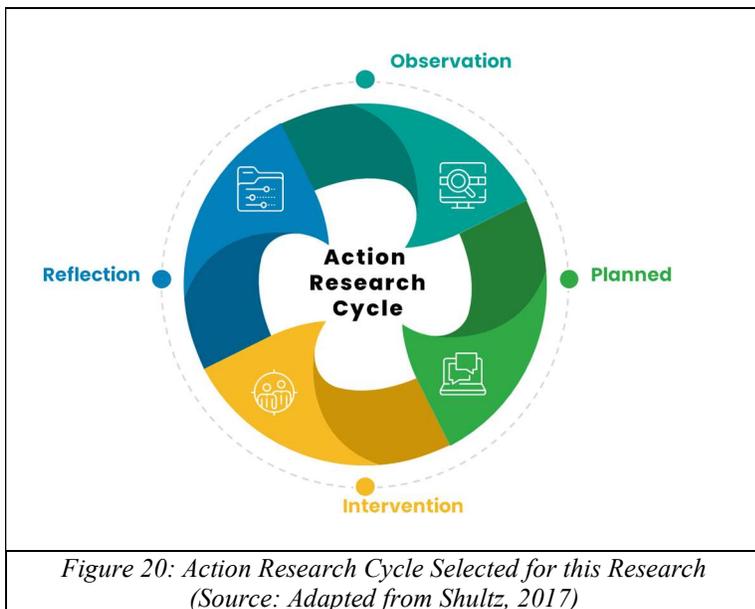
Shultz (2017) advised that the action research cycles start in Phase 2, where the researcher recommends improvement artefacts based on the findings. During the design artefact phase, the researcher began observations of stakeholders, collaborative work, and analysis to develop solutions. She stressed that it is not about how the artefact is created, but the 'more important aspect is what the designed Artefact becomes and how the problem is solved' (p. 305). Action research is continued into Phase 3, where the integration of the artefact is done, and observation of

organisational change is observed. Figure 21 illustrates the research methodology, a design science research with action research cycles framework for ESG and sustainability management. The next step in the action research cycles is planned interventions; at this point, the researcher could contemplate modifying the existing artefact, or the co-creation of additional artefacts can take place. Reflection is done at every step of these cycles for analysis and understanding.

Figure 21: Design Science Research with Action Research Cycles Framework for ESG and Sustainability Management (Source: Adapted from Schultz, 2017)
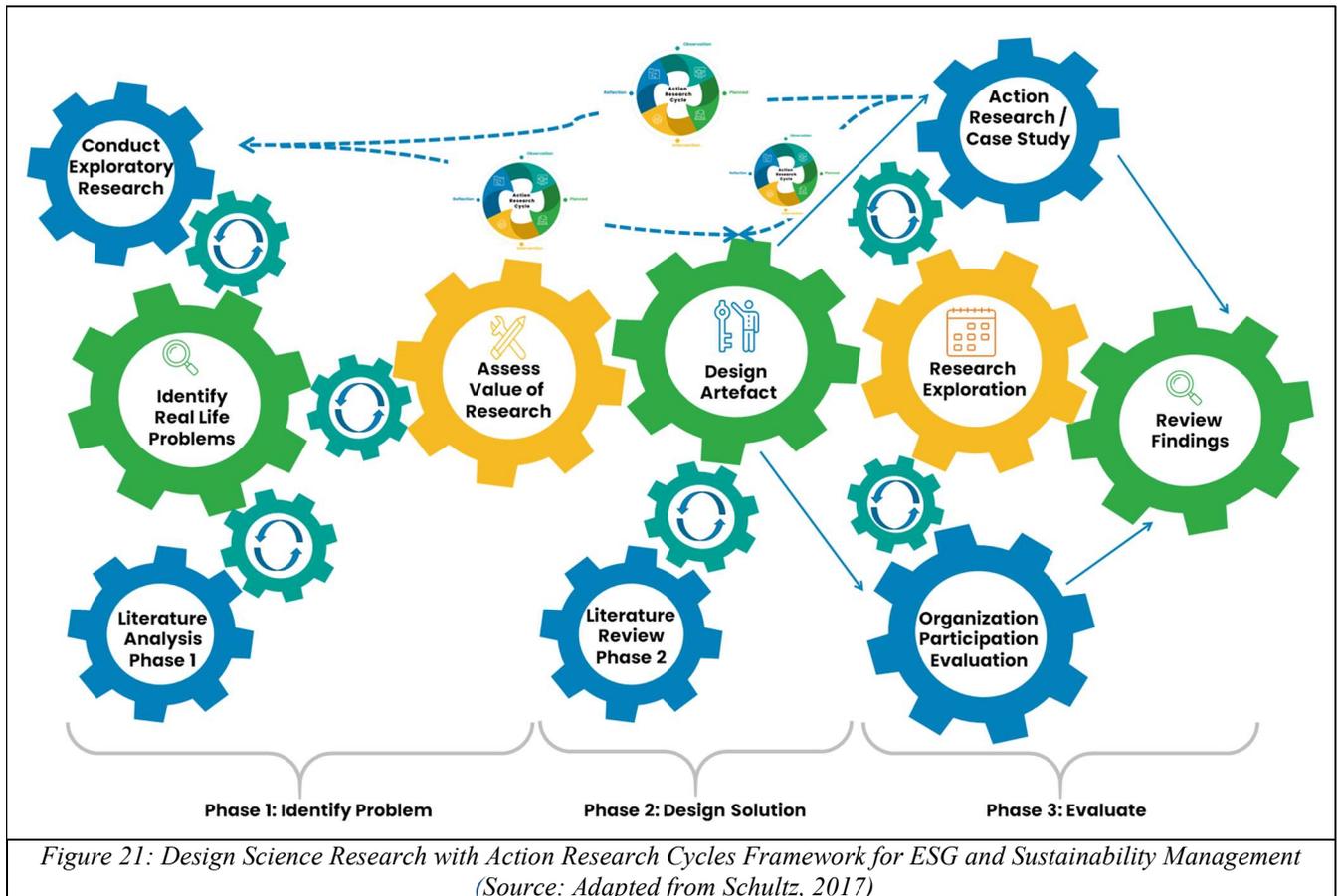
The design and development of artefacts will be discussed in Chapter 5, Case Studies. In a first phase, parts of the designed artefact are introduced to the organisation and stakeholders, followed by observation on how these are adopted, their influences on the workplace, and what significant outcomes are exhibited. Feedback from participants is also gathered while the artefact is evaluated, and any required adjustments are made. Miles and Huberman (1994) advised that new artefacts will continue to unfold as the case study progresses through collaboration with organisational stakeholders.

3.4 Integral Design Thinking (IDT) Framework

This section will summarise the construct of the integral design thinking (IDT) framework showing the action research cycle process and actions taken, and describe the process and elements of each phase of the research. This research study used a multi-method approach, merging various sources of data collection to build an IDT artefact. The main research methods employed were qualitative in nature and included direct observations, interviews, focus group working groups, field notes, and participant observation (Yin, 2009). The operational study (see Table 7 below) had three key phases: identify the problem (Phase 1), design solution (Phase 2), and evaluate (Phase 3). These are the foundations of the DSR with action research framework. The foundations for Artefact were created in Phase 1 of this study, but this was developed at every stage of the process and evolved from previous findings. Three case studies were utilised: a scoping one, Company A (Bedell Cellars) in Phase 1, and Company B (New York City Department of Education) and Company C (Time Equities Inc.) in Phase 2.

Phase 1 Identify Problem	Phase 2 Design Solution	Phase 3 Evaluate
Literature Review, Professional Experience, Exploratory Interviews UK, & Exploratory Case Study	Main Study	Validation Study
Case Study 1	Case Study 2 | Case study 3	Interview
Company A	Company B&C	Leadership Interviews

Table 7: Research Process (Source: Author)

In Phase 1, an in-depth literature review, with foundations from professional experience, scoping interviews UK and case study were conducted (Company A). The scoping interviews were conducted with six sustainability leaders in the UK. In this phase, the first foundations of the IDT framework were established. In Phase 2, two case study explorations based on two different companies, companies B and C, were carried out. In this phase, Artefacts were developed via stakeholder collaboration, observations, and literature research with constant reflection and analysis and the synthesised Artefact was applied and tested in each of the case studies. Each case study further developed the IDT framework. Further research and literature review analysis was also conducted during this stage, as well as a reanalysis of Phase 1 for each case study. Each of the case studies was designed in the same format as the larger study, having each

a Phase 1, 2, and 3, showing that the method has repetition and scalability factors. In Phase 3, leadership interviews were conducted for further validation of framework. The interview findings then helped in the reorganisation of the framework for the development of the final model. The case studies Phase 3 was done by getting feedback from stakeholders through non-structured interviews, focus group feedback, and pilot studies.

3.4.1 Approach to analysis

The research used reflexive thematic analysis to generate ideas and connections for the overall findings of the research and interview process. Braun and Clarke (2016) defined thematic analysis as a method for identifying, analysing, and interpreting patterns of meaning ('themes') within qualitative data. Thematic analysis in qualitative research can connect to communication processes by: 1. offering a view of meaning-making in action, 2. allowing for marginalised voices to emerge, 3. evoking a sense of affect and experience, and 4. constituting sense-making (Manning and Kunkel, 2014). Braun and Clarke (2006) stated that a theme captures a prominent aspect of the data in a patterned way, regardless of whether that theme captures the majority experience. According to Lincoln and Guba (1985), data should be transferrable, dependable, and confirmable.

Through reflexive thematic analysis, the researcher's initial step was to discover meaningful responses to the research questions. The data were transcribed and analysed then coded. Austin and Sutton (2014) defined coding as the process by which raw data are steadily translated into usable data through the identification of themes, concepts, or ideas that have some relation with each other. Coding entails investigators distinguishing similarities and differences in the data. The codes, or classifications to which each concept is mapped are then placed into context with each other to create themes. A theme encapsulates something vital about the data in relation to the research question and signifies some level of patterned response or meaning within the data set. Conclusions are then made to the responses to the exploration questions or purpose of the study (Braun and Clarke, 2006). Braun and Clarke (2020) categorised thematic analysis under three approaches: coding reliability, reflexive, and codebook. This study applied 'reflexive thematic analysis', where coding is open and organic; themes are the outcomes of data coding and iterative theme development. They noted that 'analysis, which can be more inductive or more theoretical/deductive, is a situated interpretative reflexive process' (p. 6). Their 'reflexive approach has six recursive phases: familiarisation, coding, generating initial themes, reviewing, and developing themes, refining, defining, and naming themes, and writing up' (p. 3). They further stated that reflexive TA exemplifies 'Big Q', as it is an open-ended, inductive research approach aimed at uncovering

meaning and generating theory. It includes the author's conceptualisation and subjectivity of the research as a resource for the study (Braun and Clarke, 2013). Figure 22 reveals the process of reflexive thematic analysis used in the current research study.

Figure 22: Reflexive Thematic Analysis Map (Source: Author)

Figure 23: Design Science Research Sequence of Logic (Source: Author)
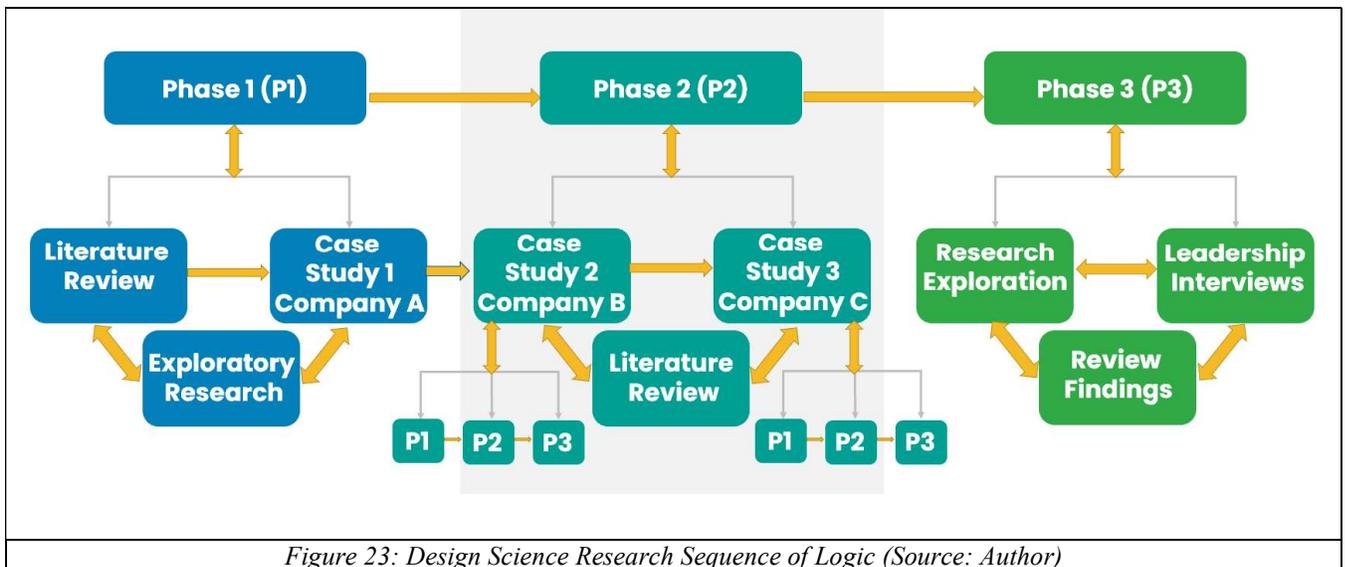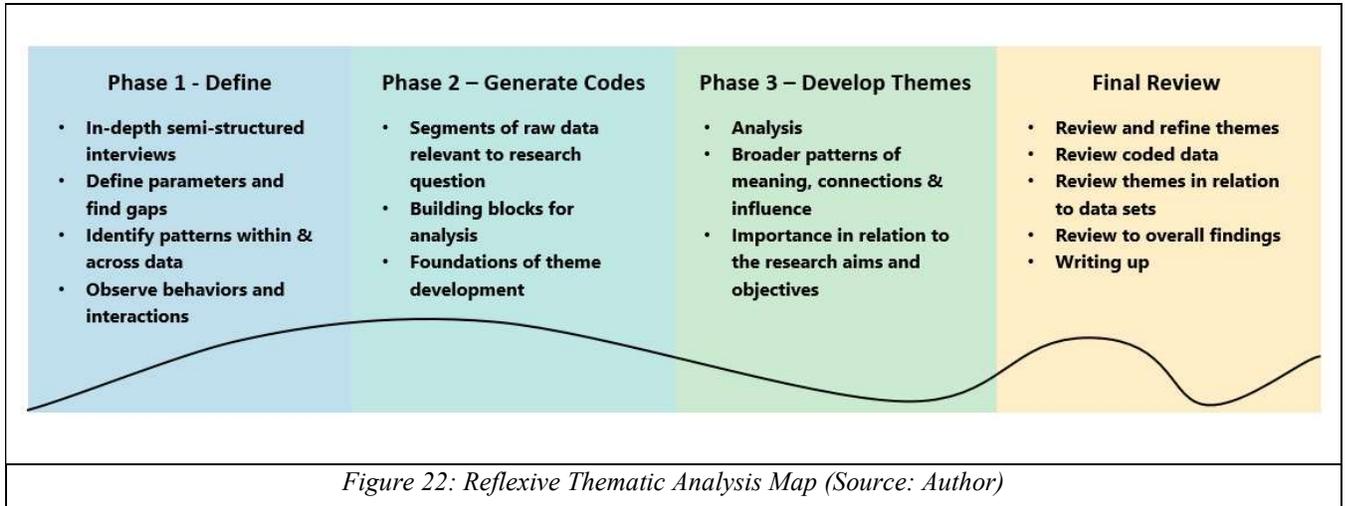
Figure 23 shows the holistic sequence of logic developed for this study. As shown in the figure, the main study consists of three phases, and within Phase 2, where the case studies are located, the same three phase processes are replicated and applied to each of the case studies. In Phase 1 of the main study, the literature review, Case Study 1 information and the scoping interview data were collected and analysed together to create the first foundations of the IDT framework. That information was then applied to Case study 2 in the Phase 2 main study process. The information then became part of Phase 1 of the case study. In Phase 2 of the main study, two case studies were conducted that fed into each other, similarly as per Phase 1 of the main study, information gathered from each case study became part of Phase 1 of the next case.

Further, in the process of each case, a literature review related to each case was conducted to extend the research of each case; this information was utilised in both case studies to advance the work. In Phase 2, artefacts were then designed and developed to find solutions to the challenges identified in Phase 1. From there, the process moved to Phase 3, where the evaluation and testing were performed on the artefacts designed in Phase 2. For Phase 3 of the main study, further literature exploration was done, combined with 17 leadership interviews to help validate the findings, where a final assessment of the IDT Artefact was established. In Phase 3 of Case Studies 2 and 3, artefacts were piloted, and feedback from stakeholders was generated.

3.4.1A Phase 1: Identify the problem

In Phase 1, building on life experience, an in-depth literature review with an initial case study and six scoping interviews in the UK was conducted to identify initial problems and gaps to build on in this current research. Figure 24 shows an example of a Phase 1 process that includes literature analysis, identifying real-life problems, and conducting exploratory research. This approach was also utilised in the case studies and applied to each organisation in the Phase 1 process of each case.
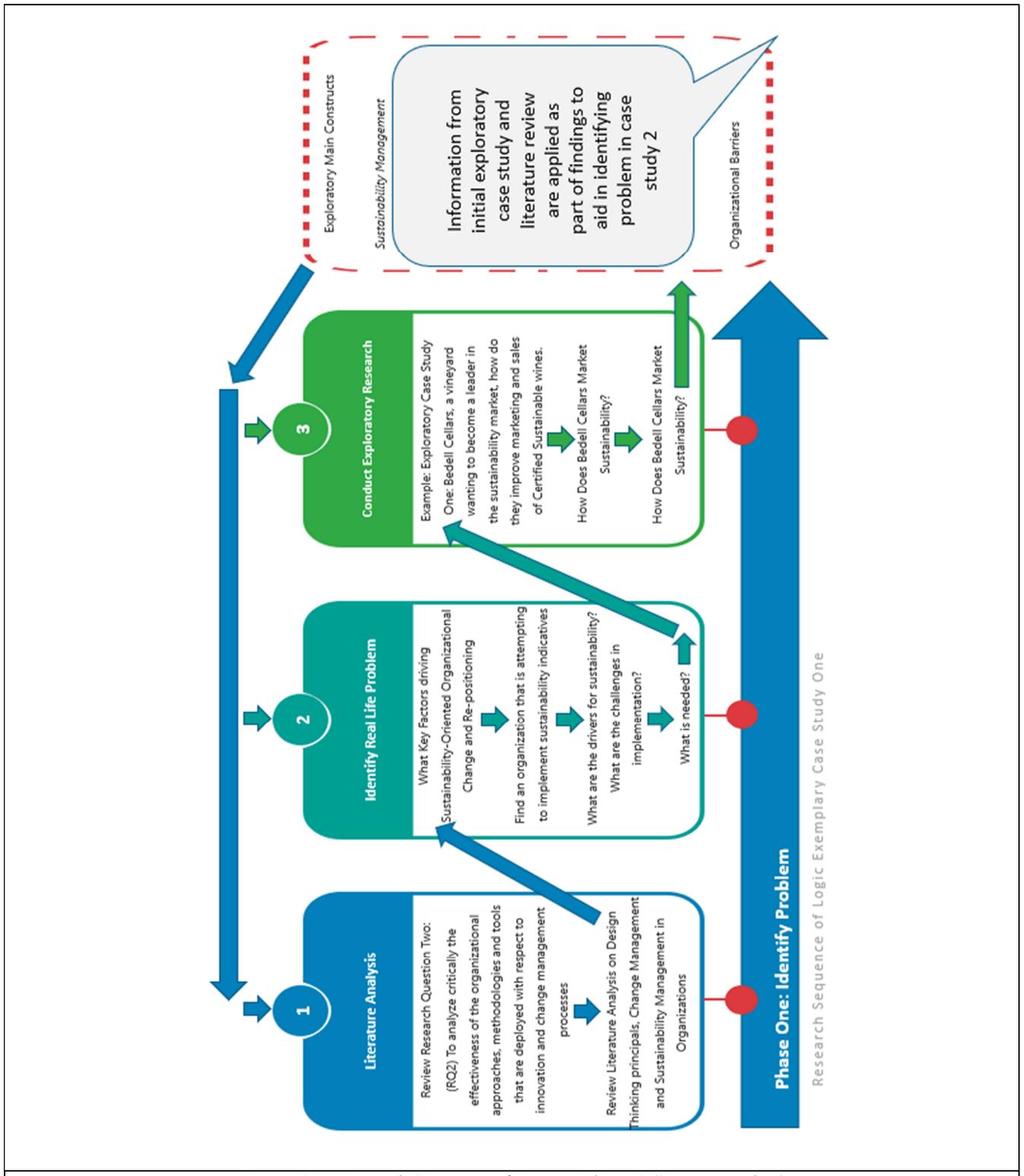
Figure 24: Research Sequence of Logic – Phase 1 (Source: Author)

This research study utilised a qualitative research methodology that included participatory observation, unstructured, and semi-structured interviews, questionnaires, and a literature review to collect data. Zhang and Wildemuth (2009) disclosed that interviews are a standard research tool used to assess research participants' attitudes, personal perceptions, and organisational reality experiences. There are three formal classifications of interviews: unstructured interviews, structured interviews, and semi-structured interviews. Unstructured interview methodology, established in the discipline of anthropology and sociology, is a process that incites stakeholder's reality, some examples are an informal conversation, ethnographic interview or nonstandard interview; while structured interview has predefined questions, asked in a predetermined order, and have both closed-ended and open-ended questions. Semi-structured interviews are more flexible, where the researcher has some scope in modifying the sequence of the questions, as well as adding questions based on context and responses (Zhang and Wildemuth, 2009). Dawson (2009) recommended that for a more holistic examination in identifying the participants' opinions and circumstances, the more unstructured interview should be utilised for data collection. He suggested that this would involve a more informal research probe to be performed while observing and shadowing participants. The researcher actively observed individuals in their work environment, procures additional knowledge about the organisation, builds trust, and stimulates unstructured in-depth interviews (Dawson, 2009). The author engaged as an employee and facilitator in action; it was observed that the more casual the data collection and question methodology, the more comfortable the targeted stakeholders were.

Coghlan and Brannick (2010) stated that in action research reflective analysis, the author needs critical distancing by pausing, stepping back, and analysing insights as the next steps are prepared. In the case studies, the following methods were used to generate qualitative (and, where possible, quantitative) data:

• Semi-structured interviews – design of a questionnaire with basic questions to start conversations and to engage with informants. Target: key personnel both internally and externally to the organisation.

• Questionnaire/Surveys – used for more quantitative data gathering by targeting a larger population within organisations.

• Brainstorming – creating opportunities where large groups of people can feel part of the transformation/development process, collaborate, and contribute to ideas.

• Observation – assemble evidence on behaviour, interactions, and communication methodologies on all levels to see what requires to be adjusted to build trust and a foundation for cultural shift.

- Written literature on the subject – analysis of organisation's existing reports and internal/external communication as a means of context-setting.

Participant data collection for the case studies and interviews were recorded either manually or via a digital audio recorder. All interviewees were introduced to the aims and objectives of the research at the initial contact, and meetings were established. Chapter 4 will cover information on the six key interviewees who were selected in the UK; they were engaged via email from the US and interviewed in person when the author was in the UK. Some were approached for their involvement in Birmingham and the surrounding region's sustainability movement or their involvement in Birmingham public schools, as the author was involved in a similar case study in the US at that time. Chapter 4 will also cover the scoping case study that covers a winery and their partners findings. Interviews for scoping case study A were both unstructured and semi-structured in nature. Semi-structured were designed for leadership interviews, and unstructured were for staff and customers. In Chapter 5, the main case study, the participants were of a cross-section of the organisation and increased in Case Study 3 for more in-depth understanding and initial knowledge gathering. For both of the main case studies, semi-structured interviews were conducted, and all participants were administered the same questions. Some selected participants were then followed up with unstructured interviews to further understand the findings after the initial review was done. Other data were collected from observations of stakeholder interactions, shadowing, and organisational documentation and reports. Chapter 6 reports interviews with seventeen industry leaders; these were selected from recommendations, title, and leadership in the industry sector. A list of 56 leaders was established with the ability to engage only thirty-six leaders. Some challenges were that organisational rules and policies did not allow these sustainability leaders to engage in the study. Thus, after initial contact, a total of seventeen were receptive to the interviews. Data were gathered from semi-structured interviews conducted via conference call or in person. Information was collected, coded, analysed, and measured with findings for the current developed IDT artefact. More information is provided in the following chapters.

3.4.1B Phase 2: Design solution

In Phase 2, discoveries were taken from the first Phase 1 findings, applied to the case study, and expanded based on the subsequent results (see Figure 25). Phase 2 has two case studies. After each evaluation, this information was used to build on the consecutive case. The process for each case followed the steps and method in the same process: Phases 1, 2, and 3.
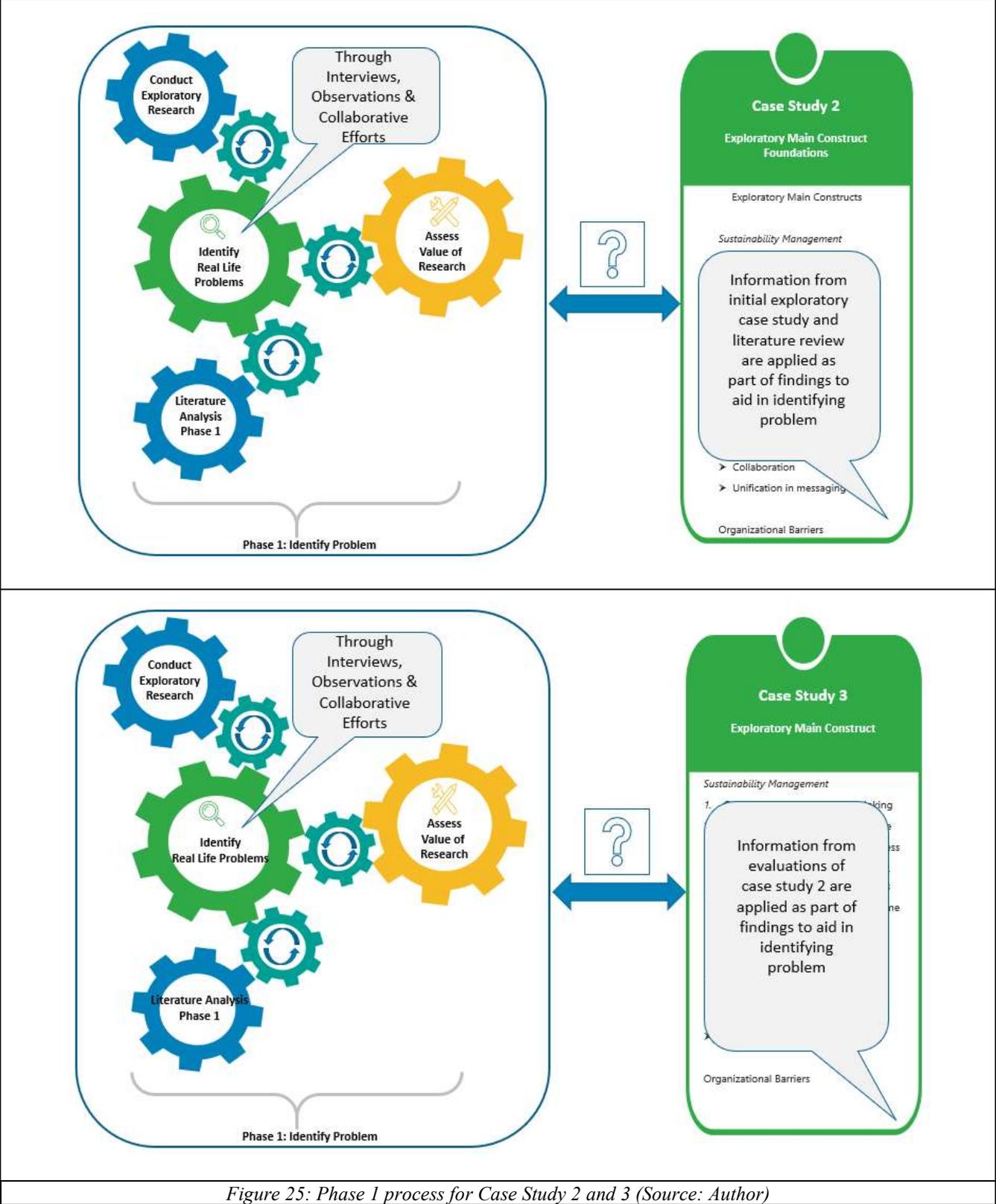
Figure 25: Phase 1 process for Case Study 2 and 3 (Source: Author)

Phase 2 is where the main study was conducted to further develop the IDT holistic strategy framework. As the design of the artefact was being developed, a Phase 2 literature review was conducted and

incorporated to creating the outcomes. Artefacts were designed and developed from collaborative engagement of cross disciplinary stakeholders and throughout the process action cycle of observation, planning, intervention, and reflection is implemented. In this phase, observation of stakeholders took place to identify the gaps, and a plan (artefact) was designed to address the gaps. This was followed by intervening with the artefact and reflecting on the outcomes; this process was repeated as needed. An example is shown in Figure 26 for Case Studies 2 and 3 during the Phase 2: the design solution process.
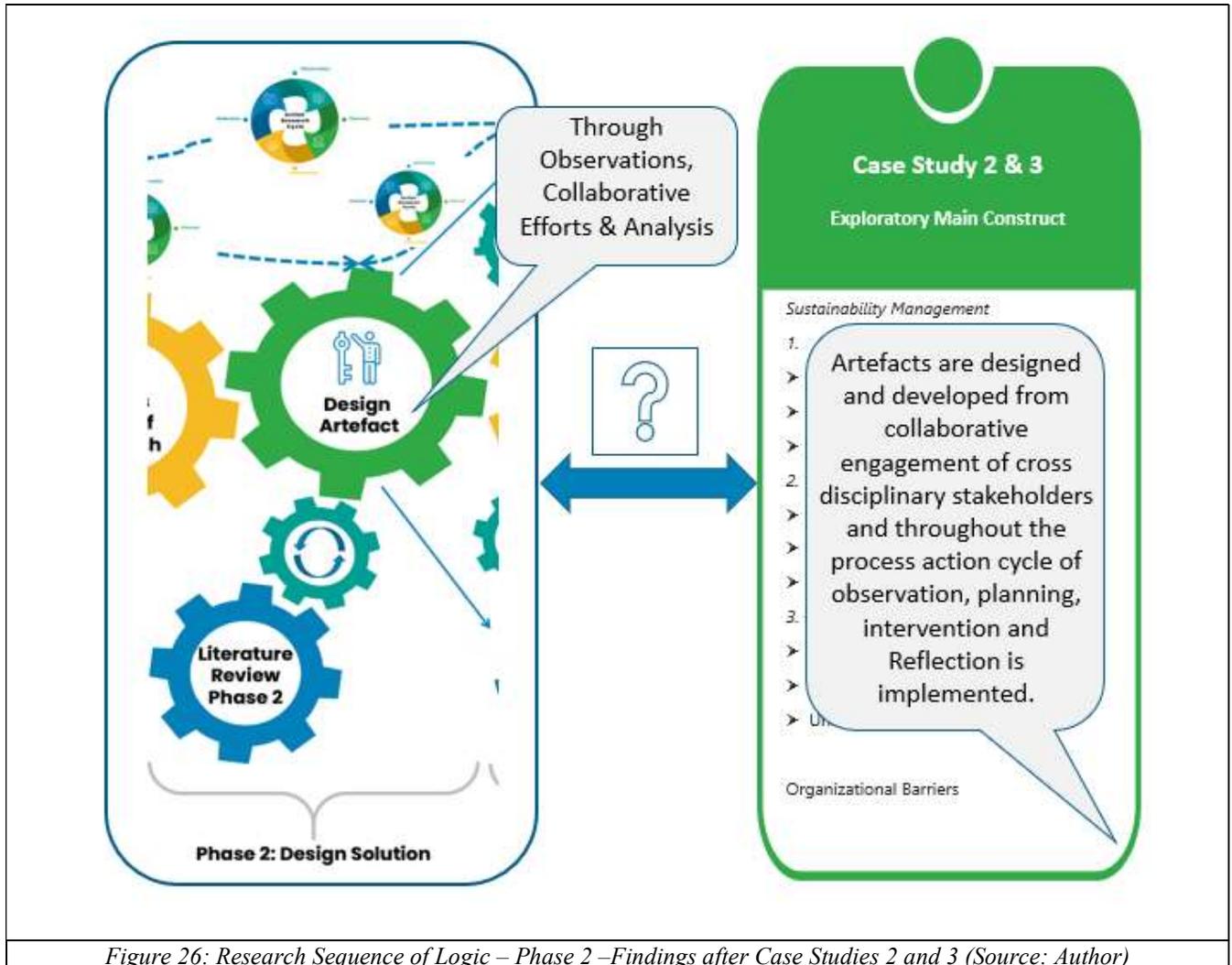
Figure 26: Research Sequence of Logic – Phase 2 –Findings after Case Studies 2 and 3 (Source: Author)

This study followed a logic of replication throughout the research, and this was also followed in the **case study method**. Yin's (2003) stated that the multiple case study design uses the logic of replication, in which the inquirer replicates the procedures of each case. The author employed three case studies, one scoping and two exploratory to create the replication process and with interviews of the main actors for the further verification. Indeed, as Yin noted, replication process provides a means to refine and expand

on initial findings in the preliminary case study. A case study involves time in the field and frequent interviews, followed by transcription and analysis (Stake, 1995; Zucker, 2009). It is imperative to explain the alleged real-life intervention and to describe a mediation and the context in which it occurred. The researcher will also need use a descriptive mode to illustrate and enlighten the participants of any interventions that might not have a clear, single set of outcomes (Yin, 2009). The action research cycle of observation, planning, intervention, and reflection aids in this description for the case studies.

As this research magnifies an element of an emerging market, case study research is crucial in current research. One of the case studies aimed to assess, develop, and retest the IDT procedure, activities, and tools dependent on the kind of project, difficulty, and range of scoping methodology to answer the research questions. All the case studies pursued the same framework to be consistent and target specific facets of interest for the investigation. All case studies were analysed under the same structure by illustrating the context and operating circumstances in which the design science research took place, the aims, focus, and conclusions from the investigation, the undertaken process, and the results from the suggested strategies.

Phase 2 was designed and established through a case study and literature review to develop artefact-based solutions for organisational challenges. The case study method was the selected exploration strategy for this endeavour for two rationales: 1. due to the explorative nature of this research, the case study approach offered the prospect for a more detailed inquiry (Aftab and Steven, 2016; Coghlan, 2006) and 2. the case study method allowed the assessment of the 'how' and 'why' of present real-life experiences within a specific context (Yin, 2003). In the current research, sustainability management exploration involves assembling the maximum data on opinions, sessions feedback, strengths, weaknesses, key learnings, and realised outcomes to define challenges and solutions. Figure 27 shows the breakdown of Phase 2, which consisted of two case studies and a literature review. Each case study followed the same foundations designed for the larger study of design science research with action research cycles that were discussed previously. The first step (P1) was to identify the problem. This included interviewing a cross-section of the organisation, observing behaviours, reviewing a holistic, systemic process to include in-depth marketing, communication, and community review, and following up if needed. In the second step (P2)—design a solution—the artefacts were designed and developed with collaborative, action research cycles, and further literature review was undertaken to develop solutions. The third step (P3) refers to the evaluation stage, in which testing and feedback are gathered for analysis and adjustments.
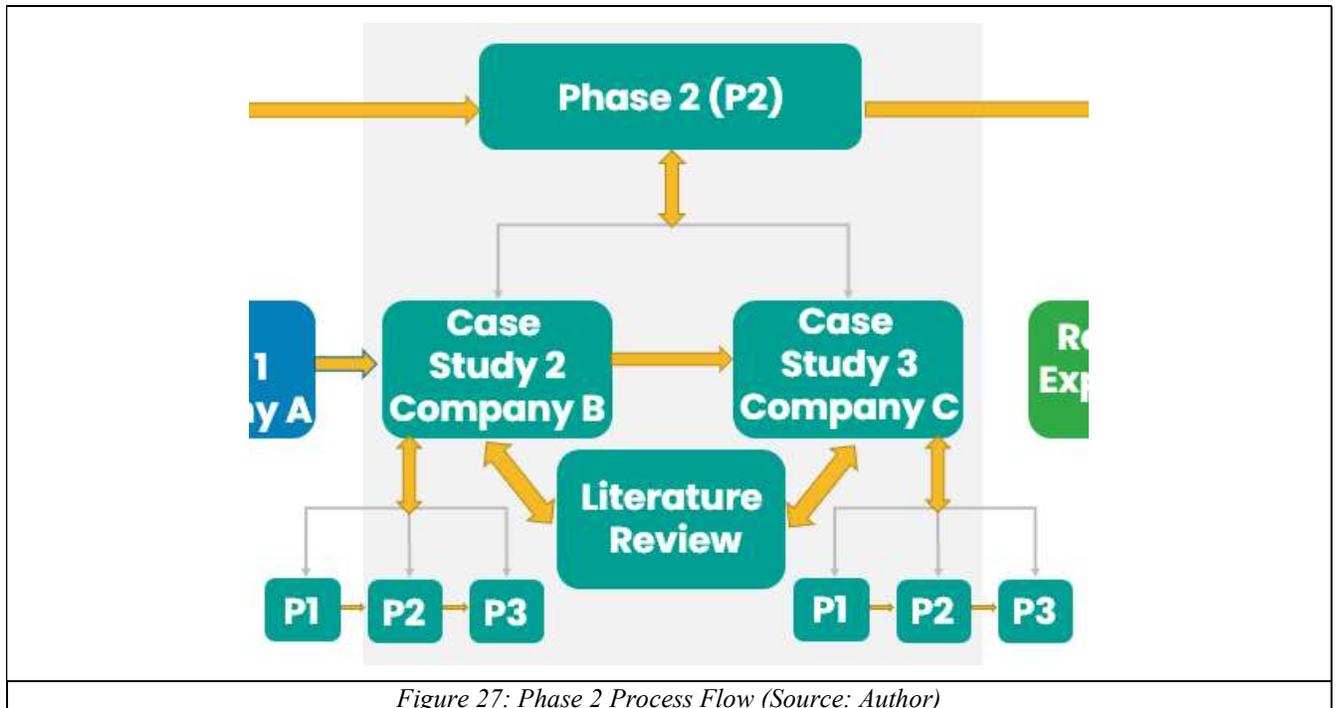
Figure 27: Phase 2 Process Flow (Source: Author)

A summary of the case study logic flow process is shown in Figure 28. In all case studies, initial semi-structured interviews were conducted combining quantitative and qualitative questions that have allowed the author to develop a rapport with the interviewee to gather the needed information. This was done for the understanding of the interactions with the sustainability department, understanding of sustainability and its role in the organisation, what challenges existed, and recommendations. During this research, multiple artefacts were developed for each case study that was piloted and tested. These helped identify the emerging factors that developed the IDT framework. Based on each case study's research, working groups/committees were developed to build influence, collaboration, educate stakeholders, and gather information. By combining interviews, observations, and case studies, the author collected rich data for analysis and clarifications. The process assisted in the development of a robust framework to better understand where and how to enhance approaches for embedding sustainability strategies and practices in an organisation's change management process. Following the case studies, the developed holistic IDT framework was tested and evaluated using a larger sample of participants to validate the gaps and needs that the framework is designed to aid (see Phase 3 sections for more information).
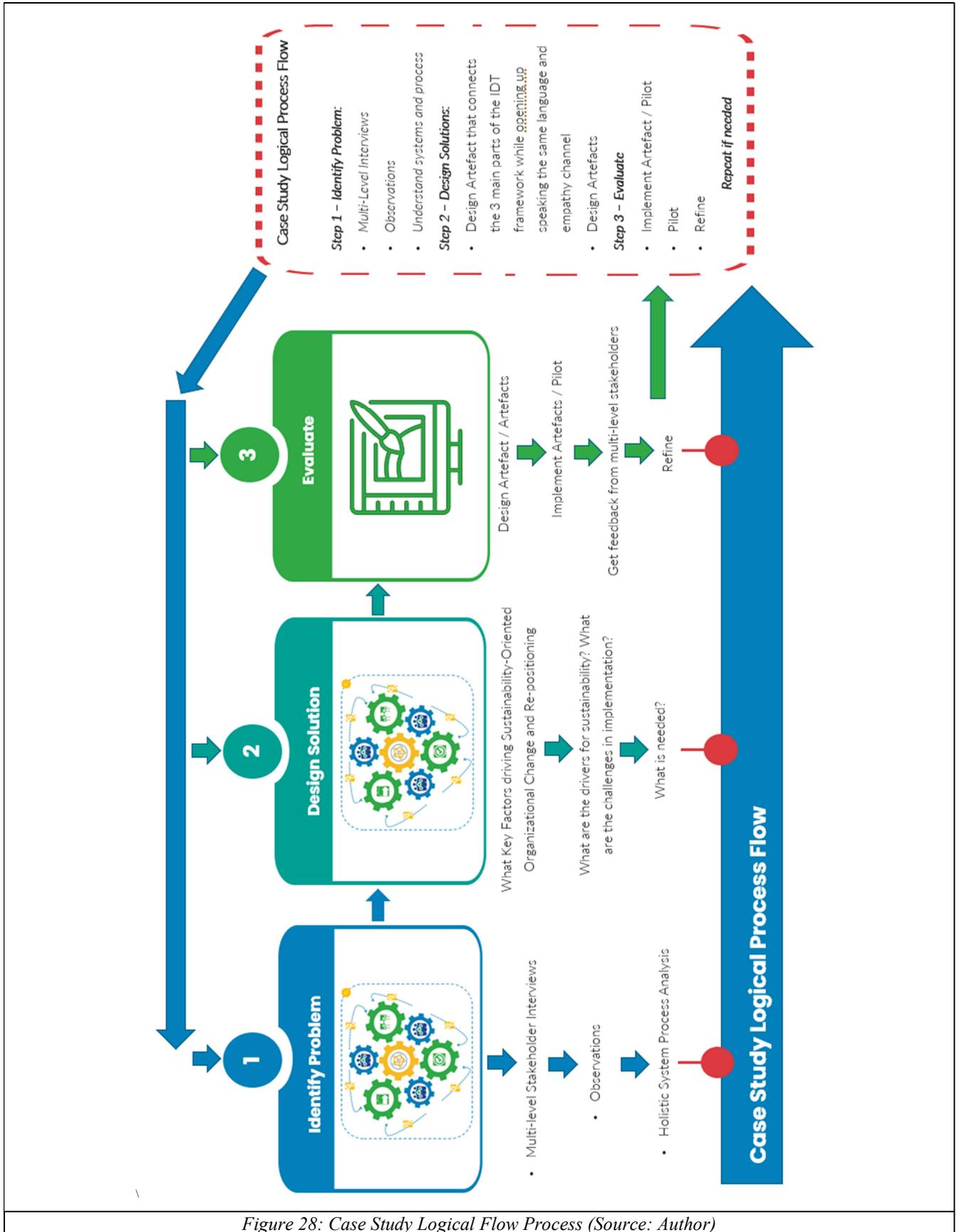
Figure 28: Case Study Logical Flow Process (Source: Author)

Case Study Logical Process Flow

Step 1 – Identify Problem:
- *Multi-Level Interviews*
- *Observations*
- *Understand systems and process*

Step 2 – Design Solutions:
- *Design Artefact that connects the 3 main parts of the IDT framework while opening up speaking the same language and empathy channel*
- *Design Artefacts*

Step 3 – Evaluate
- *Implement Artefact / Pilot*
- *Pilot*
- *Refine*

Repeat if needed

1 – Identify Problem
- Multi-level Stakeholder Interviews
- Observations
- Holistic System Process Analysis

2 – Design Solution
What Key Factors driving Sustainability-Oriented Organizational Change and Re-positioning
What are the drivers for sustainability? What are the challenges in implementation?
What is needed?

3 – Evaluate
Design Artefact / Artefacts
Implement Artefacts / Pilot
Get feedback from multi-level stakeholders
Refine

Case Study Logical Process Flow

This study utilised three case studies, one in Phase 1 of the study (exploratory) that will be discussed in Chapter 4 and two in Phase 2 (Case Studies 2 and 3). **Case Study 2** was part of a fellowship to aid in developing strategies for cultural shifts for New York City's public schools. It lasted one year, during which the researcher worked as a researcher and a consultant to the organisation's leadership. Figure 29 shows Case study 2 logic flow process. Case Study 2 was built with the foundations from information gathered from Phase 1 research of the main study that included literature review, Case Study 1 and initial scoping interviews. Phase 1 of Case Study 2 was initiated by conducting preliminary scoping interviews with a cross section of the organisation consisting of 13 stakeholders; the results will be discussed in Chapter 5. Whilst working with senior management, a cross section of the organisation, and external stakeholders, a few artefacts were developed to be tested. In the timeframe allotted:

- Two design thinking, innovation, and sustainability working groups were designed and administered to a cross section of internal and external stakeholders consisting of fifty-two people divided into two groups, internal, and external stakeholders.
- Three design thinking working groups were designed and administered: two for internal stakeholders and one for external stakeholders.
- Existing programmes and methodologies were researched, such as internal sustainability communication, programmes, and processes, as well as external methods and programmes by others.
- Non-structured interviews and information were gathered.
- Multiple artefacts were designed.

Artefacts were strategically designed to aided in cultural shifts in the organisation using the concepts of the foundations of IDT model. The testing phase for some of the artefacts started in July 2015. During that time, a transition of leadership in the sustainability department took place and paused to implement the strategies developed. A more in-depth summary will be discussed in Chapter 5.
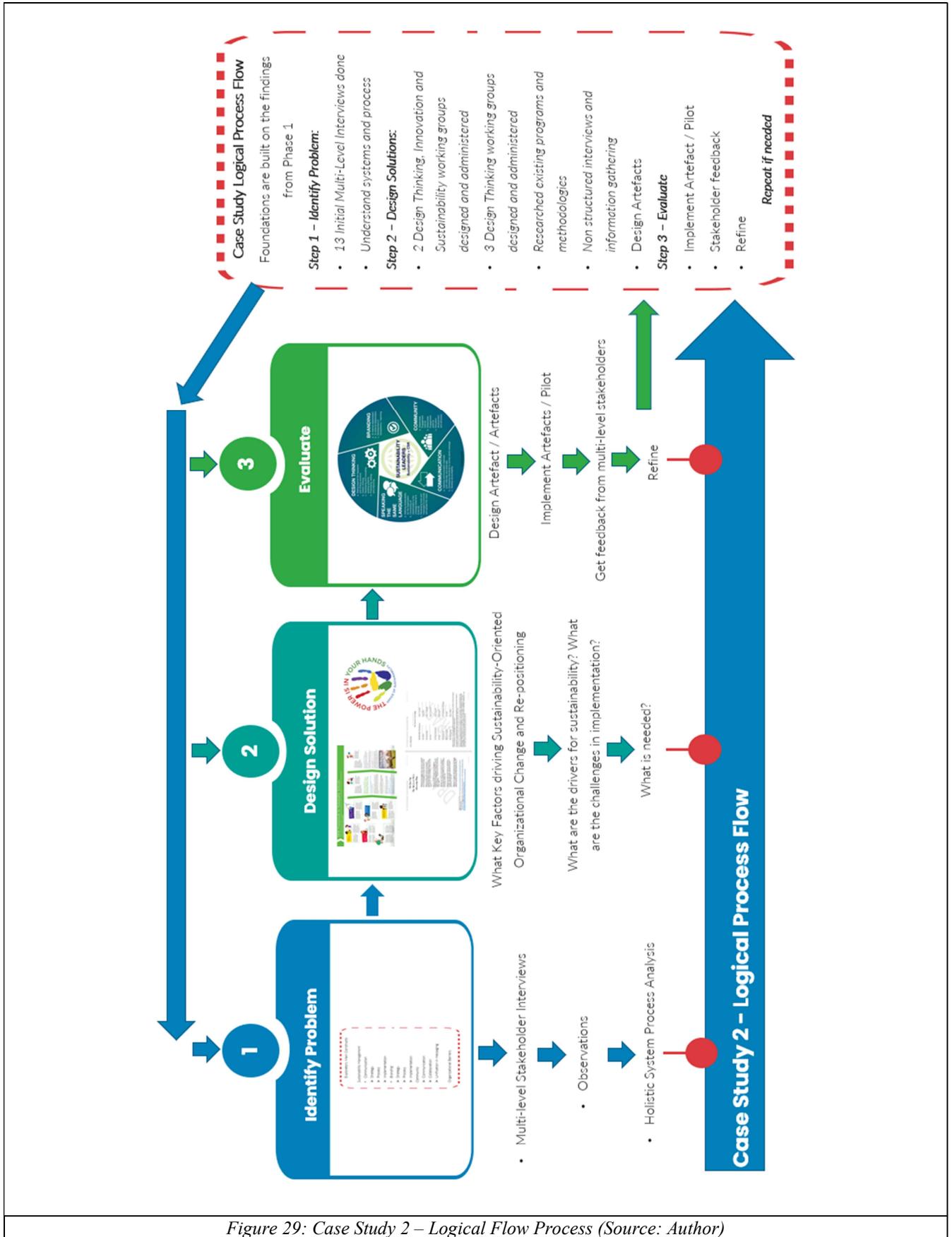
Figure 29: Case Study 2 – Logical Flow Process (Source: Author)

In Case Study 3, the author was hired as an employee by Company C, Time Equites Inc., with the acknowledgement and consent to conduct research for this study. Entering the organisation with a mindset of an action researcher where there was an attempt to shape the direction of travel (and outcomes) of the various cases and encounters, the author utilised critical distancing and allowed the leadership and other stakeholders to take the lead. Figure 30 shows the logic flow of this case research. Case Study 3 was built with the foundations of information gathered from Phase 1 and Case Study 2 research that included a literature review, Case Studies 1 and 2, and initial scoping interviews. The identification of the problem of Case Study 3 was initiated by conducting preliminary scoping interviews with a cross section of the organisation consisting of 41 stakeholders with further research for understanding of organisational systems and process; the results will be discussed in Chapter 4. Working with senior management, a cross section of the organisation, and external stakeholders, a few artefacts were developed and tested. In the time frame of two years, the following measures were taken to influence behavioural change:

- Influenced and developed three committees of multi-level stakeholders, all managed by others.
  - Educational committee
  - Green innovation committee
  - Executive committee
- Three design thinking working groups were designed and administered.
- Researched existing programmes and methodologies, both internal and external to the organisation.
- Non-structured interviews and information gathering were conducted.
- Multiple artefacts were designed.

Phase 3—evaluate—was implemented at different stages for each designed artefact and followed up by stakeholder feedback and refined when needed. A more in-depth summary will be discussed in Chapter 5.
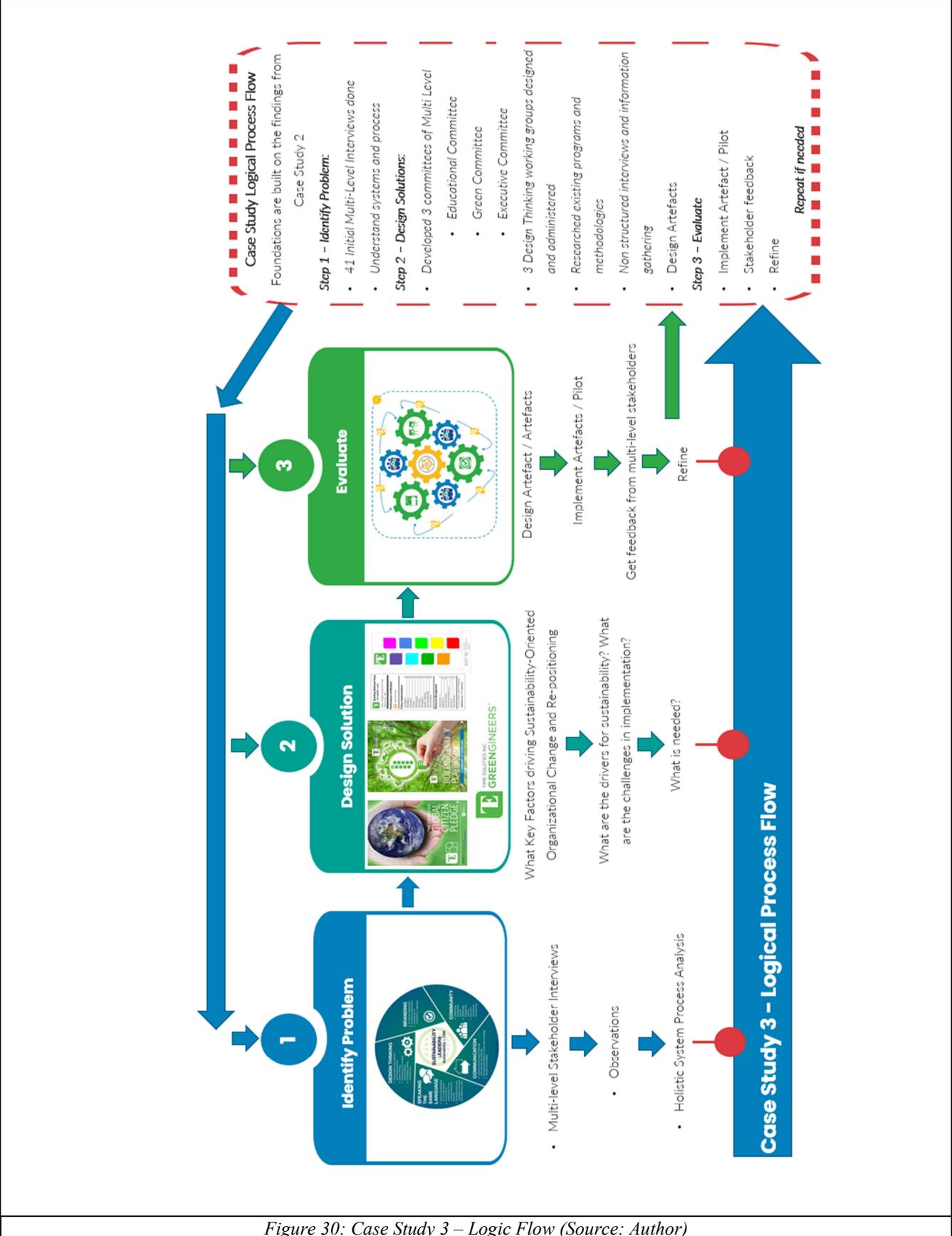
Figure 30: Case Study 3 – Logic Flow (Source: Author)

3.4.1C Phase 3: Evaluate

The last phase in DSR is the evaluation. At this phase, action research, study exploration, and further information are gathered from stakeholders to make a final review of the findings (see **Error! Reference source not found.** below). The evaluation of the main research was conducted by interviewing 17 leaders in the sustainability industry. Leaders were chosen from different sectors in the industry to assess the framework and its relevance to the sustainability agenda as a whole, not necessarily with focus on a specified sector. In each case study, this was achieved by collaborating and receiving feedback on the designed artefacts. After the collection of the data in the main study, Phase 3—evaluation process—was implemented. In this phase, the findings with action research and evaluations was further explored. Leadership interviews were conducted to validate the IDT strategy framework. Through this research process, a final IDT strategy framework was developed.
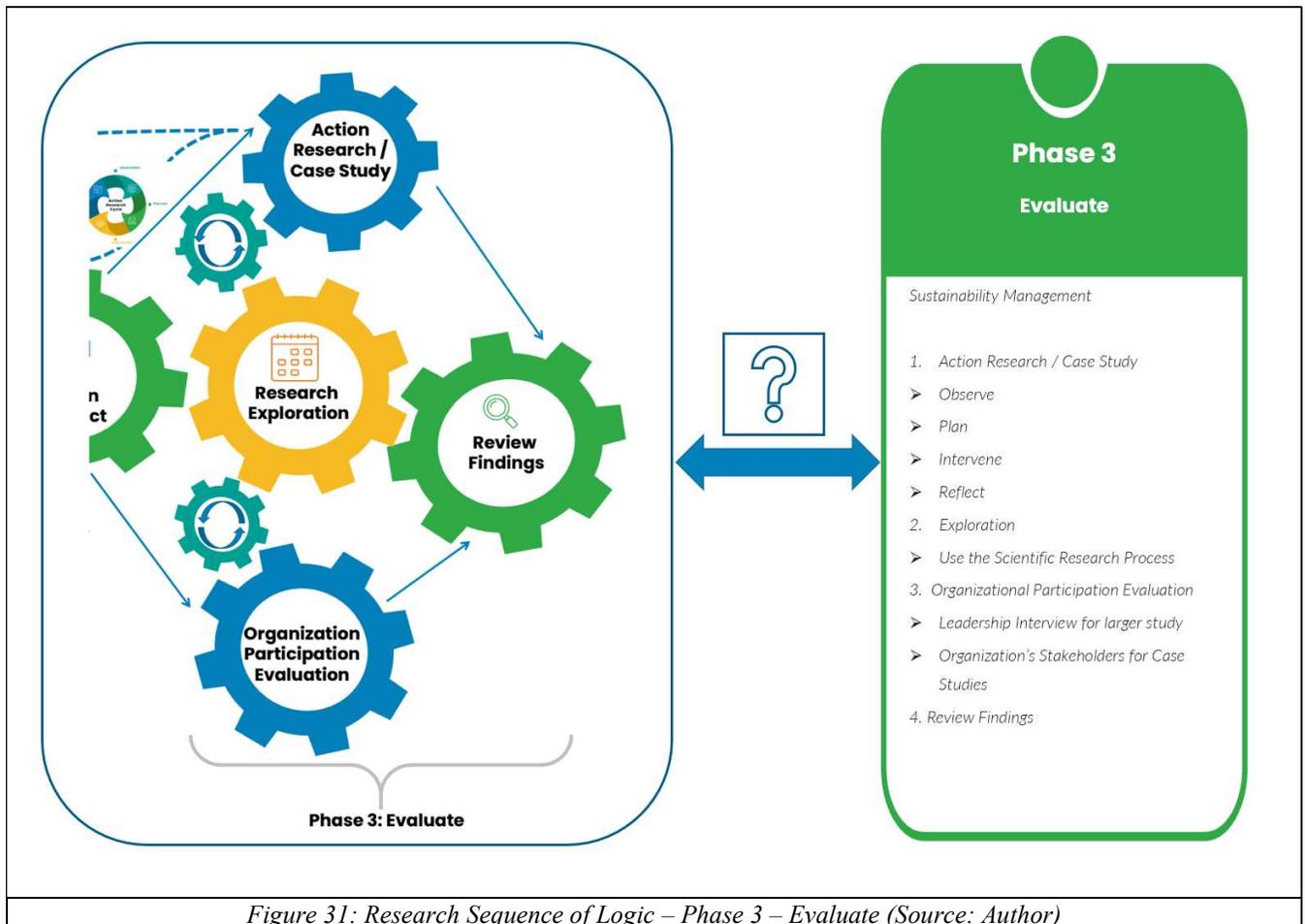
Figure 31: Research Sequence of Logic – Phase 3 – Evaluate (Source: Author)

In all the case studies, an analysis was performed to examine the holistic web of connections among the issues that arose. This helped in the formation of a holistic strategic framework. A table was created to

understand some of the research problems that arose, and action research reflection projects or artefact solutions were created throughout the study. The author analysed research problem of each case, what action research reflection projects and artefacts were created, and what was the thematic premise that could be assessed from the information. Subsequently, further theme connections were made to create the core imperatives for the IDT artefact. Additional discussion of each of these actions, some of the research problems that arose, and the action research reflection projects or artefact solutions that were created will be discussed in more detail in Chapters 4 and 5.

Interviews with industry leaders were conducted in a semi-structured manner. The interview questions were designed to address the main study's key research aims and objectives and to create a better understanding of leadership's challenges and paths in advancing the sustainability agenda (sample questions are in Appendix M). The interviews were part of the evaluation phase, where the validation and extension of ideas of this research and the IDT holistic strategy framework artefact is explored. Thematic analysis was then performed to extract data from the transcribed information. Overall, this research aimed to find a holistic strategy to assist leaders of sustainability management to drive their agenda faster into the organisation.

Interviewee selection and list of industry leadership developed from a preliminary list of 56 people. The initial information for these individuals was obtained from LinkedIn. The interviewees were selected by their positions in the industry and by the recommendations of other leaders. Through that process and the next steps of gathering contact information, refined the list down to 36 people. Initial probing contact was made through email, with an introduction flyer attached to each on the list (Samples are in Appendix D). Out of the 36, 17 responded and agreed to be interviewed. The initial concept was to obtain a range of organisations from the private and public sectors; this was achieved by securing a variety of interviewees from both sectors. From the public sector, interviewee leaders worked in the government, healthcare, and education sectors; from the private sector, interviewee leaders were from the real-estate, manufacturing, technology, banking, and entertainment industries. The organisational type and titles were correct at the time of the interview from January 2020 to May 2020. Further in silico research was done to understand the position and work of the interviewees, as well as the organisation they resided in. Table 8 shows the list of participants, their position, company, and the industry type to which they belonged.

Industry Type	Name	Title	Company
Banking	Andrew Green	Director, Head of Environmental Sustainability Office	Capital One
Education Higher Education	Max Driscoll	Assistant Director, Sustainability	Purdue University
Education Higher Education	Jim Walker	Director of Sustainability	University of Texas
Education Public Schools	Meredith McDermott	Director of Sustainability	Department of Education NYC
Entertainment	Dare Llori	Group Head of Sustainability	Marlin Entertainment - UK
Government	Zach Baumer	Climate Program Manager	Office of Sustainability, City of Austin
Healthcare	Seema Wadhwa	Assistant Vice President Sustainability and Wellness	Inova Health System
Manufacturing	Jane Abernethy	Chief Sustainability Officer	Human Scale
Real Estate – Trade Association (TA)	Fulya Kocak Gin, LEED Fellow	VP, Environmental, Social, Governance (ESG) Issues	Nareit
Real-Estate – Acquisitions & Management (A&M) firms	Darryl Neate	Director of Sustainability	Oxford Properties Group - Toronto
Real-Estate – Acquisitions & Management (A&M) firms	Jim Landau	VP, Director of ESG and Agricultural Finance	Met Life Real Estate / MET life Insurance Enterprise
Real-Estate – Acquisitions & Management (A&M) firms	Eugenia Gregorio	Vice President, Strategy & Sustainability	The Tower Company
Real-Estate – Acquisitions & Management (A&M) firms	Flaherty, Jonathan	Senior Director - Sustainability and Utilities	Tishman Speyer
Real-Estate – Acquisitions & Management (A&M) firms	Peter Zadoretzky	Vice President, Sustainability	Bozzuto Management Company
Technology	Justin Murrill	Director of Corporate Responsibility	AMD
Technology	James Gowen	VP Global Supply Chain / Chief Sustainability Officer	Verizon
Technology	Jim Ford	Director, Azure Solutions (USN/USMC)	Microsoft

Table 8: Phase 3: Evaluate process flow - List of interview participants (Source: Author)

The interview process involved an initial exploratory and Phase 3 evaluation interviews. The selection of participants for the interviews was designed with an interdisciplinary approach. The premise that this would generate an understanding of the themes and ideas that cut across disciplines and help to find the connections between different specialties and their relationship to the real world in the context of organisational sustainability management. The scoping interviews included six participants were from

government, private and non-profit industries. Most of the participants were involved in the sustainability transformation process of an organisation, but one participant was a receiver of the information or the process being initiated. Interviews were performed in a semi-structured manner. The same set of interview questions was developed for each participant, but open-ended questions were followed to allow for discussion with the interviewees. Semi-structured interviews were utilised to provide reliable, comparable qualitative data. A total of five main themed question topics with follow-up sub-questions were developed. The main themes of the questions were as follows:

1. Background and personal details in association with the sustainability field
2. Sustainability in context—chronology and nature of initiatives
3. Drivers for sustainability projects
4. Value of sustainability: Monitoring and communications
5. Closing section to see for any relevant missing information and recommendations.

The author followed the same interview structure and format throughout the study. The analysis used for collecting data from the interviews was reflexive thematic analysis. This process is typically used to generate ideas and connections for the research and interview process's overall findings. The research question categories were developed to help in the analysis of the data. These were broken down into four groups that each had six categories: background and role, value and marketing, communication, and factors of sustainability. All were then mapped to assess their relationship with all the different sectors. Section 6.3 discusses the findings with four in-depth tables are provided produced to summarise some of the findings.

Interview questions were designed and utilised to allow the author to guide the conversation and collect relevant data by asking specific follow-up questions. The following is the format of each question and the reasoning behind it.

Background and personal details

With this question, the author wanted to determine the educational background of sustainability leaders, how long they were involved in sustainability, why they moved into this role, and their response to sustainability. This was to understand the larger challenges and how they approached the sustainability agenda for their organisation. Some follow up questions/sub-questions were: who is responsible for sustainability, CSR and/or ESG, and at what level of the business do they operate? (Prompt: how is it

broken down? How many people help to push it?), this was asked to determine if their job had evolved and whether the organisation was pushing more than environmental mandates, and how it was being managed. This analysis helped in the validation of the themes and connections to this research study.

Sustainability in context and drivers for sustainability projects – Chronology and nature of initiatives

Questions 2 and 3 were developed to help build a sustainability picture of the organisation from both the macro and micro levels. With Question 2, the author determined the sustainability context in the organisation and how it was being managed. This question was intended to bring another level of understanding to the larger themes these leaders were addressing. Some of the sub-questions related to how long the issue of sustainability had been on the agenda at the organisation, the understanding of what has been done to date, and what was implemented successfully. It also involved what had it been implemented in business systems: to what levels, what have been the challenges, was there a collaborative effort developed, has it been in a singular focus or a holistic one, does it connect to other functional and business areas, and had this triggered behaviour change? Another follow-up question was: Does the organisation focus on environmental, social, and governance issues or focus on one of these topics at a time? These questions helped show an evolution of roles or additions to the organisation that was or was not working together and how they were being connected to a larger strategy in the organisation if that is existent.

Question 3 was designed to build on the previous question. With this ask, the author wanted to comprehend what factors drove sustainability initiatives in the business and its organisational policy, federal/state or city regulations, mission, and other drivers. This was done to understand whether the sustainability drivers changed over time; if so, why or why not, and in what directions. These questions helped in the understanding and insight of the factors of sustainability and what pushed the sustainability agenda for these organisations.

Value of sustainability: Monitoring and communications

With the questions in this group, the author wanted to find out how the communication, marketing, and branding of sustainability were strategised and managed. Some sub-questions were: How sustainability is defined within your organisation? Is a difference in definitions used for inward and outward-facing purposes? How are these communicated to all stakeholders? The aim of this question was to understand

how the value of sustainability was demonstrated for various stakeholder groups: government, commercial partners, leadership, employees. Is sustainability defined, built into branding, evaluated, and communicated to all involved? In what ways is it market sustainability? What forms of communications/messages have the greatest impact? This helped solidify the understanding of the larger theme's connections.

Closing questions

The last question was designed to assess whether there were any hot issues that the author did not address, especially in the context of the interviewee's organisation. The interviewees were asked for any reading recommendations that would be helpful to the research, and if there was a recommendation for someone else to add to the interviewee list to build on the research. This question helped secure some of the interviewees for this part of the study.

3.5 Ethical Considerations

The primary purpose of this research was to aid in the advancement of the education and implementation of sustainability into organisations. The study aimed to support the advancement of this field. Protocols were established for all organisations and individuals involved regarding their respect and privacy, which were taken in this research process. Guidelines were developed and adhered to BCU ethics and standards. All individuals involved in the research and interviewed had a full understanding of why the information was being gathered and how it would be utilised. The research was undertaken in accordance with BCU ethics guidelines and policies and in accordance with guidelines published by the British Sociological Association. All data were recorded to drives that could be removed from machines (video and audio recorders and laptop computers) and then retained in locked or otherwise inaccessible premises. Children and vulnerable adults were not included in the study. Most informants and participants were experts, experienced sustainability practitioners, and organisational executives/employees. Confidentiality was respected, and informed consent was sought from all those involved (within and beyond the case research).

A copyright assignment and consent form was created and presented to the case study organisations and interviewees as part of the initial interaction and commencement of all engagements (see original sample Appendix P). The document listed the authors' name, school, current research title, Design and Patent Act 1988 rights, and consent for publication mediums. All participants were permitted, if the request was made, to review the interview and associated materials, and were offered an opportunity to withdraw from

the data-gathering process at any stage (as well as materials provided by them may also be withdrawn). The consent was signed by participating organisations as well as independent individual participants. The form also had consequences, as it created fear and deterred some possible interviewees from participating in the study. Robson (2011) recommended that high ethical procedures can have pitfalls, and in sensitive circumstances, 'it might be preferable to proceed informally, while still ensuring that participants have been fully informed and that you have their consent' (p.201). An example of this occurred in the research in Phase 3 of the interview selection process of the sustainability leaders.

For internal case study participants, a verbal introduction to the research was made, and as the case evolved, information was shared with the group or individuals for approval and to help them understand the study. The main consent for information was approved by the organisation for its ability to proceed with the research. Gray (2014) advised that working internally is beneficial, as access to information and resources is easier; however, the author concluded that 'even though you may have obtained organisational permission to conduct research, does not mean that employees are required to participate' (p. 90) and participation should be voluntary. A large part of this research is collaborative action research, which is a social activity that takes place within a community or organisation. Locke et al. (2013) noted that in this form of collaboration, consent is complex and ongoing. They highlighted that 'relationships of trust are vested in the consent agreement rather than a prior and ongoing relationship of trust' (p.120). They also determined that in collaborative action research, the distinction between researcher and participants is non-existent, overlapping, or blurred; the focus and character of interventions become apparent only as they construct a shared understanding of investigation. They concluded that recognition of trust permits, nurtures, and sustains collaborative action research and that it is a 'community of inquiry practices, with its own self-regulating and self-correcting research traditions and norms tenets that have integrity' (p.121).

3.6 Conclusion

Chapter 3 established the research philosophy, methodology, and approach. The methodology was chosen and developed to support the aims and objectives of this study. The literature review influenced the direction and selection of the methodology DSR employed. This study is exploratory in nature and built upon a qualitative research investigation that uncovers itself during several phases of the design science research investigation. The problems were verified via exploratory case studies, leadership interviews, and literature review. The research foundation is concluded to be both inductive and abductive in nature.

After in-depth research on the methodology for sustainability management research, it became apparent to the author that there was a deficiency of models and frameworks in sustainability/ESG management research in both design research and action research. The selection of Schultz's (2017) methodology was based on the literature review, connections to design philosophy, facility management, and sustainability imperatives, as well as the relationship the author had with Schultz. The initiation of this study was in 2014, as Schultz was at the final stages of her PhD. The author met Shultz in the fall of 2015, where a discussion of work and focus was had. This triggered the foundations of friendship and mentorship on her part in this methodology and overall PhD study. This formed a deeper understanding of design science research, action research cycles, and practice that the author could not have acquired from the literature alone.

The author acquired the necessary knowledge and designed a research process that was mimicked and repeated throughout the study to ensure consistency in this empirical research. This was applied to the main study's formalisation and the two core case studies. A similar research approach was taken in all phases of the work. Along with the development of a multi-method approach to the main research methodology, a multi-system procedure was employed as part of the design of the framework, holistic design thinking methodology, which combines theories of design thinking and soft system thinking processes. After the author was able to have critical distancing from the case studies and further literature review was performed, the development of a **holistic design thinking methodology (HDTM)** was established. This will be discussed in Chapter 7. The findings revealed that for sustainability managers' ability to effect change, there needs to be an understanding of holistic operational systems and human-centric philosophies; this led to the author's amalgamation of soft system thinking and design thinking approaches. Analysis and qualitative data collection research methods were outlined. This research study utilised a qualitative research methodology that included participatory observation, unstructured and semi-structured interviews, questionnaires, and literature review to collect data. The research framework crystallised into the thesis and is presented through the rigour of DSR methodology with an action research approach and a holistic design thinking methodology model of learning cycles of action. The IDT holistic strategy framework incorporates tools that will aid the critical thinking process for researchers/practitioners, as adapted from other sources at each stage of the research. Below is a list that will be further developed in Chapter 7, Section 7.6:

- Step 1 tool adapted from Wilber's integral vision and Scharmer's U theory

- Step 2 tools adapted from Doppelt's seven interventions for sustainability

- Step 3 tool adapted from Laszlo's eight disciplines of value creation

Chapters 4, 5, and 6 will discuss the case studies and leadership interview research findings. As discussed in this chapter, research is divided into three phases, Phase 1, 2, and 3; this has been mimicked throughout the research and analysis process. The following chapters also follow this format. Chapter 4 is Phase 1 – identifying the problem, initial scoping interviews, and case study. These were done to help build an understanding of gaps and conditions in the sustainability management market. Chapter 5 presents Phase 2 – design solutions. This chapter discusses the body of the main study and artefact creation in each. Chapter 6 focuses on Phase 3 – evaluation, which encompasses interview findings from leadership in the sustainability market to aid in the verification of the created framework.

CHAPTER 4: Scoping – Exploratory Interviews and Case Study

4.1 Introduction

This chapter presents and examines the data from a set of initial scoping interviews, and sets out the findings from a pilot case undertaken at the commencement of the research. Thus, it deals with the first phase of the study. The findings from this phase were helpful in planning for subsequent phases of research and delivered insights about key challenges that confront sustainability managers, and the gaps in current practice that might be addressed. The chapter is structured as follows:

- Introduction, exploratory interviews in the UK
- Initial scoping Case Study 1: Bedell Cellars and Long Island Winegrowing Inc. (LISW)
- Conclusion – Scoping and exploratory findings

4.2 Exploratory Interviews UK

A set of expert interviews was undertaken in the UK at the initiation of the PhD study in April 2015. This task was initiated from the knowledge that the US is trailing the EU and UK in sustainability measures and policies. Further, as the researcher was already engaged in Case Study 2, preliminary knowledge foundations were being explored and gaps, connections, and best market practices. Research and initial contacts were made from the United States via email and LinkedIn. Through this process, face-to-face interviews were set up in Birmingham, UK. Table 9 lists participants, their position, company, and industry type.

Industry Type	Name	Title & Organziation
Government	Councilor Lisa Trickett	Cabinet member for a Green, Smart & Sustainable City, Birmingham.
Business	Pat Laughlin	Business Council for Sustainable Development, CEO of MEBC (Midlands Environmental Business Company) and the UK Business Council for Sustainable Development (UK BCSD).
Education Public Schools	Lorraine Cookson	Leads Sustainable School Programs, Senior Behavior Change office Birmingham.
Education Public Schools	David England	Leads Sustainable School Projects, Birmingham.
Non-Profit	Dr. Simon Slater	Associate Director of Policy and Partnerships, Sustainability West Midlands.
Education Higher Education	Prof. James Woudhuysen	Speaker, Sustainability Live Conference Birmingham.

Table 9: Exploratory Interview List UK

The study commenced with a set of scoping interviews in April and May 2015. This was in the same timeframe as case study 2 that is discussed in Chapter 5. The interviews were undertaken with sustainability leaders and policy actors in Birmingham in the UK. The study analysed the Birmingham City Council and its work on sustainability. Initial interviews with six key stakeholders were conducted: three leaders in government, two in non-profit, and one for profit. Some examples of the interviewees were leaders of sustainable schools and sustainable school programmes, with a city councillor who, at the time of the interview, was the cabinet member for a Green, Smart and Sustainable City, and CEO of Business Council for Sustainable Development UK located in Birmingham. The aim of the interview was (a) to explore the ways in which the city's sustainability leaders had tackled a policy-inspired drive to implement sustainability initiatives and (b) understand how the policy had been interpreted and operationalised (and modified for local application). The qualitative material gathered via interviews provided a useful foundation for the further development of the study.

The same set of interview questions was deployed for each participant, but open-ended questions were followed to allow for discussion with the interviewees. Semi-structured interviews were utilised to deliver reliable, comparable qualitative data. A total of four main themed question topics with follow-up sub-questions were developed (see Appendix K). The main themes of the questions were as follows:

1. Background and personal details
2. Sustainability in context – chronology and nature of initiatives
3. Drivers for sustainability projects
4. Value of sustainability: Monitoring and communications

4.2.1 Sustainability context

In 1999, the UK government designed a sustainability public policy that was encapsulated in the report '*A Better Quality of Life'* (UK Environmental Agency). The report established four sustainability management principles that capture economic, environmental, and social goals. As the policy evolved and data were collected, the planning system was regarded as a key method for producing a more sustainable society (Owens and Cowell, 2002). Further evolutions and policies were defined, designed, and adopted to advance sustainability; these included the *Sustainable Communities Plan* in 2003 and the *Planning and Compulsory Purchase Act* in 2004. The latter was the first to define sustainable development in the UK.

The Birmingham City Council, in 1996, commenced the redevelopment of the city centre and made some first attempts to embed environmentally friendly initiatives into its plan. In 2000, Birmingham City Council adopted a *Sustainability Strategy and Action Plan* that mandated sustainable design strategies alongside financial concerns on project deliverables (Porter and Hunt, 2005). Sustainability measures explicitly oblige developers to consider the longevity of buildings, develop sustainable waste strategies, use renewable materials, encourage sustainable transport, consider nature conservation, and maintain/create urban wildlife habitats. Similarly, targets were focused on designed systems, such as low-energy systems, heat recovery, greywater recycling, combined heat and power generation, and the use of photovoltaic cells (Birmingham.gov.uk, 2020).

Dr. Simon Slater of Sustainability West Midlands (2015) stated that in the West Midlands, authorities have defined the journey to the UK goals as 'By 2020 businesses and communities are thriving in a West Midlands that is environmentally sustainable and socially just. By 2015 our leaders are working together to make significant progress on the roadmap towards the 2020 vision.' He declared that this was explored in more depth in 'A low-carbon vision for the West Midlands in 2020' developed by sustainability west midlands in 2010. It designed clear targets in the roadmap, which state that by 2020 (Sustainabilitywestmidlands, 2013):

- 'Thriving businesses means that the West Midlands is a hub for low-carbon technology innovation and an international supplier, increasing productivity by 30%
- Thriving and socially just communities means that the life expectancy gap between the worst and best areas in the West Midlands has fallen to 6 years as a result of employment, less pollution and healthier lifestyles
- Environmentally sustainable means that regional direct carbon emissions are reduced by around 30% from energy efficiency actions and 20% of electricity from renewable sources'

In 2012, Birmingham was considered a leading Green City, and a new administration was elected to the city council. 'Sustainable thinking was already built into the mindset of the organisation's group and culture that in 2013 a Carbon Roadmap was created and in 2013/2014 the council voted to become a biophilic city' (Pat Laughlin, 2015). The 1996 environmental efforts also affected the city schools. Large school sustainability projects started that year and became the driver for sustainable schools as further council goals were developed. Lorraine Cookson (2015) of the Birmingham City government shared another driver for change. She stated that 'the Earth Summit aided in developing and forming the cities'

sustainability policies over the years that included recycling/farmers markets/drive for a fair-trade city.' This event was initiated as a 30-person committee that grew to a 100 and took on different issues. Birmingham City Council understood the need for change and created a Senior Behaviour Change office where the sustainability team sits (David England, 2015).

4.2.2 Initial findings review – Drivers and value for sustainability

It is clear that the sustainability agenda was well woven into the UK and Birmingham culture in 2015. Certainly, the region and country were significantly more advanced in sustainability than the United States and New York City. As this study focused on the need for behaviour change, further exploration of existing foundations and scoping the issues in an established policy context led to the undertaking of the interviews. Pat Laughlin shared that 'through organisations like the UK Business Council for Sustainable Development, where organisations come together to share best practices and members try to improve and increase sustainability in business.' She followed with, 'We need to build businesses and build a team of partners and strong collaboration.' She stated that a lot of the work is about hand holding, education, and finding ways to help them be successful. Financial incentives, such as the Green Bridge fund, which provides funding to small and medium-sized businesses that are managed by the Birmingham city council, are a good example. The council recommended more than 320 businesses for these grants and has been a fantastic example of how working in partnership across the region can benefit businesses (Councillor Lisa Trickett, 2015). As the council was reviewing new policies, there was an understanding that the right strategies needed to be in place for their success. Councillor Lisa Trickett indicated, 'We need to review and align policy with a balance of social, economic, and environmental, so when reviewing policy, for example reviewing waste policies and producing new waste strategies, all of these were considered.' All participants advised that there was an understanding of the need for behaviour change, collaborative behaviour and support in the public, private, and non-profit sectors in Birmingham.

Lorain Cookson, who had worked for 13 years in Birmingham City government, understood that 'with behaviour change alone, nothing done to the school buildings, the school will be saved.' She was dealing with 450 public schools, 9 eco-schools, and a total of 600 schools that she had to influence. A school framework was designed, and the previous administration administered an audit in 2009 that helped define sustainability for the school system. This framework had six pillars that focused on energy, water, biodiversity, participation, and inclusion, waste management, transport. The framework helps connect everyone to messaging and helps them understand the same parameters. The training was developed for

sustainability coordinators, custodians, bursars, and teachers. Eco-warriors were created, one or two per school, that went through a one-year training programme. Cookson indicated that following the programme, they become more passionate, accountable, and the drivers in the schools and then will not need hand-holding. To ensure compliance, the schools are audited via framework criteria, and the students are tasked with developing presentations on the findings and actions taken, so involvement becomes part of the whole school population. She believed that 'sustainable schools create sustainable communities.'

Through the discussions with all participants, a requirement for action and faster adoption of sustainability was stressed. All indicated that there is a gap, and that there should be better ways to accomplish that goal. Laughlin stated, 'We need to push it faster—embedding it better—triggers for culture change—how do we push that in industry and community.' Dr. Simon Slater stated the importance of 'our leaders working together.' Sustainability West Midland has tried to start changing the thinking process and behaviour change to a more collaborative effort by adopting the Forum for the Future's Definition of Sustainable development. He shared the definition as 'a dynamic process that enables all people to realise their potential and improve their quality of life in ways that simultaneously protect and enhance the Earth's life support systems.' This definition provides people the power to take the lead and be change makers. Prof. James Woudhuysen saw the power of creativity and innovation as a decisive tool; he stated that 'Human Ingenuity—creativity, insight, and renaissance thinking with our enlightenment values will do more to save the planet through innovation.' The author's research was of a cross-national nature, where these exploratory interviews in the UK were utilised as a benchmark to guide the study that focused on the US sustainability management gaps and challenges.

4.3 Initial Exploratory Case Study 1: Bedell Cellars and Long Island Winegrowing Inc. (LISW)

4.3.1 Introduction

The initial exploratory case was relatively short and limited in its exploration, although, with the insights from the literature review, it helped build the foundations for further study that were applied in the research project as a whole. The initial case study was conceived around the time of acceptance to the PhD programme (from of the author's professional agreements) and helped further understanding of the gaps and challenges in sustainability practice; thus, it aided in the development of the initial foundations of the research. Case Study 1 was initiated in the summer of 2014,

whereas acceptance to the PhD programme was in late spring, and officially initiated in September 2014. The initial case study was only a few months in duration, from July 2014 to December 2014. The work done was pro bono, with the acceptance that information would be utilised as a case study for this research. The work commenced as part of the consulting needs of the vineyard to seek advice on their marketing and communication strategies for their sustainability initiatives. Case Study 2 was initiated in December 2014, but interviews and work started in January 2015. Preliminary exploratory interviews in the UK were conducted in April 2015. These were with sustainability leaders who helped influence Case Study 2 and the creation of the artefacts in that case study.

The following sections will discuss Bedell Cellars' case study context, objective, approach, and findings. Long Island Winegrowers have understood the need for sustainable agriculture because of its location, terrain, and effects on the region's water supply. They developed new sustainable methods and hoped to become leaders in the industry, as they acknowledged that environmental factors are major driving forces in the sustainability market. They wanted to be competitive in this new marketplace by creating a sustainability certification programme and following the path that West Coast growers had started a decade before them. Case Study 2 findings reveal that to do so, they needed to focus on collaboration, marketing, brand building, and transparency.

4.3.2 Case Study Context

Figure 32: Case Study 1 Timeline: Bedell Cellars and Long Island Winegrowing Inc. (Source: Author)
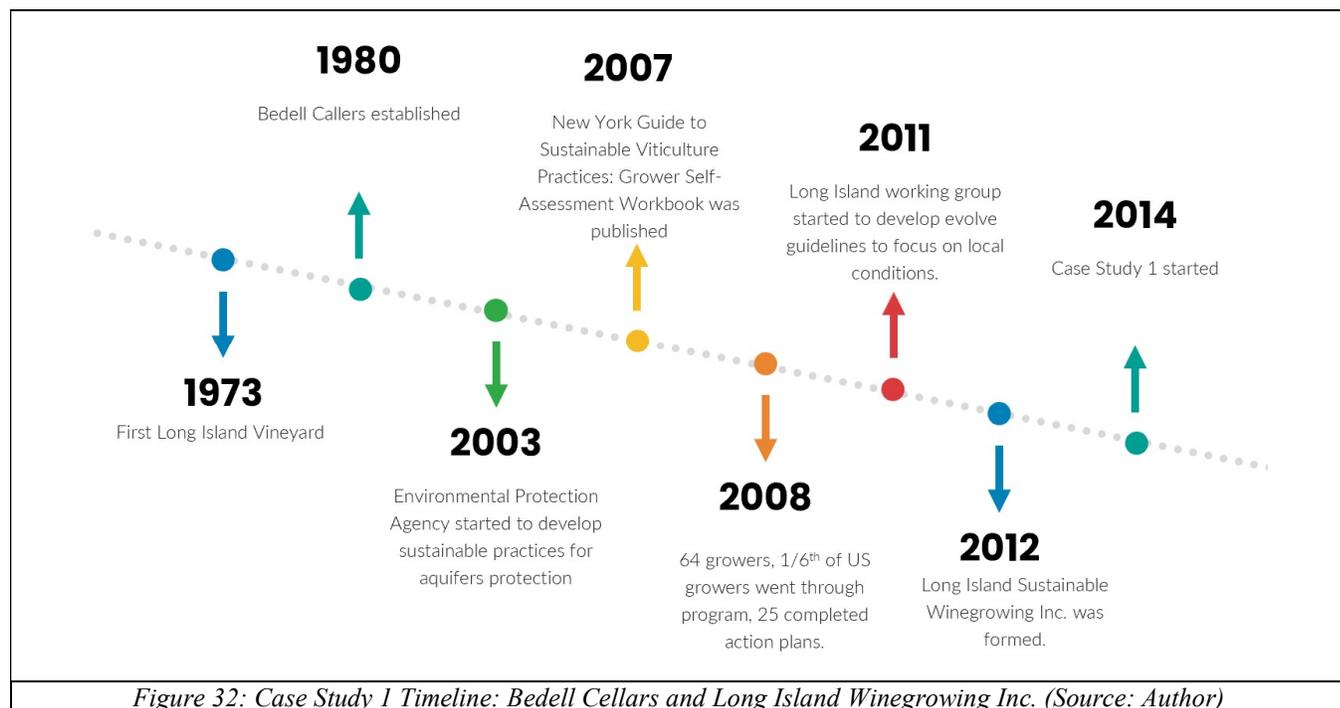
The first Long Island Vineyard was planted in 1973 in the town of Cutchogue, New York. Pioneering winemakers of Long Island began to discover the potential for fine wines, which lay buried in the soils of the east end of Long Island, New York, for so long. Long Island's soil composition allows for controlled vine growth and promotion of full grape development in the fall; warm summers are moderated by cooling breezes off the Long Island Sound and the Atlantic Ocean. This aids in the extension of summer into a mellow fall, allowing the fruit ample time to ripen well into October and November. The geographic location also protects the vineyards in the winter months by providing buffering breezes during this time. As acreage expanded in the '80s and '90s, Long Island wines began to catch the attention of wine experts around the world. After nearly 40 years, the region continues to grow and improve (lisustainablewine.org, 2020). Figure 32 presents the timeline of the organisation. Bedell Cellars was one of these established in the 1980s. Bedell is widely regarded as a benchmark winery in the eastern US and has built a reputation for creativity in the US wine industry (bedellcellars.com, 2020).

Figure 33: Cross-section of Long Island Soil Composition Taken at Bedell Cellars 2015 (Source: Author)
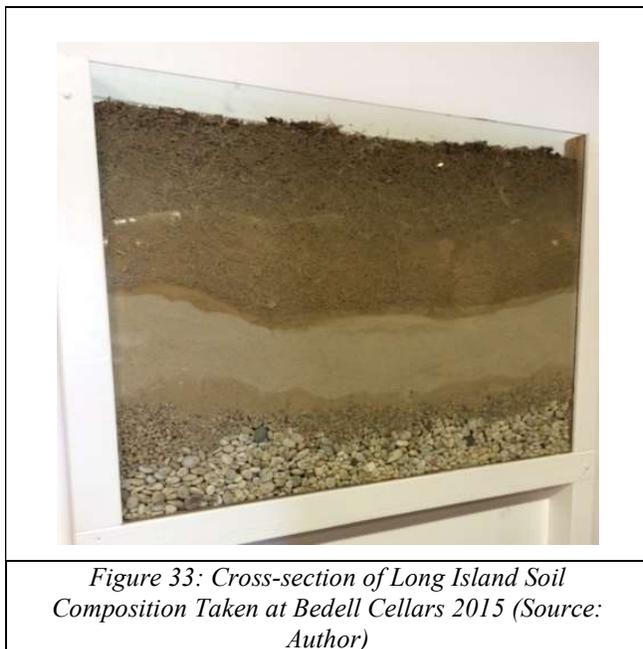
Long Island's maritime climate and its unique soils form the key natural components that have allowed for the growth of this industry but also have posed challenges for growers. Soil fertility and composition allow for filtration and water retention. Figure 33 shows a cross-section of the soil composition. This Island's climate is unique to wine growing and has posed challenges for prevailing sustainable certification requirements, such as organic products, for these agronomists. Further, Long Island's only drinking water source are groundwater aquifers. According to a report published in 2019 by the New York Public Interest Research Group, Long Island has the most contaminated water in all of New York State, and 100% of the vineyards are situated in Northern Long Island (nypirg.org, 2020). Every drop entering Long Island's groundwater aquifers flows to either a drinking water well or to the nearest stream, lake, bay, or harbour. Increased water pollution is traced back to cesspools and septic systems, with additional contributions from fertilizers and air pollution. Increased levels of harmful nitrates, herbicides, and pesticides have been detected in drinking water aquifers (Nature.org, 2020).

For almost 40 years, Long Island vineyards have worked hard to develop a unique and safe practice for generating quality wine grapes. They understood that the quality of the water would also affect the quality of their wines. The sustainability of local vineyards is conditional on the ability to steward the land in a way that allows it to stay healthy and productive into the future. These leaders saw the vineyards as a holistic ecological system and endeavoured to cultivate viticultural practices that generated the highest quality fruit possible while also being sensitive to the environment and financial viability over time (lisustainablewine.org, 2020). They also saw the need for certification, as third-party verification is important as markets become more informed and consumers demand greater transparency and reassurance.

In 2003, the Environmental Protection Agency asked a local group to work on a sustainable practise' workbook for Long Island's aquifers, which supplied drinking water for the entire island. Long Island Sustainable Practise workbook—VineBalance: Sustainable Viticulture in the Northeast—was developed from this programme. The programme then developed *'New York Guide to Sustainable Viticulture Practise: Grower Self-Assessment Workbook',* that was drawn up during winter 2005–06 (vinebalance.com, 2020). The workbook originated from 'seven conferences that included fourteen representatives of grape and wine industry groups from across the state, Cornell viticulture and cooperative extension staff members, growers, processors, wineries, etc.' (winesvinesanalytics.com, 2020). The workbook was published in 2007 and by the spring of 2008, 64 growers representing one-sixth of the state's grape acreage had gone through the voluntary programme, and 25 completed action plans.

The Vine Balance programme was state-wide, and it was envisaged that the workbook would be used throughout New York state. Due to Long Island vineyards' location and climate challenges, a realisation that sustainability measures and policies needed to be regional pushed local owners to refine the guidelines and focus on local conditions. In 2011, a collaboration of four wineries, including Bedell Cellars, began working with Cornell Cooperative Extension of Suffolk County to write and codify specific sustainable grape-growing guidelines (Olsen-Harbich, 2014). Olsen-Harbich, Bedell Cellars winemaker, stated that with a strong belief in third-party certification and a recognition that it was necessary to legitimise the programme, the group formed its own local certification programme. This was seen as a necessity, as the other US-based leading growers in California and Oregon had seen certifications in place for their wines for 10 years. He stated that by March 2012, the group had developed a multi-year certification process for Long Island wineries, and had formed Long Island Sustainable Winegrowing Inc. (LISW) to provide education and certification for Long Island vineyards. The certification programme uses international

standards for sustainable wine grape production practices adapted to Long Island's unique conditions (winesvinesanalytics.com, 2020).

On Earth Day 2012, a collaboration of Long Island winery announced the creation of the non-profit Long Island Sustainable Winegrowing Inc (Olsen-Harbich, 2014). The organisation represented the original 4 growers and has 23 members and 8 affiliates. The first certified sustainable Long Island wines entered the market in early 2013. A logo was created for use in bottles of certified wines for branding purposes. Long Island Sustainable Winegrowing was the first sustainable vineyard programme to originate in the eastern United States. As the green market grew in the US, there was increased interest in marketing certified products, and the logo was used as a public mark of approval.

4.3.3 Bedell Cellars: Objective, Approach, and Findings

The author was engaged in research designed to aid the winery in understanding the strategies required to communicate and better market its certified sustainable wines. This was an exploratory review for higher-level analysis of Bedell, and was created to provide an initial platform of understanding for the organisation. The objective of the case was to develop strategies necessary for the improvement of marketing and sales of certified sustainable wines. Working with Richard Olsen-Harbich (Bedell's winemaker) and the marketing team, key issues and questions included: How does certified sustainable wines differ from organic and bio-dynamic certified wines? How is this communicated? How are such wines sold and marketed? What challenges have been presented and how have these been addressed? What strategies were attempted? What can be learned from the experience?

Initial work began with a literature review of policy, history, and regulations for New York State, Long Island, and the wine industry. This approach was implemented to understand the marketing that existed for other certified wines and the current sustainable wine certification for Bedell. The initial review brought to light the lack of online marketing and an understanding of what certified sustainable wines and how they differed or were similar to the more popular wine certifications. This review also illuminated the initiative that the New York state government was undertaking to help farmers and winegrowers become more sustainable in practice, and to make available funding to aid these groups. The search also revealed the importance of aligning branding and external communication to the success of the product and its sales. It also pointed to connections with the LISW organisation and collaborations that could be established for support.

Figure 36: Bedell History Board and Wind Turbine (Source: Author)

After a first round of initial unstructured interviews with Bedell's leadership and marketing team, more structured interviews were established with Bedell's internal staff and LISW member wineries. Selection of interviewees' was aided by Bedell leadership. Internally, four leadership members and six external LISW members were interviewed. Semi-structured interviews were utilised with open-ended questions to allow for a more rounded discussion with the interviewees. The questions were configured to provide a holistic picture of where both the organisation stands and what strategies had been established to market the brand (See Appendix Q). Unstructured interviews were also used with random selection of staff and customers for further data collection with respect to Bedell's sustainability messaging and communication. Gathering data on how this is marketed both on-site and externally was useful. The findings regarding Bedell indicated that external marketing was mostly in wine magazines and related publications.

On-site marketing was very limited. Visible information was only on a wall that showed the company's publication and news profile (shown in Figure 36: Bedell History). There was a small segment that mentioned the sustainable brand. The only other location that had any information was a framed 8 by 11 print on the interior back counter of the serving bar, which was not highly visible to customers. When interviewing sales staff about their pitch to customers, no formal information was given to them about this subject, and most sales team members did not discuss the issue of certification with customers. When asked about the wind turbine located on-site and Bedell's sustainable practice, the sales team was proud and knowledgeable with respect to the organisation's efforts and sustainability initiatives; however, they did not inform others unless directly questioned. No formal guidance from the leadership regarding the messaging and targeting of messages was available. Therefore, a key finding of the study was that greater alignment of sustainability activity, branding, and internal communication was needed. Thus, senior-level

guidance and messaging-related education for sales staff might be highly beneficial in ensuring that the company's sustainability ethos and efforts are recognised (and potentially translated into sales).

From conversations with winemakers and owners of the LISW member organisations, it was possible to verify that organic and biodynamic certifications are well known in the industry. Long Island's unique climate made it possible to secure credentials from any of these recognised standards bodies. Thus, the LI vineyards were required to pursue the development of their own third-party certification platform. At the time of the research, there was no marketing strategy for the differentiation or comparison of Long Island vineyard certification vis-a-vis organic and biodynamic certifications. Hence, this was identified as a lacuna in the approach of both LISW and its member organisations. However, the interviews revealed that some member wineries utilised more effective on-site and external marketing strategies. An example of this was the Wolffer Vineyard. It used prominent on-site educational plaques that customers could read as they walked around the property. The plaques were designed to inform customers about the sustainable practices applied at specific locations. Further, the sustainable wine brand logo were featured in prominent locations to educate and reinforce the sustainability stance of the brand. Wolffer also had sustainability information on all of its menus, so that all visitors would be informed of the company's sustainability policies and be offered the reassurance that their consumption would be based on a strong ethical platform. These menus were designed to trigger conversations with staff and sales team members, and the conversations enabled detailed communication of the vineyard's philosophy and practices. This, of course, aided in reinforcing messaging about the brand and its values. Wolffer followed through with the messaging on its website and social media platforms (see Figure 34). The findings here demonstrate the importance of a communication strategy that is unified in vision and that traverses both internal and external aspects of organisational activity. Bedell was one of the few vineyards that had a wind turbine on-site, but this was not marketed. Thus, a story that would aid in building the brand's sustainability credentials and ethical positioning was not exploited by the company in any way.

This wildflower garden is part of our broad effort to replace invasive plant species on our farm with grasses and flowers that are historically native to Long Island. It mirrors a larger pollinator field that we planted behind the vineyard to provide a wildlife corridor alongside several acres of old growth forest.

As a certified member of Long Island Sustainable Winegrowing, we nurture biodiversity in the vineyard as part of a holistic farm ecosystem, which in turn provides habitat and food for native pollinators such as honeybees, and both Monarch and Swallowtail butterflies. Some of the native Long Island ecotypes you see here are False Indigo, Spiderwort, Partridge Pea, Black Eyed Susan, Asters, Golden Rod, Big Bluestem, Little Bluestem, Indiangrass, and Switchgrass.

Our land was first settled by the David family in the early 1700s, and this collection of plants probably resembles how much of the open spaces of Long Island appeared during that era. The wooden water tower on display was originally part of the Wolf Pit Dairy in Mattituck and was moved to this site in the late 1800s for use on the family potato farm.

Our Sustainable Vineyard

Wölffer Estate Vineyard is certified by Long Island Sustainable Winemaking and is at the forefront of sustainable viticulture. How?

- We use only organic or reduced-risk pest-management materials that are the safest to use.
- We have eliminated the use of pre-emergent herbicides.
- We encourage wildflower and weed diversity in the vineyard.
- We do not till or disturb the soil in any way.
- We do not discourage the presence of wildlife in the vineyard.
- We encourage and maintain the surrounding natural vegetation.

Learn more about sustainability at wolffer.com/news.

Figure 34: Wolffer sustainability on-site marketing information (Source: Author)

LISW website is used to highlight member wineries. At the time of the research, a first grant application was underway with the aim of generating funding to help with the members' certification process. The investigation revealed that there had not been a strategy developed to explore other sources of funding that might be accessed to support the marketing and communication of the brand. The findings demonstrated that both the certifying body and wineries should understand how they are different from the other two forms of certification, where similarities might exist, and how it might be possible to build a marketing strategy that addresses these points. This is necessary, as member's wines are also sold in third-party retail stores where sales teams should understand opportunities to market the product. Long Island sustainable winegrowing should also create educational programmes to support this, and to educate member winegrowers and the public. Individual organisations should educate their staff (and customers) to use ethical principles as part of their marketing strategy. On a holistic level, both for-profit and non-profit organisations should understand their reliance on each other and how they can support each other's efforts. They should also examine their connections to the community and develop a strategy to educate the public about the relevance of their sustainable brand and properly tie this back to their practice (Appendix R shows the connections and questions).

The preliminary scoping research outlined above assisted in the foundational development of the IDT artefact framework. The major revelation acquired by this segment of the study is the importance of

developing a unified and holistic strategy for communication, community, and brand. The three significant concepts from this initial study were as follows: 1. There was a lack of proper communication with customers and employees about the organisation's initiative and vision of sustainability; 2. There was no strategies on how they will work with their developing community and how they will market their Sustainability efforts; 3. There was no strategy to leverage community connections to aid in the organisation's growth. The study's review of actions and artefacts links steps to these three areas that should be focused on (see Table 10 for a breakdown). As the Chapter 3 Methodology section shows, the knowledge gained from this segment of the research was applied at the commencement of Case Study 2.

Case Study	Research Problem	Action Research Reflection Projects / Artefact Creation	Integral Design Thinking Framework Development
Company A	Improve Marketing and Sales of Certified Sustainable Wine		
Case Study 1	Customers did not know anything about product when visiting vineyard	* Advised on the addition of information on sampling menu * Advised on addition of educational signage about sustainability practices in strategic locations on site * Advised on education of the sales team to the messaging to customers	Branding / Communication
Case Study 1	Certified Sustainable Wine - Not communicated or defined	*Advised on the creation of educational materials and workshops on differences and similarities of Certified Sustainable and other leading industry certifications	Branding / Communication / Community
Case Study 1	No strategy for funding from non-profit to aid community	*Advised to a creation of a working group to define needs of member vineyards, developing strategy and going after grants and other funding	Community / Communication

Table 10: Research Connections – Case Study 1 (Source: Author)

4.4 Initial findings review – Scoping and exploratory discoveries

Case Study 1 was finalised in December 2014 as engagement with Case Study 2 stakeholders was evolving. Case Study 2 commenced in December 2014 but officially began in January of 2015. Between January and March, as the literature review phase was initiated, interviewees were identified and engaged in the UK to facilitate exploratory investigation and further comprehension of gaps in understanding. Scoping interviews were also initiated in connection with Case Study 2 (the New York City school system). An early observation from the interviews was that Birmingham City schools were more advanced in terms of their sustainability messaging and foundations than those in New York City. The research from these UK interviews was influential in creating artefacts and educational material for Case Study 2 and in the evolution of the designed integral design thinking (IDT) strategy framework. Case Study 1 revealed the importance of alignment of branding, communication, and community. It was with this in mind that

the author commenced Case Study 2, examining these three systems in the organisation. Discoveries from the interviews and Case Study 1 are listed in Figure 35.

Initial scoping and exploratory research found that as sustainability leaders attempt to implement sustainability initiatives, it is important that they build a group of partners and collaborative teams. They should also consider the alignment of branding and communication, both internally and externally. Further, leaders should consider the unity of vision as they align connections and support systems both inside and outside their organisations. Strategies should be developed and designed with the knowledge that organisational behaviour change is central to change management and the implementation of sustainability. As these strategies are being built, awareness of connections, their influence, and how to leverage them is crucial. Furthermore, leaders should comprehend the power of creativity and innovation as decisive tools and how infographics help connect stakeholders to messaging and understanding.

Figure 35: Phase 1 – Interview and Case Study 1 Findings
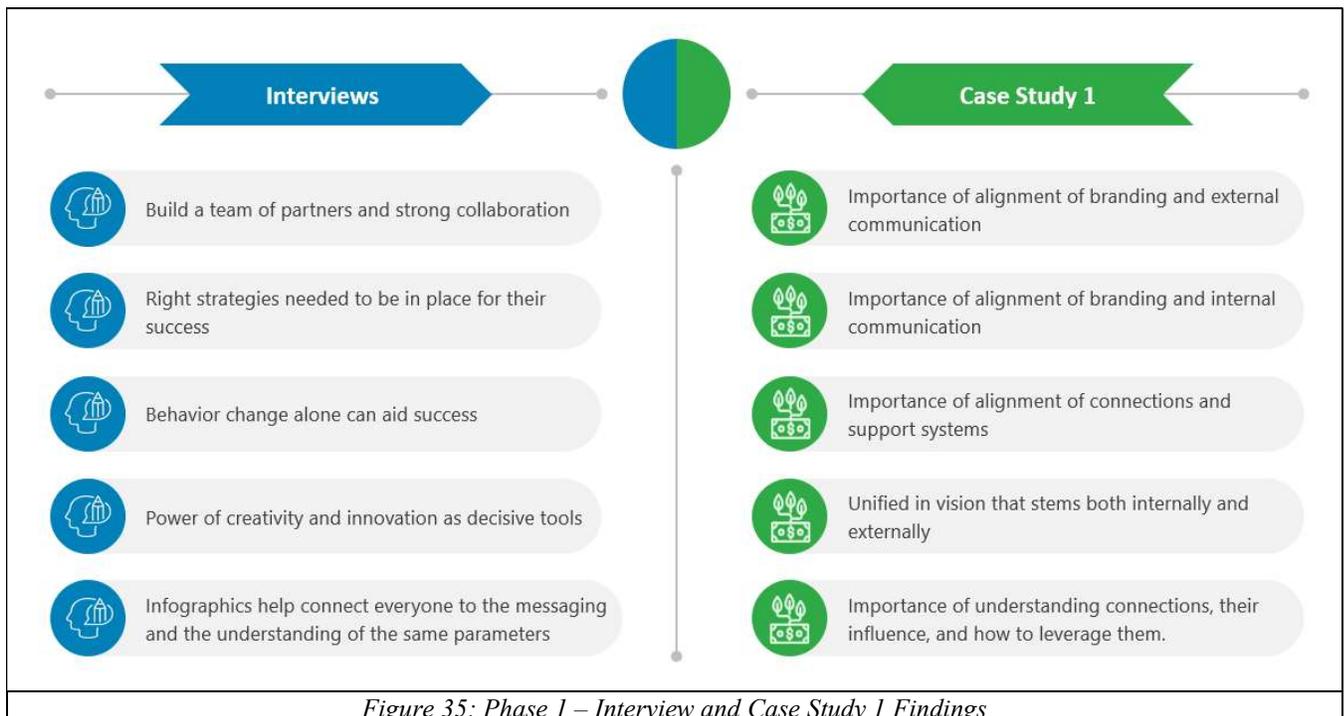
CHAPTER 5: Main Study - Case Studies 2 and 3 Overviews and Results

5.1 Introduction

Chapter 5 establishes the main case studies of this research and is part of the second phase of the research. The Discussions cover artefacts designed in each case study to aid in sustainability management, findings

to assist in the identification of gaps, and the further development of the artefact for the main study. This chapter is organised in the following format:

- The impetus for the case studies
- Case Study 2: Department of Education Sustainability Initiative
- Case Study 3: Time Equities Inc.
- Conclusion - Comparative analysis of case studies

Case Study Framework
Case Study Introduction and History
Case Study Objective, Findings and Approach
Implementation, Development of Action, and Strategies
Initial Findings Review – Summary

All case studies are analysed under the same structure by describing the context and operational conditions in which the design science research took place, the objectives, focus, and outcomes from the investigation, the undertaken process, and the results from the suggested strategies.

5.2 The impetus for the case studies

Evidence suggests that holistic change management strategies are limited in the sustainability management industry when implementing value-based sustainability management begins to occur. This section presents the two main case studies for this research project. Linking sustainability management to the organisational culture holistically builds a more effective relationship between the two, allowing for a holistic adoption and behavioural change to occur. Chapter 4 reviewed the exploratory interviews and Case Study 1. For the following case studies, the author worked with the leadership team and performed action research. The two case studies are New York City's Department of Education Sustainability team, located in the Department of Facilities, and Time Equities Inc., a real estate acquisition and management company. Both organisations attempted to implement sustainability initiatives.

This research agrees with Epstein and Buhovac's (2014) view that leading organisations recognise the complex relationship between business and society. They indicated that organisations are redefining their strategies to encompass environmental, social, and governance (ESG) priorities through the adoption of corporate social responsibility (CSR) strategies and community development programmes. They advised that new executives in such roles should balance technical, commercial, and human considerations. They suggested that such actors have to develop new choices that balance the needs of individuals and society. It can be argued that what is required is an approach to innovation that is powerful, effective, widely

understandable, and accessible. Brown (2009) argued that design thinking offers such an approach; he stated that design thinking taps into the capacities of the organisation and highlights employees' abilities to be intuitive, recognise the pattern, construct ideas that are both functional and infused with emotional meaning (Junginger, 2007).

Consequently, this study focuses on shedding light on how holistic design thinking strategies could enhance the implementation of cultural shifts towards the sustainability agenda for organisations. In focusing on design thinking strategies in organisations from both top-down and bottom-up approaches, an artefact was developed throughout the research. In this exploratory study, as mentioned in Chapter 3, a combination of design science methodology and action research cycle analysis was used to help answer the research questions. The following case studies identified existing barriers, and the needed organisational targeted themes were analysed. An artefact 'integral design thinking (IDT) framework' was developed for the basis of the conceptual framework based on these findings to help answer the research questions. Table 11 shows the key concept development stages (CDS) for the three key questions being investigated:

Principal Research Questions	Core Concept Development Stage Activities
1. Critical Factors that impact cultural shifts in an organization	Identification & Collection of Existing Barriers
2. Effectiveness and weakness of current organizational systems and selection of methods	Develop Target Areas
3. Key Strategies to implement cultural shifts for Sustainability Initiatives	Develop Artefact Requirements / Framework
	Development and refinement of Design Thinking Strategies Artefact

Table 11: Principal Questions and CDS Activities (Source: Author)

Each case study led to the further development of the IDT framework. The IDT framework principles were determined from the case studies, literature review, and follow-up interviews with key industry leaders. The case studies' role is to get a series of key learnings to inform this exploratory research and utilise them in the development of the research Artefact. All these values represent the accumulation of knowledge that has informed the IDT Framework's development.

The literature review helped synthesize the IDT processes and highlighted the core phases (see Chapter 3). This gathered knowledge helped to create an IDT framework that brings together effective practice from well-established previous models based on the standard phases of establishing, discovering, defining,

and developing. The literature review has also shown a wide range of activities and tools depending on the type of project, purpose, and complexity of the problem.

5.3 Case Study 2: Department of Education Sustainability Initiative

5.3.1 Case Study 2 Introduction and history

2009-10
1st Director of Sustainability Hired

2012
• Energy Initiative
• Composting Pilot

2014
• Urban School Food Alliance
• DCAS Program
• 1st Student Summit

Goals
• Reduce GHG by 35% by 2025
• Double Recycling Rate by 10%

2008
Local Law 41 passed

2011
• Sustainability Coordinators
• Training Website & Resources

2013
• New Sustainability Director
• Expanding of programs
• Regulations A850 Revised

2015
• 1,657 Sustainability Coordinators
• 722 Schools in Organics Collection
• 400+ Buildings with 75+ Energy Star Rating
• 500 School Gardens

Figure 36: Case Study 2 timelines: New York City Sustainability Initiative (Source: Author)

Research for this case study started with New York City's Department of Education Sustainability team in January 2015. This was held in-house research, and consulting position contracted for one year. 'This case concerns the efforts of the New York City's (NYC) Department of Education's (DOE) efforts to implement sustainability mandates to its 1800 schools. NYC is unique in its structure and is divided into many agencies. The case evaluates the DOE's Office of sustainability efforts, located in the Division of School Facilities (DSF), and the efforts to embed sustainability into school culture' (Camou and Green, 2016).

The current research shows that policy is a major driving force that is transforming the sustainability market. It is aiding in the creation of positions in organisations to help lead these sustainability mandates. In New York City, NYC PlaNYC passed by Mayor Bloomberg in 2007, and ONE New York that was rolled out on Earth Day 2015 by Mayor De Blasio have been the architects in this movement, in attempts

to make NYC 'the most sustainable, resilient city in the world' (NYC.gov, 2014). Individuals in these positions require the ability to inspire, innovate, and be the catalysts of change in their organisations. It is argued below that behaviour change is required for any of the mandates to be adopted and implemented to their full potential. This research studies the barriers and frame strategies needed to aid in the incorporation of changes in behaviour and procedures in organisations.

This case study's research shows that Mayor Bloomberg's PlaNYC was the catalyst that started the movement in NYC. 'The policies and mandates started a chain reaction that has pushed public agencies and other private organisations to create positions to manage the compliance requirements set by new laws and regulations. The Department of Education's (DOE) sustainability team is five years young. In 2007, New York City released PlaNYC, an aggressive sustainability plan aimed at reducing the city's greenhouse gas emissions by 30% by 2017. The plan was upgraded in April 2011 (PlaNYC 2030). Integral to this agenda is a plan to reduce consumption in municipal buildings and public schools' (Camou and Green, 2016). In September 2014, Mayor de Blasio committed New York City to reduce its greenhouse gas emissions by 80% below 2005 levels by 2050. He stated this in his vision One City, Built to Last: Transforming New York City's Buildings *Low-Carbon Future* (nyc.gov, 2014). This initial plan is to retrofit public and private buildings to dramatically reduce the city's contributions to climate change while spurring major cost savings, creating thousands of new jobs for New Yorkers, and developing a green jobs market. This makes New York the largest city to commit to an 80% reduction in greenhouse gas by 2050. In 2015, the mayor again passed the ONE New York plan that has pushed for even stringent sustainability mandates. One example is the mandate that all New York City Schools will be zero-waste schools where they must divert 90% of their waste stream from landfills (nyc.gov, 2015).

'Public schools comprise 40% of all municipal buildings and are responsible for 25% of the city's carbon emissions and its total light, heat, and power spending, costing New Yorkers an estimated $233 million per year. All these mandates being pushed by the city government are shaping the future of the sustainability market and creating sustainability leader positions to meet these demands. An example of this is the Zero Waste initiative mandate. As of April 2015, it has opened eight job positions in the sustainability team for waste coordinators to help manage this process' (Camou and Green, 2016).

In October and November 2014, a call for a research fellow/consultant was posted to aid in developing strategies for cultural shifts for the school sustainability team. In November 2014, the author was recommended for this opportunity. In December 2014, the author secured a one-year contract for research

and consulting under the Department of School Facilities (DSF), where the sustainability team resided. Figure 36 shows the timeline of this case study. Close to the end of this research, the director of sustainability moved to a new position, and a new director was hired, so work close to the end was halted. Transition to Case Study 3 was made to keep the research moving forward in October 2015. Figure 36 and Figure 37 show the timeline.

Figure 37: Case Study 2 Research Initiative Timeline (Source: Author)
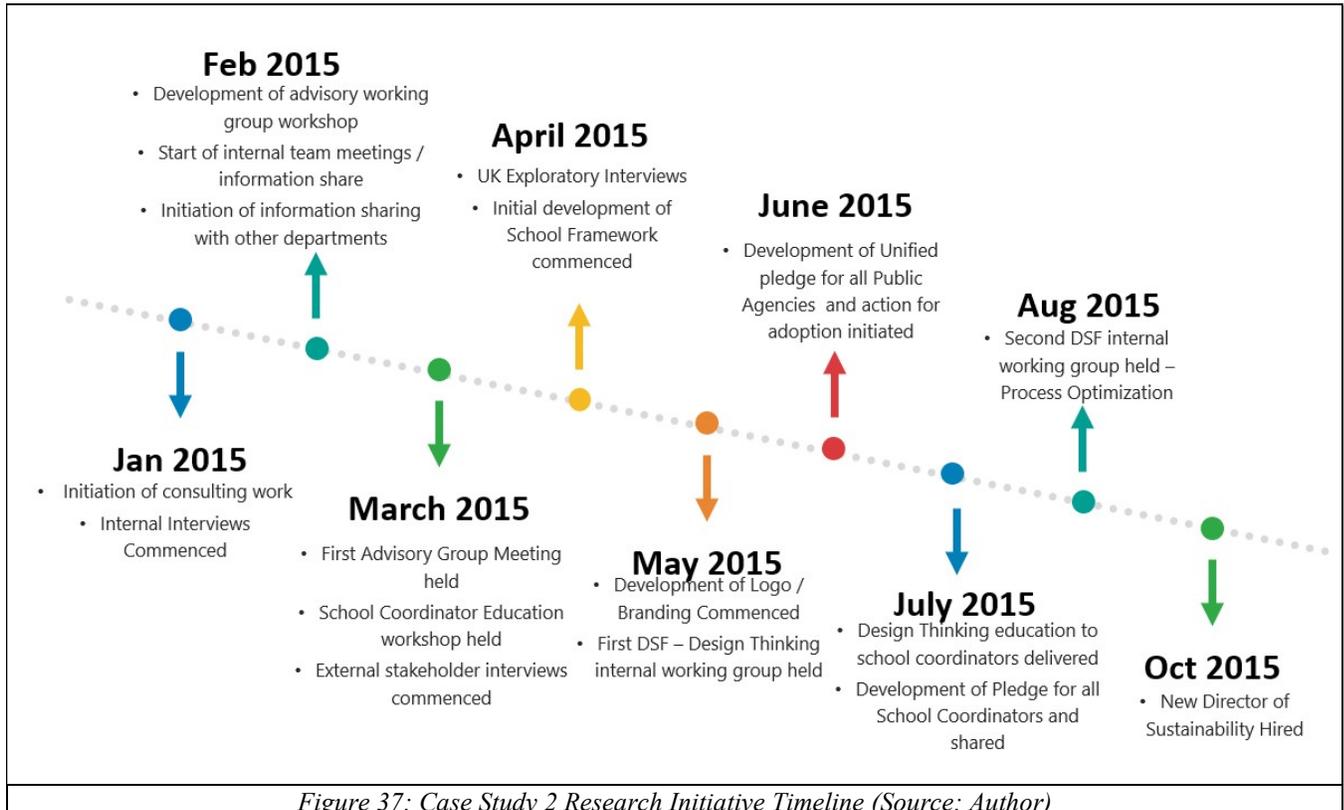
5.3.2 Case study 2 objectives, findings, and approach

Although DSF chairs the sustainability efforts for the DOE, various other DOE divisions (such as School Food and School Construction Authority [SCA]) as well as city agencies such as the Department of Sanitation (DSNY) and Department of Citywide Administrative Services (DCAS) Division of Energy Management form a cooperative group of stakeholders. Information from the 2013–2014 Annual Sustainability Report shows that school sustainability coordinators play a vital role in the Office of Sustainability structure. They oversee the relaying of information and lead sustainability efforts within their school. Non-profit partners are key players who help in the education, support, and implementation of initiatives the sustainability team must execute. These various organisations and individuals play an integral part in achieving a more sustainable New York City school system (Camou and Green, 2016).

The objective of the case is to understand in detail what innovative measures should be involved in creating cultural shifts towards sustainability in the NYC's Public Schools. Key issues and questions include how the position was formed; how it has evolved; what challenges have been presented and how have they been addressed; what strategies were attempted; and what can be learned from the experience for innovators in the public and private sectors, and for policy-makers at service, national, and supranational levels (Camou and Green, 2016).

Number Interviewed		Titles of Participants
🟢	4	Directors of Facilities (DF)
🟡	2	Deputy Directors of Facilities (DDF)
🟡	2	Facility Planners
🔴	1	Borough Contract Manager
🔴	1	Director of Finance and Admin
🔴	1	Deputy Director of Sustainability
🔴	1	Director of maintenance and optimization
🔴	1	Chief Executive Officer - Division of Facilities
	13	

Table 12: List of Interviewees Case Study 2 (Source: Author)

This research first attempted to understand the team's history, understand where the department was, how it communicated its message both internally and externally, and understand the barriers faced. The research started with semi-structured interviews, and open-ended questions were followed to allow for a discussion with the interviewees. Interviews of a cross-section of the leadership, a total of 13 leaders were done (Appendix S shows data collected from this process). As the sustainability team is housed in the DSF office and are required to work closely with them, understanding the current integrated culture is important to effect change. The findings show that the majority of the interviews have been there for 10 to 40 years, and only a few have been there under 10 years. This is a challenge that the director of sustainability should manage as behaviours are deeply embedded at these leaders, change of mindset and process have to be strategized. An analyses of the sustainability team revealed that all personnel are from outside the division. As the team was only 7 years old and growing, newer people who come from outside of this organisation have a new outlook on how to do things. The office started with two people and had grown to about 14 full-time employees with 5 interns by May 2016. In 2020, after speaking with the current director of sustainability, the team had grown to 25 people to support mandates put on schools. Building a team that can be adaptive and influential is key to the success of the sustainability programme. This research found that the DSF has had a policy to hire from within, and all but one current directors of facilities grew in this rigged system. Only 2 out of the 13 interviewed have come from a corporate environment and have

stated that they are treated as outsiders in the organisation. This is an issue that the director of sustainability should understand and develop strategies to overcome, as all the sustainability staff come from outside the organisation.

Out of all the internal leadership staff that was interviewed, six stated that they did not know what the sustainability team really did and did not work with them. Two said that they worked with them once or twice but not on a constant basis. Three only worked with them to receive demand response funding, and one worked with them all the time. All the interviewees would like to work with the group and understand what they did to be able to utilise their services better. The case study findings reveal that the sustainability leadership and their team should work closely with top leaders to help them understand sustainability, develop programmes and messaging on how they can help them through initiatives, as well as what they need from them to assist in the implementation of requirements. Furthermore, proper internal communication systems and collaborative teams need to be built.

5.3.3 Implementation and development of actions and strategies

The following section discusses the artefacts created for this case. Artefacts are tools that aid in the understanding of where the design process needs implementation and help bring meaning to the subject at hand. New artefacts improve the productivity and effectiveness of organisations, stakeholders, and individuals. They are constructs, models, methods, or instantiations utilised to understand behaviour through analysis of their use and/or performance; this process allows for the collaborative and social procedure required for innovation to occur (Simon, 1969; March and Smith, 1995; Krippendorff, 2006; Jarvinen, 2007; Vaishnavi and Kuechler, 2007; Kuechler, 2008; Walsham, 2012; Baskerville et al., 2018). Some examples of the artefacts produced for this case study that will be discussed are design thinking workshops, DOE framework for sustainable schools, and the proposed logo for the department.

Opening communication channels

The case revealed that all internal staff worked in silos. There was limited communication and information sharing between departments or teams. For any change initiative to be able to happen, there should be collaborative efforts within the organisation. So, to create collaboration within team's proper communication channels should be also developed. As an example of initiative, at the beginning of the research, communication in the sustainability team was limited. As part of the action research, a bi-weekly team meeting initiation to share information and status of work was implemented. This caused incredibly

positive results, as connections and understanding started to develop and heightened the team's morale. This influenced adoption by other departments, as results were seen by upper management and best practices and information were shared. Thus, it is recommended that the leadership should develop these meetings with more structure and agendas so that all participants know what to expect and expected of them from these meetings.

Speaking the Same Language (SSL)

The research revealed that one of the biggest disconnects that existed in this organisation and similarly others, both in the public and private sectors, was the lack of communication and connections to a defined sustainability vision. To address this, the author designed and developed multiple strategies using a multi-level approach. The initial research found that there should be better collaboration and team efforts because communication channels were the same on the larger organisational picture for government agencies as well. In this case study, the initial workshops introduced design thinking ideas and innovation and sought a definition of what sustainability is to NYC public schools.

SSL - Working group internal stakeholders: Design Thinking/Creative Thinking exercises were designed to help build morale, open communication, and collaboration within the organisation. These creative thinking workshops were developed for the internal leadership of the organisation. Working with the leadership team of 20 people, two working groups (May 2015 and June 2015) were designed and developed to come up with strategies for the organisation. The team had to come up with ideas and strategies for restructuring, developing best practices between teams, open communication, and collaboration between teams. Figure 38 shows an outline of one of the working group sessions that examined the concept of magnifying and substitution.

Strategic Planning for Best Practices Implementation working group.
(Phase 1)

Three areas to look into, think about and discuss:

(1) Mechanical Failure of Equipment.
Most emergency calls DSF receives are due to mechanical failure of some type of building equipment. Facilities spends a large percentage of time responding to such calls.

- In your opinion - What are the top 5 to 10 items that come up?

(2) Lack of Preventative Maintenance (PM)
Because of the lack of PM work being done this leads to item (1) above. The division of School Facilities by design should be doing PM on all our equipment daily, weekly, monthly, and quarterly. This would prevent catastrophic failure of our equipment which sometimes can lead to school closings.

- In your opinion - What are the top 5 to 10 preventive measures that we can look into?

(3) Lack of Resources
Because of the lack of resources as in additional funding for additional staff to do the necessary routine work in our schools we are in a reactive mode. We are driven by emergency response at least 50% of the time. The severe cuts in staff over the past 8 years have led to items (1) and (2) above. This sometimes leads to building failure. Bearing in mind we have over 1500 buildings with 375 skilled trades persons. This explains the 36000 unanswered work requests in our system.

- What are the top 5 to 10 resources we will need to make sure 1 & 2 are maintained? (Don't think of funding but resources, why they are needed? Please have backup to your response).

MAGNIFY

It's often easy to create a new idea by simply adding something to the subject

Looking at the top 5 to 10 Items in 1, 2 & 3 – how can we magnify?

- Can we look at what we do to these and add something to make them better?
- How can we improve process?
- What is lacking?
- What is missing that can be useful?
- What is not working?
- What else do we need to know?

How would we approach this if we had all the resources in the world?

How would be approach this if we had a budget of $10?

Substitute

You can substitute things, places, procedures and ideas.

Think of ways to change this for that and that for this.

Looking at the top 5 to 10 Items in 1, 2 & 3 – Can you substitute something?

- Can we substitute someone else's perspective for ours? Custodians? Principals? Etc.?
- What would happen if we substitute different rules or policy?
- What can be substituted? Who else? What else? When else? Where else?
- What other process might work better? Other procedure? Plan? Goal?
- How about another approach?
- Looking at our subject's various attributes. Can we substitute functions? Relationships? theme? message? environment?

Figure 38: Sample creative thinking workshop outline (Source: Author)

The first workshop was the most successful, everyone left positive, excited about the outcomes, and agreed on next steps, believing that change could happen. At the end of the meeting, all the participants signed a document stating that they were willing to become part of the process and work together to make this happen. The workshop was developed thoroughly and was embedded with creative thinking techniques. This followed the process of other workshops to getting everyone on board, to have them believe, and sign on to be part of the change. It was recommended that one of the low-hanging fruit findings or measures be implemented to show solidarity and care of voice. Unfortunately, the organisations is a top-down hierarchy and bureaucracy, and the mandate to implement one or more of the collaborative solutions was not given from the top. As nothing was implemented after both workshops, excitement died after the first few weeks. The researcher followed up with unstructured interviews and individual discussions with participants for feedback and understanding of mindset. The findings show that the lack of implementation of the low-hanging measures continued to solidify negative emotions that had built up over time; this included lack of trust and care. In the assumption of this research, motivation and communication must be maintained, as this helps build respect, ownership, and trust as change is developed.

SSL - Working group external stakeholders: Design Thinking workshop (first Sustainability Summit) - To help build morale and open communication and collaboration among school stakeholders, a creative thinking workshop was developed for the internal stakeholders of the schools. At the first annual Sustainability Summit that the DOE/DSF sustainability team put together, the author developed a workshop with sustainability coordinators and assistant principals. The workshop was titled 'Leading

Culture Shifts at Our Schools: Strategic Planning in Supporting Cultural Shifts.' Discussion include how to align the message to their initiatives and advocacy, introduction to culture change and holistic thinking, how to be innovation agents, and utilising design thinking to break barriers. The workshop introduced the participants to two creative thinking techniques, Lotus Blossom and Idea Box, and the proposed DOE framework for sustainable schools. Out of the 20 participants, 13 filled out the 'Leading Cultural Shifts at Our Schools Questionnaire.'

The data findings reveal that all the participants believe that cultural change is needed for the implementation of sustainability in NYC Public Schools. Change agents should understand the naysayers and negative comments through design thinking methodology. These are the areas that sustainability leaders should tackle or find solutions to resolve the barriers they must face. This working group helped make connections with the other initiatives being developed, such as the Advisory 'Innovation Council' and the Pilot Programme Building, to bring all the unions to the table and start communicating and working together to find solutions to similar obstacles that all are facing.

SSL - Advisory 'Innovation Council' work **-** Part of the research with the sustainability team was to help develop the advisory council and see if there could be strategies for implementation of cultural shifts with this team. The council is composed of 52 people, all from diverse backgrounds and groups. These are representatives from city agencies, city unions, sustainability coordinators, principals, parents, facility managers, and non-profit partners. The first advisory meeting was in March 2015. This consisted of two working sessions, one in the morning with internal organisation members, and the second session with all external stakeholders. Introduction of design thinking, innovation, and understanding of sustainability was implemented. At the end of the meeting, all the participants signed a document stating that they were willing to become part of the process and work together to make this happen. The first step to getting everyone on board was to have them believe and sign on to be part of the change. To build on this initiative, one must maintain the motivation and communication. This helps build respect and trust as change is developed. Infographic was brought in to be part of this working group; all infographic information was then made into PDF doc and emailed to all participants, example below Figure 39.

Figure 39: Sample of Advisory Council Working Group Signatures (Source: Author)

SSL - Universal Definition of Sustainable Schools **-** This case findings were that there was no true definition of sustainability to NYC public schools and this is creating major communication barriers between agencies. For the channels to open, a definition of sustainable schools should be developed and adopted by all associated with the schools. With in-depth research in the US and the UK and information gathered from UK interviews, the author suggested that NYC public schools adapt the UK's national sustainable schools framework to align with the mayor's and chancellor's visions. This sample was designed and developed to be shared with the Innovation Council for opinions and feedback shown in Figure 40. In June and July of 2015, this was sent out to the advisory council, and very positive feedback was received. Strategies on how to help embed it into the culture and have it be a tool to help with culture shifts towards sustainability were discussed

DOE Framework for Sustainable Schools

"DSF Sustaining the Built Learning Environments for NYC Communities and Future Generations"

www.schools.nyc.gov/sustainability

Opportunity

Growing interdependence between countries changes the way we view the world and ourselves. Schools can respond by developing a responsible, international outlook among their young people, based on an appreciation of the impact of their personal values and behaviors on global challenges.

Our Goals (by 2030)

We would like all schools to be models of global citizenship, enriching their educational mission with activities that improve the lives of people living in other parts of the world.

What is sustainable development?

Sustainable development is a way of thinking about how we organize our lives and work – including our education system – so that we don't destroy our most precious resource, the planet.

From over-fishing to global warming, our way of life is placing an increasing burden on the planet, which cannot be sustained. Things which were once taken for granted such as a secure supply of energy or a stable climate do not look so permanent now.

We need to help people in all parts of the world to find solutions that improve their quality of life without storing up problems for the future, or impacting unfairly on other people's lives. Sustainable development means much more than recycling bottles or giving money to charity. It is about thinking and working in a profoundly different way.

Adapted from UK National Framework for Sustainable Schools

One New York
The Plan for a Strong and Just City

Opportunity

With central locations, extensive facilities and extensive networks, schools can act as hubs of learning and change in their local communities. Problems on their doorstep offer relevant and engaging opportunities for pupils to learn, and a means of strengthening local relationships.

Our Goals (by 2030)

We would like all schools to be models of corporate citizenship within their local areas, enriching their educational mission with activities that improve the environment and quality of life of local people.

OneNYC, the plan for a strong and just city, would like every school to be a sustainable school by 2030.

OneNYC has established targeted guidelines for schools towards this aim.

It comprises three interlocking parts:

- **A commitment to care**

Sustainable schools have a caring ethos – care for oneself, for each other (across cultures, distances and generations), and for the environment (far and near). Schools are already caring places, but a sustainable school extends this commitment into new areas. It cares about the energy and water it consumes, the waste it produces, the food it serves, the traffic it attracts, and the difficulties faced by people living in its community and in other parts of the world.

- **An integrated approach**

A sustainable school takes an integrated approach to its improvement. It explores sustainable development through its teaching provision and learning (curriculum); in its values and ways of working (campus); and in its engagement of local people and partners (community).

- **A selection of 'doorways' or sustainability themes**

The doorways are entry points, or places where schools can establish or develop their sustainability practices. Each of the doorways draws its inspiration from a range of priorities around sustainable development.

The future holds many challenges for young people

Climate change, obesity and global poverty are clear examples.

Schools have a special role to play in preparing young people to build a brighter future. Empowering young people to take responsibility for their own future is not only desirable: it is a crucial feature of their education.

Energy and water

Opportunity

Rising demand for energy and water is storing up problems for future generations. Energy efficiency, renewable energy and water conservation can tackle this problem while saving the school money.

Our Goals (by 2030)

We would like all schools to be models of energy efficiency, renewable energy and water conservation, showcasing opportunities such as wind, solar and biomass energy; insulation, rainwater harvesting and grey water recycling to everyone who uses the school.

Purchasing and waste

Opportunity

Waste, and the throw-away culture that encourages it, can be addressed through sustainable consumption. Schools can reduce costs and support markets for ethical goods and services at the same time.

Our Goals (by 2030)

We would like all schools to be models of waste minimization and sustainable procurement, using goods and services of high environmental and ethical standards from local sources where practicable, and increasing value for money by reducing, reusing, repairing and recycling as much as possible.

Inclusion and participation

Opportunity

Schools can promote community cohesion by providing an inclusive, welcoming atmosphere that values everyone's participation and contributions – irrespective of background, culture, age, religion or ability – and challenges prejudice and injustice in all its forms.

Our Goals (by 2030)

We would like all schools to be models of social inclusion, enabling all pupils to participate fully in school life while instilling a long-lasting respect for human rights, freedoms, cultures and creative expression.

Food and drink

Opportunity

An unhealthy diet contributes to obesity and poor pupil concentration. Healthy, ethically sourced food can offer nutritional benefits while protecting the environment, social responsibility and animal welfare in their food and drink provision, and maximizing their use of local suppliers.

Our Goals (by 2030)

We would like all schools to be model suppliers of healthy, local and sustainable food and drink, showing strong commitments to the environment, social responsibility and animal welfare in their food and drink provision, and maximizing their use of local suppliers.

Travel and traffic

Opportunity

Rising vehicle use adds to congestion, road accidents and pollution, including carbon emissions. Car-sharing and public transportation help to ease these concerns, while walking and cycling also boost fitness and well-being.

Our Goals (by 2030)

We would like all schools to be models of sustainable travel, where vehicles are used only when absolutely necessary and where there are exemplary facilities for healthier, less polluting or less dangerous modes of transport.

(Built environment)

Opportunity

The way school buildings are designed, constructed and managed affects their ability to teach pupils about sustainable living. For example, decisions over materials and equipment provide opportunities to highlight sustainable practices, while the inclusion of food growing, biodiversity conservation and natural play in grounds increases their learning value.

Our Goals (by 2030)

We would like all schools – old and new – to manage and, where possible, design their buildings in ways that visibly demonstrate sustainable development to everyone who uses the school. Through their grounds, we would like schools to bring pupils closer to the natural world, capture their imaginations in outdoor play, and help them learn about sustainable living.

Figure 40: DOE Framework for Sustainable Schools (Source: Author)

SSL - Unified pledge for all public agencies and unions involved in schools to work together under the proposed definition - This pledge was developed to open communication channels and understanding of what should be done on all levels. The pledge basically states that all represented agencies and unions agree to the goals of the DOE proposed sustainability framework and will work together to achieve these goals. The opinions of the members were taken, and revisions were made for ease of approval and moving forward. It was advised that this should be a living document and revised as progress is made and as further collaborative efforts are needed. An example of this pledge is seen in Figure 41. (See appendix N for full reference)

Figure 41: NYC Schools Sustainability Pledge

Following the same concepts, a proposed 'Global Citizen' pledge was also developed to be administered at school levels. This was designed to help teachers, principals, and students develop a culture of sustainability. The author worked with local principals and teachers to see how the framework can be easily adapted to public schools. This document still should be refined and developed to be able to work from elementary to the high school levels. However, the concept of communication and understanding of the message to all organisations internal and external stakeholders is of grave importance for any cultural shift to start.

Branding and communication connections

As part of the communication strategies for the sustainability department, the creation of a motto and brand image was essential and needed to be established. Brand image and vision should be connected to the definition of sustainability and what all involved would understand and identify with. Working with internal staff, a tag line of 'The Power in Your Hands' was developed to give every student, teacher, and individual the understanding that they have the power to make positive change in their environments. This was adapted to also work with the larger organisation, where another tag line was designed: 'One DSF = One Team = One Unit.' This logo is associated with the adapted DOE framework for sustainable schools. The framework has eight doorways or topics that define sustainable schools. Thus, eight colours were designed on the hand, and each represents a topic. The fingers as the movable parts and the palm as the solid foundations represent concepts such as inclusion, community, and global community (Camou and Green, 2016).

Further strategies were being worked on with the communications and training coordinator to come up with ways the logo could be marketed to schools that have become sustainable, for example, by creating a certification programme that the schools have to complete and recertify every year to be able to use the logo on their letterhead. Figure 42 shows examples of the proposed logos.

Figure 42: Proposed logo's for DOE Office of Sustainability (Source: Author)

Pilot and Testing

The research revealed that in all design processes, there should be testing and development. Pilot programmes are a necessity for understanding and improvements of developing strategies. Testing and adoption should be constant for true innovation to occur. The research proposed the development of a pilot programme to test the recommended theories. A 'Holistic Sustainable Schools' pilot was recommended and was in its developmental stage. The pilot had to have internal and external stakeholders willing to work together. A location that has all school levels, as well as a special education school, was recommended. A sample framework was created for the pilot team to start out with and build on as they developed the final project. The author suggested and started to create an integrative design team to build the pilot and see what their organisation would want to achieve and get out of the pilot. The project proposal was in its infancy, and the author advised on further development by the sustainability team. The goal was to get all key players of the schools to come together, collaborate, communicate, and share ideas. The team was to look at the schools holistically and identify how they can embed sustainability as part of the school culture. This project did not come to fruition, as a new director started later in the new year and did not have these foundations to follow through.

5.3.4 The initial findings review – Case Study 2 Summary

This case commenced with knowledge gathered from Case Study 1, the theory that unifying branding, communication, and community aids in culture change for sustainability implementation. The author's preliminary research upon entering the organisation was to investigate these three areas, as other data-collecting strategies were implemented. The case suggested that in established organisations, the change agents are required to build systems to manage the change of mindset, processes, and behaviours deeply

embedded. It revealed that proper internal communication systems and collaborative teams should be built to be adaptive and influential. Appropriate communication channels should be developed to share best practices and information.

The case's major discovery was the disconnects that exist in this organisation and others, both in the public and private sectors, due to the lack of communication and connections to a defined sustainability vision. The author worked with collaborative teams to create artefacts that addressed this disconnect and to create measures that allowed all stakeholders to speak the same language (SSL) regarding sustainability. Aligning this connection with communication, branding, and community has been shown to advance the adoption of sustainability to organisational behaviour. The case revealed that the concept of proper communication and understanding of the message to all organisations' internal and external stakeholders is of grave importance for any cultural shifts to start. The goal was to get all key players to come together, collaborate, communicate, and holistically share ideas on how they can embed sustainability as part of the organisational culture.

The case helped further the development of the author's artefact integral design thinking (IDT) strategy framework. The first case study provided three major takeaways to the importance of developing a unified holistic strategy for communication, community, and brand. More substantial developments have been made in the importance of design thinking and speaking the same language after further research. Bringing the artefact to have five areas of concentration. These are design thinking, community, branding, communication, and speaking the same language. Figure 43 is the first version of the IDT strategy framework. The six major takeaways from this case study were as follows (see Table 13 for detailed information):

1. The culture was embedded deep and understanding that 'culture is how things are done', change agents should understand the organisation's humanistic (Vlasov and Chromjaková, 2018) side to effect long-lasting change.
2. There was a lack of proper communication with the customers and employees about the organisation's initiative and vision of sustainability.
3. There was no strategy built for how they worked with their developing community and how they market their sustainability efforts.
4. There was no strategy for leveraging the community to aid in implementing the mandated sustainability regulations.

5. There were significant communication barriers and sharing of knowledge to advance sustainability in the organisation and with its partners.

6. There was a lack of top leadership support to help and inspire others to follow through and become champions towards sustainability.

It does not matter whether the organisation is a public agency or a privately held one. Case study findings reveal that any organisational change agent needs the right tools and strategies to push any agenda forward. The study illustrated that all stakeholders should start defining sustainability in the same way; learn what are the best ways to work together; comprehend the needs of each team members' organisation to succeed in their goals; how sustainability initiatives can become second nature to be easier on all as more stringent regulations and mandates keep coming to combat climate change. The case indicated that the following strategies can aid sustainability leaders in implementing cultural shifts into their organisations (Camou and Green, 2016):

1. Design thinking
   a. Seeing beyond the naysayers and finding solutions.
   b. Holistic thinking
   c. Developing and innovating existing systems
   d. Prototyping, testing, and improving
2. Speaking the same language
   a. Defining sustainability for the organisation
   b. Connecting all stakeholders to the message (internal and external)
   c. Developing tools and messages to promote and spread the vision.
3. Branding
   a. To internal stakeholders
   b. To external stakeholders
   c. Development of transparency/reporting
4. Communication
   a. Opening communication channels, both internally and externally
   b. Developing standards to convey the same message
   c. Develop accountability
5. Community
   a. Internal stakeholder engagement

b. External stakeholder engagement
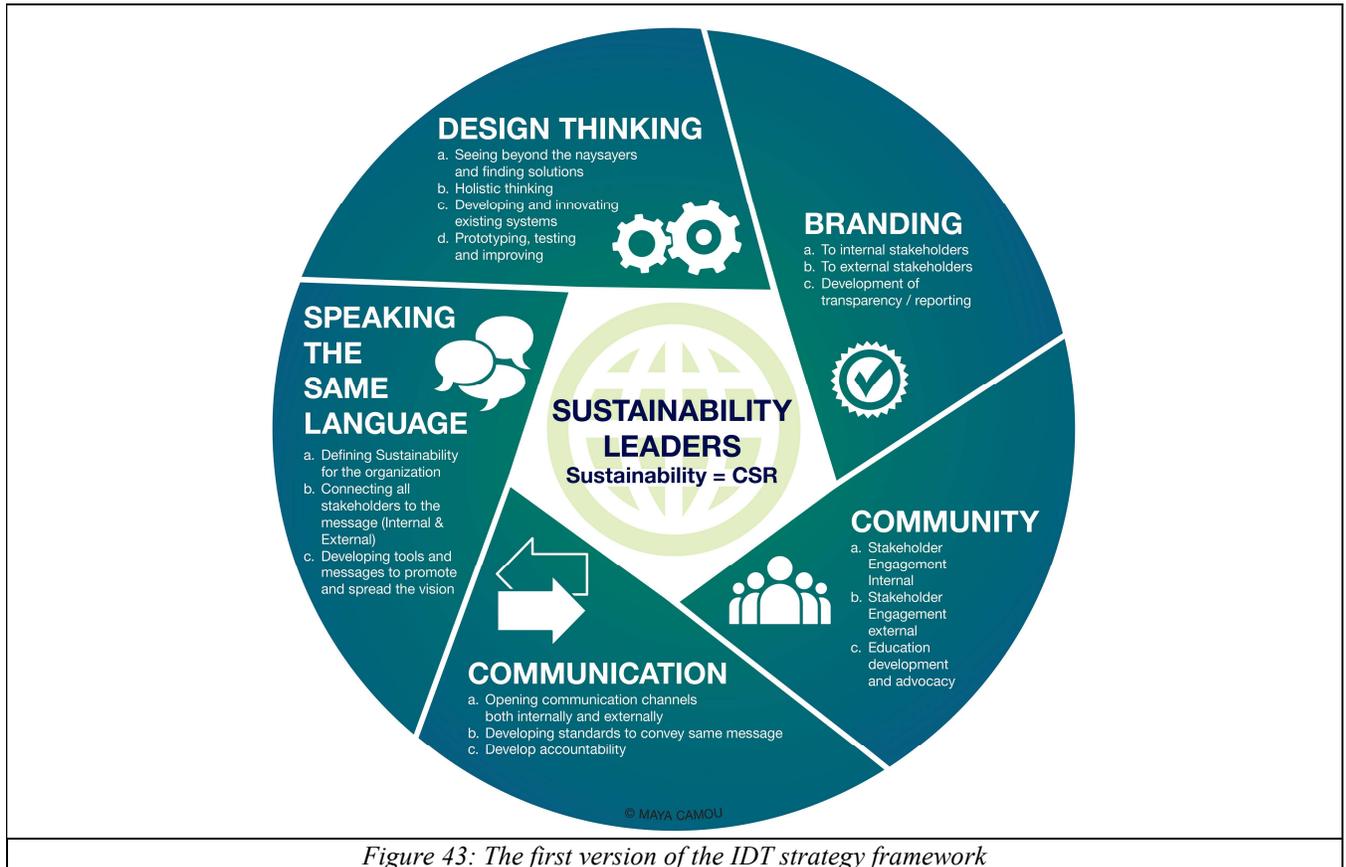
Figure 43: The first version of the IDT strategy framework

Case Study	Research Problem	Action Research Reflection Projects / Artefact Creation	Integral Design Thinking Framework Development
Company B	**Help Develop Strategies for Cultural Shifts**		
Case Study 2	Majority of Facility Directors have been in the organization over 10 years and were set in their ways	• Created Design Thinking / Innovation Educational Workshops	Communication / Speak The Same Language
Case Study 2	Majority of interviewed did not know what the sustainability team did or how they could help them	• Created an educational document on what the department did and how they could help targeting specific groups • Conducted targeted individual informal meetings to discuss, educate and inform on the sustainability team and their work	Communication / Branding / Speaking The Same Language
Case Study 2	Major issues were created by silos not only internally but with external government organizations and non-profit partners	• Designed and developed a working group meeting of 52 cross disciplinary members to help define sustainability, find the needs most relevant to the members and were the gaps are • Created a pledge that defined sustainability for the cross disciplinary member • Created a Sustainable Schools Framework	Communication / Community / Speaking The Same Language / Branding
Case Study 2	Sustainability Team did not communicate and was not informed about overall organization work and well as other team member work	• Created a bi-weekly meeting where sharing of information by team members and leadership. Where concerns and accomplishments could be communicated	Communication / Community
Case Study 2	Sustainability department was not branded, did not have a mission or a vision statement developed	• Developed a logo and tag line for the department • Initiated the development of educational workshops for stakeholders both internally and externally • Advised on the creation of incentive programs and certifications	Branding / Communication /Speaking The Same Language /Community
Case Study 2	There was a "It can not be done!" culture that was imbedded at all levels of the organization	• Created Design Thinking Workshops that targeted specific groups to help them see beyond their field of vision and be able to innovate the changes that were needed	Communication / Speaking The Same Language / Community

Table 13: Research Connections – Case Study 2 (Source: Author)

5.4 Case Study 3: Time Equities Inc.

5.4.1 Case Study 3 Introduction and history

Time Equities Inc. (TEI) is a real estate property acquisition and management firm. Headquartered in New York City, it has been in operation for 54 years. TEI currently holds a portfolio of approximately 34.7 million square feet of residential, industrial, office, and retail property. It has about 180 employees and operate in six countries, and their total asset value is about five billion dollars. Founded by Francis Greenburger, the company was established as an asset management company and developed as a flat organisation with Francis as a head (Timeequites.com, 2020).

This research conducted for this case study builds on the previous case studies' findings. Therefore, the first step was aimed at understanding the current barriers of the organisation. Then, the framing of strategies needed to incorporate changes in behaviour and procedures to achieve required outcomes was designed. Based on the research findings and literature review in this work, organisations understand the need to change the behaviour of their organisation and their people, but they do not understand the web of connections needed to make that change work. They are hiring or transitioning inside staff into positions with sustainability titles without understanding the tools and support they need to make change happen. The research suggests that individuals in this role should identify internal processes and barriers to change. This applies to the behaviour change of individuals in an organisation and the connections to process, people, and policy. This case study aimed to understand in detail what innovative measures should be involved in creating cultural shifts towards sustainability in Time Equities Inc.

In 2007, Francis Greenberger attended a meeting by the Clinton Climate Initiative that inspired him to hire his first Director of Sustainability. Internal documentation and information about what was done between 2007 and 2015 could not be found in its historical files. Review of the Time Equities' sustainability website in 2015 showed that TEI made commitments to have a 30% reduction in energy, water, and waste by 2010 (Timeequites.com, 2015). However, after an initial review of internal databases and documentation, there was a revelation that no documented reductions were made in this timeframe. This information revealed that only a few energy upgrade projects and Leadership in Energy and Environmental Design (LEED)-certified projects were completed by the time of the current study. Information on these projects was found only after creating case studies for marketing and speaking the

same language initiatives, which are discussed later in this chapter. The information was gathered through non-structured interviews and from asset teams and property management leaders.

In October 2015, the case study initiation and the researcher's role as the second director of sustainability for Time Equities Inc. began. It was agreed that the organisation would be a case study within the current research and findings to be used for the creation of the final artefact in the current work produced. Building on the results from Case Studies 1 and 2, the author-initiated Phase 1 identifies the problem of the research to understand the foundational challenges for implementation in the organisation. The work was conducted over a time frame of two and a half years, Figure 44 and Figure 45 show the timeline for the first and second year, respectively. The following sections discuss the artefacts and initiatives modelled after the developed IDT framework and utilised to help in the organisation's evolution in the sustainability management market.

Figure 44: Case Study 3 Timeline 1st Year (Source: Author)

Figure 45:Time Equities Timeline 2ⁿᵈ Year (Source: Author)
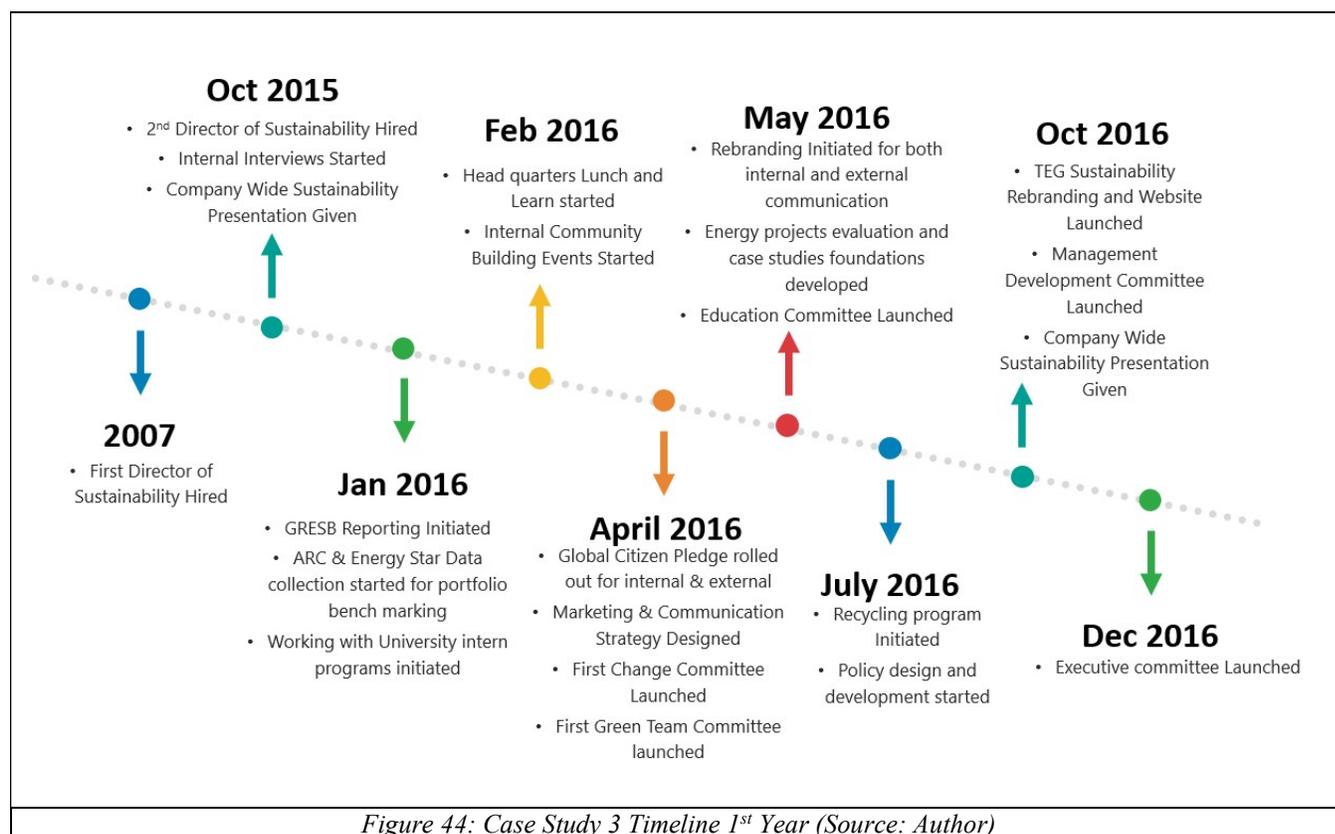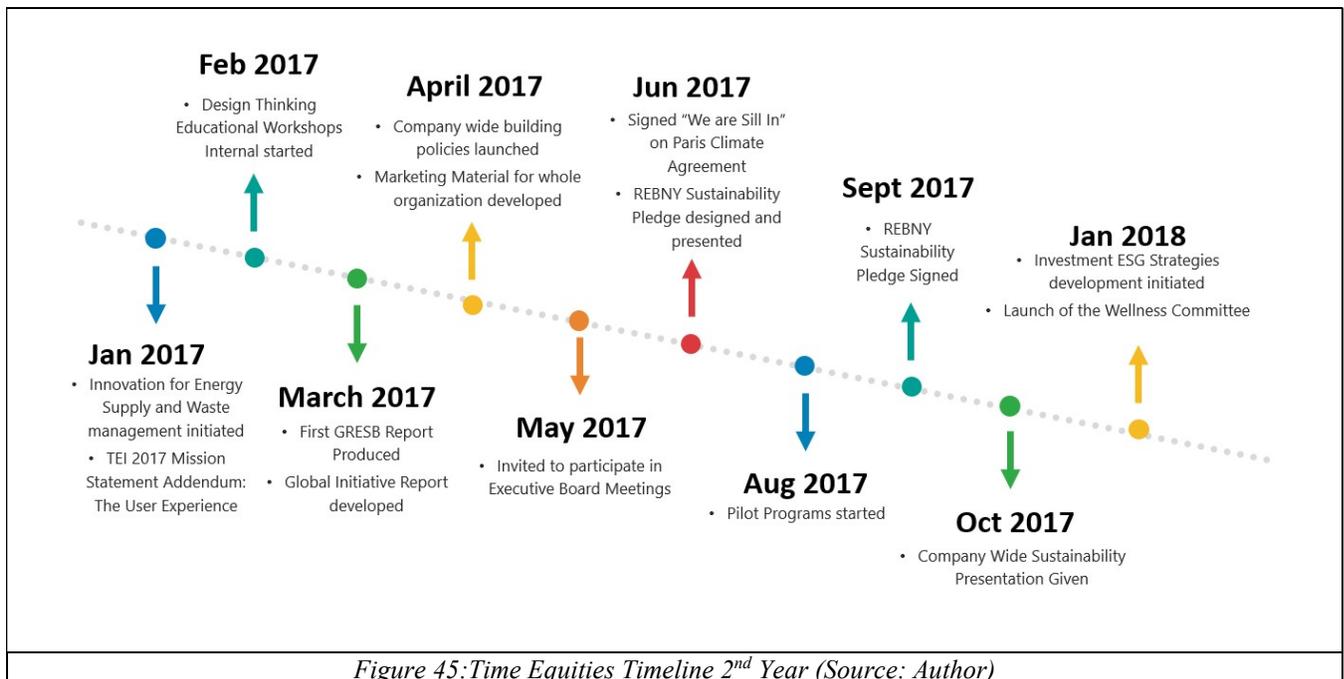
5.3.2 Case study 3 objective, approaches, and preliminary findings

The objective of the case was to understand in detail what innovative measures should be involved to create cultural shifts towards sustainability in Time Equities Inc. Key issues and questions addressed include: why was the director of sustainability position formed; how has it evolved; what challenges have been presented to them and how have they been addressed; what sustainability strategies were attempted; and what can be learned from the experience, for innovators in the public and private sectors, and for policy-makers at service, national, and supra-national levels (Camou and Green, 2016).

The author worked as an internal team member and an action investigator and took advantage of the strategic thinking acquired during previous cases and the knowledge acquired throughout the research process. This approach allowed for the influence of key core actors and data collection to evolve the IDT framework. Key strategic thinking facets developed so far from the previous two case studies include the connections between design thinking, speaking the same language, branding, communication, and community. It is argued that these connections and strategic themes assist sustainability leaders in implementing cultural shifts in their organisations.

These strategic themes and connections were applied at the onset of this case study. The focus was on affecting the theme areas, understanding how they operated in the organisation and creating artefacts and interventions to improve and positively influence them in relation to the sustainability agenda. Consequently, the thinking process involved was as follows (Camou and Green, 2016):

- Seeing beyond the naysayers and finding solutions

- Understanding the organisation as a whole and seeing what barriers exist.

- Developing and innovating existing systems to ease implementation; developing prototypes, testing, and improving where needed

- Defining sustainability for the organisation

- Connecting all stakeholders to the message (internal and external) while developing tools and messages to promote and spread the vision

- Building branding for internal and external stakeholders while developing transparency and reporting

- Reviewing communication systems and opening communication channels both while developing standards to convey the same message and accountability

Number Interviewed	Titles of Participants
1	Accounts Payable Specialist
1	AR Supervisor
1	Asset Manager
1	Associate
1	Associate Counsel
1	Associate Director Of Mortgage Brokerage
1	Associate Director Of NYC Retail Leasing & Acquisitions
1	Associate General Counsel
1	Bank Account Supervisor
1	Chairman & CEO
1	Chief Of Staff
1	Controller
1	Director Of Acquisitions
1	Director Of Acquisitions & Asset Management
1	Director Of Acquisitions & Developmen
1	Director Of Acquisitions & Policy
1	Director Of Acquisitions & Senior Counsel
1	Director Of Asset Management
1	Director Of Design & Construction
1	Director Of Design Innovation
1	Director Of Development
1	Director Of Equity & Investor Relations
1	Director Of Financial Asset Management & Budgeting
1	Director Of Philanthrophy
1	Director Of Residential Asset Management &
1	Director Of Residential Management
1	Director Of Retail, Acquisitions & Leasing
1	Director Of Sales And Rentals
1	Director, Investor Relations
1	Director, National Retail
1	General Counsel
1	IT Director
1	Lease Administrator
1	Managing Director
1	President & COO
1	Project Manager
1	Property Manager
1	Property Manager
1	Rents Administration
1	Senior Associate
1	SVP Of Finance, Director Of Financial Reporting
41	

Table 14: Initial Interviewees at Time Equities (Source: Author)

These are all taken into consideration as engagement is developed with internal and external stakeholders, while understanding the connections and influence the themes have on each other. As in the previous case study, the design science research methodology was initiated in Phase 1, the identifying problem process. Initial interviews were designed and developed to follow a semi-structured format for the understanding of what Sustainability is to the company, how they work with the team, how it would affect their work, how many years have they worked in the organisation, and if they worked with the Sustainability team and how. A cross-section of leadership and staff were selected to understand perception from all levels of the organisation. Forty-one people were interviewed, and the meetings were set to be brief and about twenty minutes in length to gather the needed initial information (see Table 14).

Initial findings revealed that the current organisational culture is deeply embedded (see Appendix T). Data uncovered that the executive team, which consists of 29% (n = 12) of those interviewed, had been with the organisation for 20 to 40 years; while 54% (n = 22) had been with the company for 10 to 20 years and only 17% (n = 7) were for 1 to 10 years and had worked with other organisational cultures and procedures. This was the first step in understanding the challenges and where strategy design is needed. As current research findings show that organisational culture is 'how things are done', this data provides insight that processes and mindsets are deeply embedded in this organisation with its 44-year history. Strategies needed to be developed with their leadership. Ownership of tasks was especially important and required consideration for all levels of the organisation, as it worked into the sustainability change management strategy.

The work on this case commenced with the belief that sustainability foundations were already in place, as the organisation had a director of sustainability from 2007. Through the initial interview process and internal documentation review, the findings demonstrated that this was not the case. Collected interview data revealed that even though sustainability leadership existed for six years in the organisation, only a small percentage of interviewees knew about the existence of the role and the work performed for the organisation. The findings show that 70% (n = 30) never interacted with that leadership and did not know that sustainability was considered or existed in the company. Those who interfaced with the sustainability team had mixed reviews; 9% (n = 4) worked well with the team, but the remaining 21% (n = 9) had only brief interactions or a negative one. This understanding created the need to build a strategy that would educate, open communication systems, and build trust with all stakeholders to be able to manoeuvre any sustainability initiative in the future.

As these first steps were designed to understand the overall web of connections and company-wide processes, they also provided the opportunity to build connections with major and minor players. The next phase was to build on these findings to understand what sustainability was for the organisation, communicate strategies, and develop collaborative efforts to move them forward.

5.3.3 Development and implementation of actions and strategies

The following section discusses the artefacts created for this case. Artefacts can be constructs, models, methods, or instantiations utilised to understand behaviour through analysis of their use and/or performance. Some examples of the artefacts produced for this case study are Lunch and Learn events, Global Citizen Pledge, Building Policy Book, and Sustainability Logo. The following sections are broken into IDT focus areas and how the artefacts are related to each.

Design thinking introduced and initiated

As this research is underpinned by design thinking methodology, the first step was introducing this concept to the organisation and building on that foundation. A strategy was initiated and incorporated as part of sustainability education efforts.

Lunch and Learn Events - In October 2015, a companywide educational presentation was given about sustainability in the real estate market. This was followed by the development of bi-weekly lunch and learn events about sustainability that exposed more of the staff to sustainability initiatives launched in Feb. 2016. Strategies were incorporated from all angles by understanding the web of connections, the need to build empathy into the process, the need to build continued trust, and champions even simple measures go a long way. An example of these small initiatives would be the understanding of diet restrictions for those who were usually excluded from these events and making sure they were able to attend. The first Lunch and Learn was developed to bring design thinking to the organisation. The book by Tim Brown, *Change by Design*, was also bought and given to the chief of staff after the lunch and learn. This was done to help embed the knowledge in the leadership that might have a strong influence on change.

Through the positive impact that this and the other Lunch and Learn events were having on the organisation, the leadership requested two larger design thinking workshops with different groups in the organisation. Figure 46 shows a sample of the designed documentation for the workshop. This initial design thinking event also helped to bring together a leadership team to develop the change committee. A proposal was developed within that group with the following:

'Purpose: to devise and implement company-wide initiatives that will improve efficiency, communication, collaboration, productivity, and increase employee health and happiness…. The idea of establishing a Change Committee came from a conversation during the Lunch and Learn programme on Design Thinking' (see Appendix H for the full document)

The committee was launched in April 2016.
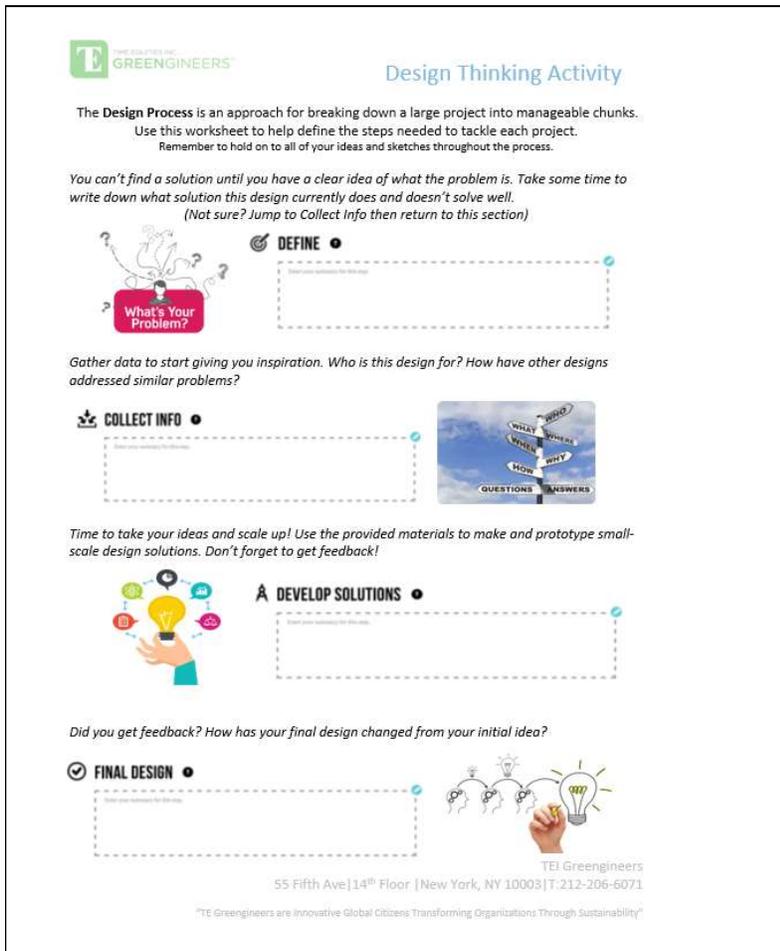
Figure 46: Part of a Design Thinking Lunch and Learn then Developed into Workshops for TEI (Source: Author)
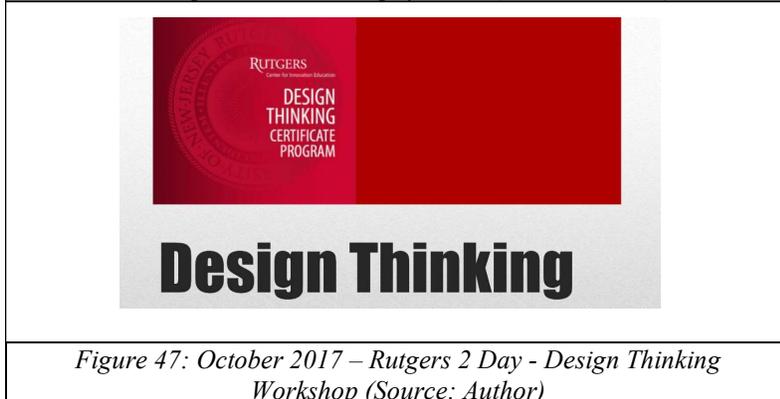
Figure 47: October 2017 – Rutgers 2 Day - Design Thinking Workshop (Source: Author)

These community-building, collaborative efforts helped open communication systems in the organisation. Recognition of this by leadership through collaborative communication sessions also influenced the adoption of an education committee to be led by the organisation's lead council. This committee had every division leader take on a month to present about what their department does and discuss one item of importance and influence on the organisation. The sustainability team kept April for their presentations as it is Earth month in the United States. The head of the committee reached out to all leadership and had them pick a month to present. A year and a half-long schedule was developed, with monthly educational Lunch and Learn established. This initiative helped start the foundations of empathy building in the organisation and the opening of communication channels to aid in the breakdown of existing silos. This programme and committee were launched in May 2016.

Design thinking aided in initiating the innovation process in this organisation. It helped build empathy, open communication channels, and find connections to build both internal and external communities while prototyping, testing, and improving processes. These were developed while innovating existing systems. In a continued effort to educate the organisations' external communities on design thinking methodologies and influences, participation in community education to other leaders in the industry was also done (see Figure 47).

Speaking the same language (SSL) initiatives

This theme concentration aims to build purpose, care, and understanding into the organisational behaviour and culture. Some of the strategic concentrations of the case study were as follows:

1. Defining Sustainability for the organisation
2. Connecting all stakeholders to the messaging (internal and external)
3. Developing tools and messages to promote and spread the vision

Some of the artefacts discussed in this section were developed to build on this theme: Global Citizen Pledge, Building Policies, Building Wellness Facts, and Building Performance Award.

SSL - Global Citizen Pledge – This document defines the sustainability foundations that the organisation stands for and strives towards (see Figure 60).

As initially stated, 70% of those interviewed did not understand what sustainability was to the organisation, but all were willing to work with the sustainability team. With this information in mind, steps were taken to develop a definition of sustainability, and the artefact Global Citizen Pledge was designed. This was developed to target initiatives that the sustainability team wanted to push forward. As the organisation was looking to be a global company and started expanding into the European market, the term 'global citizen' was adopted to connect with the worldwide community.

The pledge process was first to understand the need for a definition and internal needs of the sustainability department; further investigations were done to see what other organisations were doing and being highlighted, and then from developing themes, to assess the top points that would work best for the organisation. The pledge was designed to contain eight short statements to aid in the sustainability agenda and help open communication and collaboration channels in the organisation. These were:

- 'We will take actions that positively impact our properties and the communities in which our properties are located; the country; and the rest of the world.
- We will strive to understand the impact that all decisions will have on all future generations.
- We will continuously collaborate and innovate as we educate ourselves on social and environmental issues.
- We will take opportunities to pass that education on to our peers and colleagues and to utilise it throughout our professional lives.
- We will become well-informed consumers and strive to understand the social and environmental impacts of our everyday purchases.
- We will strive to reduce the environmental and economic harm associated with excessive energy use.
- We will strive to reduce the amount of water we use and find ways to protect our water resources.
- We will strive to reduce the amount of waste our properties produce.'

Understanding the web of connections and who should support and initially champion the initiative is of great importance. During the design process, non-structured meetings were scheduled with key targeted leaders to obtain feedback and advice. This was done to get buy-in and support for the plan. A larger strategy was designed: how this will be rolled out, gifts and incentives that would be given upon signing the pledge, and how this would connect with marketing and branding for the organisation. Creating this support before the initiative is brought to the owner of the organisation makes a big difference, especially in an organisation that has a deeply embedded culture. The initiative was approved and supported by the leadership. The launch was in April 2016 to coincide with and reinforce Earth month.

The pledge was also the foundation of the marketing and branding strategy for the sustainability team. Working with leadership on the change committee and other volunteers, the pledge also stated:

'As Global Citizens, we understand that the only way to truly achieve lasting change is to realise that we are all connected and must work in collaborative partnerships to ensure fairness and equality. For this reason, as TEI community partners, we will strive to reach a deeper understanding of issues that affect the global community and act as a compassionate advocate and innovator for change' (see Appendix L).

The pledge was signed by 90% of headquarters personnel (this statistic was developed from a list of all employees at headquarters that was received from the human resources department). It was communicated externally by the chief of staff and the investor division head to all third-party partners and investors.

| Figure 48: Building Policy Book (Source: Author) | Building Wellness Label | Building Performance Award |
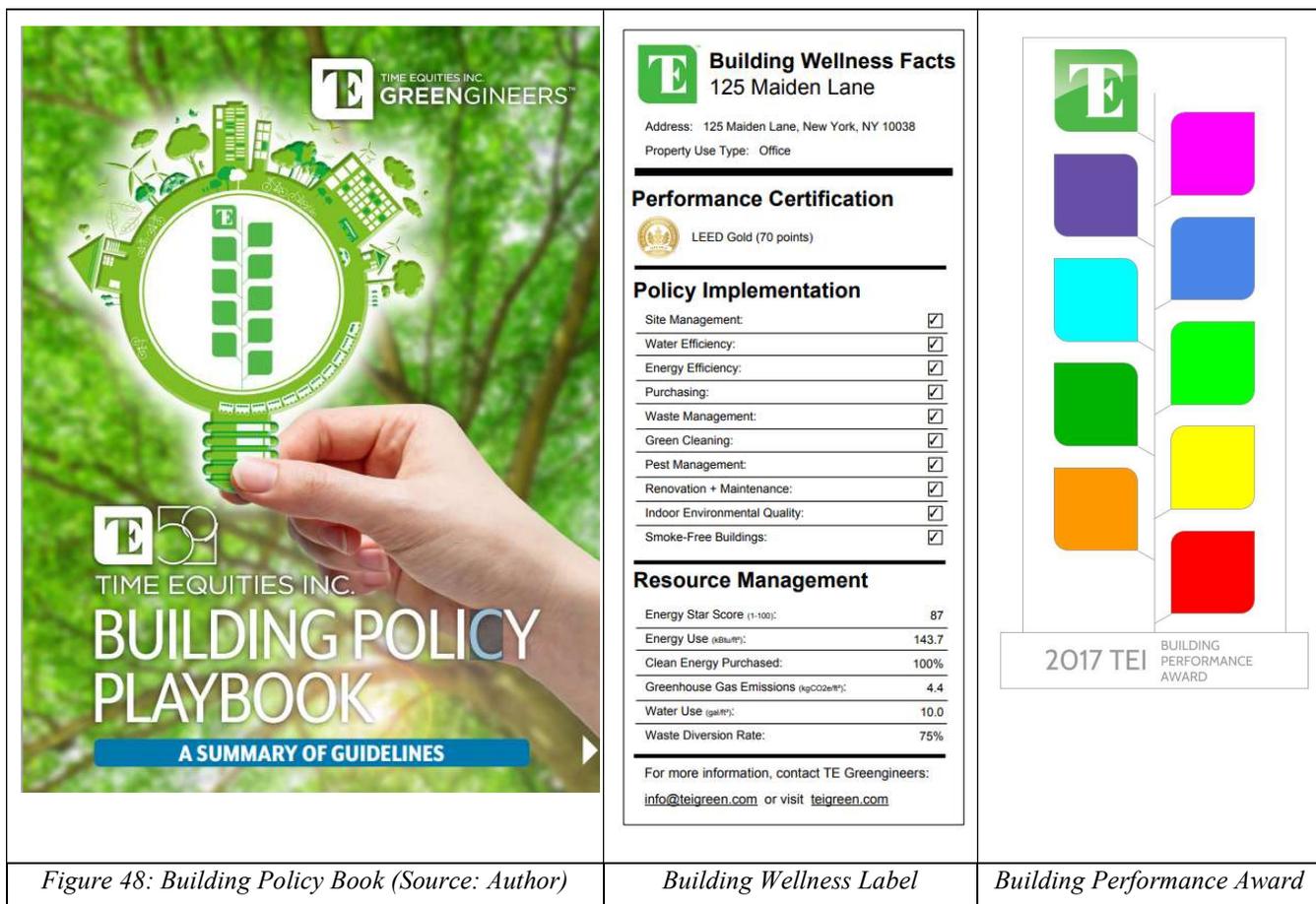
Through continued action research cycles and strategies to connect community, communication, brand, and speaking the same language, the author found that there was not one set of ways that buildings were managed throughout the portfolio. This proved to be a hindrance in the sustainability team's ability to work across the portfolio, collect data, and understand where change should be implemented or focused. To utilise the initial Global Citizen pledge initiative, some of the eight points that could be related to buildings were developed into policies. Policies were created through non-structured investigation conversations with asset and building management teams as well as internal management stakeholders and based on international standards, resulting in the creation of three building-related Artefacts (see Figure 48):

- *Building Policies* – This is a book of policies that are defined and broken down for the management of all properties. There were two that were created: a reference book (larger, more detailed manuscript) and a play book (a condensed version for quick reference).
- *Building Wellness Facts* – This is a visual that would be placed in lobbies or well-travelled areas in the building to communicate policies to all building stakeholders.
- *Building Performance Award* – Designed to award building managers that can implement all policies into their building management process. The criteria for this artefact were still under development.

The policies were developed with the same eight-point message from the organisational pledge previously referenced in this section. It is important to develop a policy to help all stakeholders identify what is required and the expected behaviours. The findings show the lack of a unified vision across the portfolio, revealing the need for this artefact's creation in this study. Key contributions to organisational policy include its potential to reduce opposition to change, increase readiness for action, and positively impact the change process (Brookins, 2016; Schein, 1999; Lohry, 2017).

The three artefacts were designed and created in unison, focusing on policy and communication for building managers and users. Understanding the importance and value of these initiatives is of great importance. Through observations and the recognition of connections, some questions were considered: how that web worked and how those connected back to the headquarters and individual departments. For example, in the development of the building policies, the connections were also developed to different lease structures and tenant rules and regulations, as these should be aligned. If alignment is not made, then when building managers try to enforce these policies, they can feel some backlash from numerous building stakeholders, as they are not mandated. Therefore, creating collaborative teams and opening communication systems were needed:

- Working with legal teams to amend leasing language and tenant rules and regulation language in leases.
- Working with building management teams to develop policies and find pilot property to test artefacts.
- Working with building tenants and having them adopt policies and building wellness labels.

The design and development of this process began in July 2016. Policies were designed with international green building standards and made to connect with needed information for reporting, such as LEED certification and Global Real Estate Sustainability Benchmark (GRESB) assessment. It took the collaborative effort of in-house leadership and stakeholders in selected properties. The properties used for feedback were those that had become champions from previous efforts through communication, education, and branding. Drafts of policies were sent to different stakeholders for review and edits. Approval of policies was completed and launched during Earth month in April 2017.

Marketing was also developed at this time, and the policies were designed into two guides: a full document reference guide with how-to and steps for each policy and a playbook, a short summary book in an interactive PDF that helps the users also see the web of connections between the policies and understand how doing one can help them achieve the others (see Figure 49 and Figure 50).

HOW THEY'RE CONNECTED

SITE MANAGEMENT: Purchasing requirements for deicers, fertilizers, building/site cleaning products and maintenance equipment help achieve site management goals.

WATER EFFICIENCY: Purchasing requirements for deicers, fertilizers, building/site cleaning products and maintenance equipment help achieve site management goals.

ENERGY EFFICIENCY: Purchasing efficient electric-powered equipment contributes to energy use and GHG reduction goals.

WASTE MANAGEMENT: Purchasing and waste management are the start and end points in the use of all products, thus the same categories are found in both policies.

INTEGRATED PEST MANAGEMENT: Purchasing requirements facilitate the use of least-toxic pesticide applications.

GREEN CLEANING: Purchasing requirements ensure the use of less harmful chemical products.

FACILITY MAINTENANCE AND RENOVATION: Consistent purchasing standards are maintained for materials used in maintenance and renovation projects.

INDOOR ENVIRONMENTAL QUALITY: Purchasing low/no-VOC products and materials protects indoor air quality standards.

Figure 49: Example of policy connections, located on every policy introduction page (Source: Author)
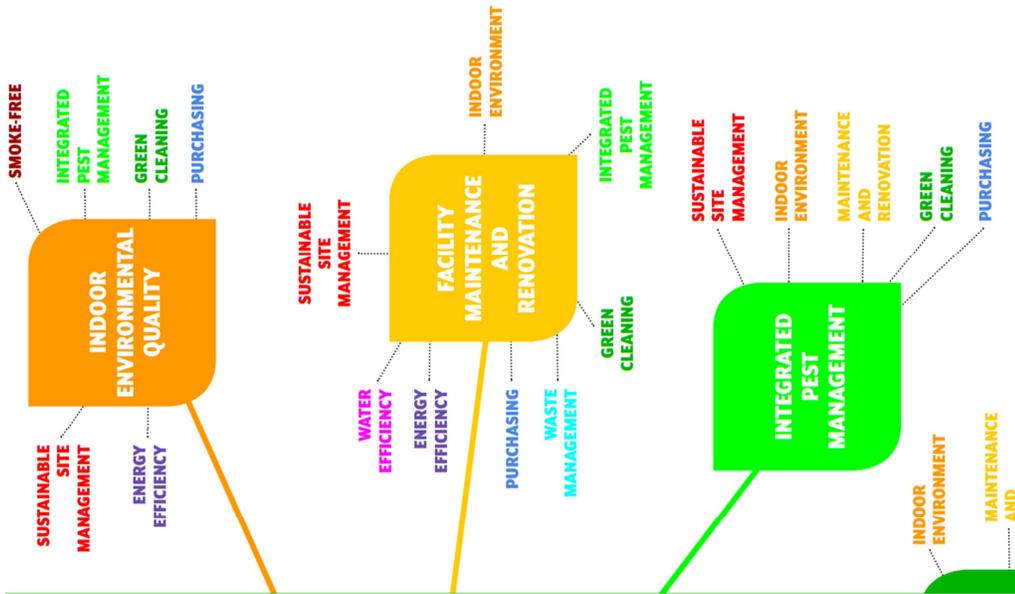
Figure 50: Image of the web of connection between policies (Source: Author)

As part of the marketing, education, and communication strategy, the Building Wellness label was developed to be posted in all building lobbies and communicates in full transparency what building policies are implemented as well as energy, water and waste information of the building. To further connect and influence, the Building Performance Award was designed and represented all policies. It was to be awarded to those who would first implement all policies in their buildings.

To continue to follow the building community and speaking the same language initiative, the author worked with the Real Estate Board of NY (REBNY) to develop a sustainability pledge for the real estate community. Working as part of the sustainability committee (made up of REBNY and other real estate leadership), the author suggested that a unified definition should be created to bring the community together, as that did not exist in the NYC market. The author reviewed existing themes that would benefit the larger community starting in May 2017 to design and develop a draft by June 2017. The process included an in-depth review of what would be the best definition or criteria that works best for the real estate investment community and supports TEI's investment and sustainability direction. Final conclusions found a common link to the UN sustainable investment criteria. From that point on, a pledge was designed, developed, and brought to the committee for review and approval. REBNY team reached out to the UN and other members for feedback. The document came to be called a Sustainability Statement for its members, and in September 2017, Time Equities Inc., along with other leading real estate members, signed the statement. This was beneficial to many because it helped create a stronger community under one vision, helped show REBNY's commitment to sustainability, and helped build TEI's brand in the sustainability market. See Figure 51 for the communication of the pledge.

Figure 51: Real Estate Board of NY – Sustainability Pledge Communication

Branding initiatives

The initial interview findings revealed that sustainability was not understood or marketed at the organisation. First steps were to start the branding process for the organisation on the sustainability side of things. Through the review process, an existing website was found, but it was outdated, had false information, and did not have any branding that connected it to the

original organisation. Connecting this to the developed IDT framework strategies should align branding, communication, and community together as the development of speaking the same language was established. From initial research, branding should be created for the following reasons:

1. To engage internal stakeholders
2. To engage external stakeholders
3. To develop transparency/reporting

This process aims to align messaging with the organisation's mission and vision while making sure messaging is translated to all internal and external stakeholders. The first step was to build on the existing brand.

Rebranding Existing Logo – Innovation is about tweaking what already exists, that is, taking the already-known image of TEI and tying it visually to sustainability.

The first strategy developed was taking the existing logo of TEI that was blue and making it green. The colour was chosen to match those in the marketplace that signified sustainability, and branding initiatives were built on that. TEI also created a company in 2008—Greengineers—to work on their sustainability projects in their own and managed buildings. This organisation was not marketed or connected to the parent company. As part of the strategy, two artefact logos were developed and trademarked for the corporation. One was simply the TEI logo, which is a standalone logo, and one that has TE Greengineers. The research found that the name Greengineers was confusing to many people, so the logo was designed to communicate the importance of Green by making it bolder when it was being read. The marketing and sustainability teams could use the logos in multiple communication or branding initiatives (see Figure 52).

Figure 52: Redesigned Logos for the Sustainability Team (Source: Author)

This was followed by the redesign of the organisation's website, which communicated the Global Citizen Pledge and other initiatives being pursued by the organisation, and created communication campaigns for transparency, marketing, and reporting.

Communication initiatives

From the initial interview findings, it was recognised that all departments worked in silos, even teams worked in silos, and best practices were never shared. Every team ran their buildings differently, and there was no coherent way to gather the information needed for sustainability reporting, data collection, and understanding of the portfolio's footprint. From the initial research, communication should be developed for the following reasons:

1. Opening communication channels, both internally and externally
2. Developing standards to convey the same message
3. Developing accountability

Working within the IDT framework and its connections, strategies were built to open communication systems, educate both internal and external stakeholders, and develop standards. Some of these strategies and artefacts developed were as follows:
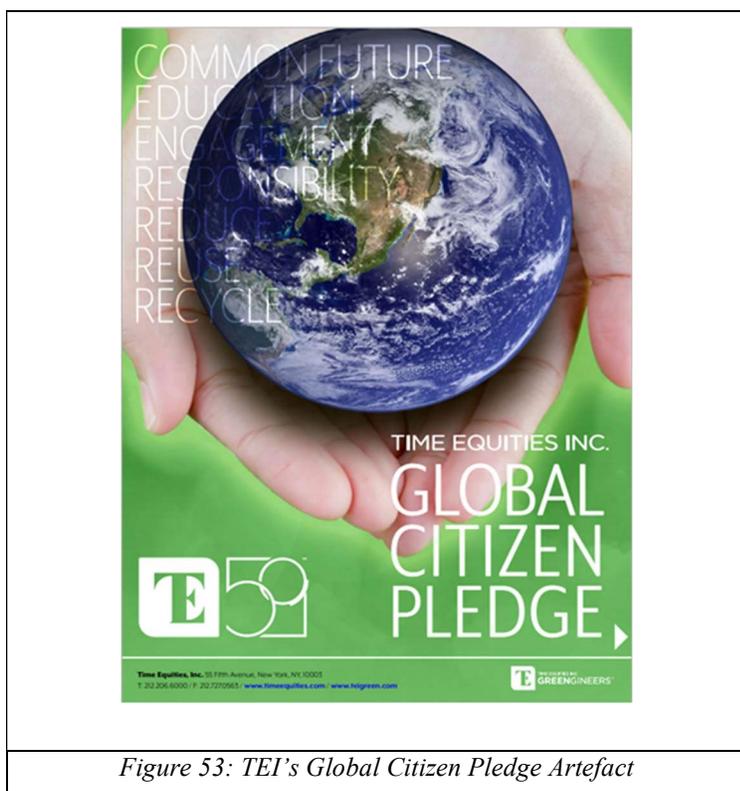
Figure 53: TEI's Global Citizen Pledge Artefact

• *Global Citizen Pledge* – This document defines sustainability foundations that the organisation stands for and strives towards (See Figure 53).

o This was signed by 90% of headquarters personnel

o It was communicated to all third-party partners

o It was communicated to all investors

• *Building Policies* – This is a book of policies that are defined and broken down for the management of all properties. This include a reference book and its play book (quick reference version). These were designed to help communicate what is expected to be done at the building level and to create the same language for all management teams.

• *Building Wellness Facts* – This is a visual that would be placed in lobbies or well-travelled areas in the building, built into leasing language, and written detailed information communicating

policies. This is designed to help communicate with and educate all building users about what building policies are followed and what percentage of environmental reductions are being made in the building, such as energy, water, and waste reductions.

- *Lunch and Learn committee* – Developed to help others understand what each department does and how to help in the process. The committee shared best practices to aid in breaking down silos.

- *Real Estate Board of NY – Sustainability Pledge* – Designed and developed it by June 2017 – Company and other leading organisations signed it in September 2017. This was developed to follow UN sustainable investment criteria to help communicate to external stakeholders and create accountability for the organisation with its peers.

- *Paris Climate Accord letter and communication* – Worked with internal leaders to develop letter language and approval by owners. This was done through informal meetings that discussed the importance of participating as a company, how it relates to its initiatives, and how it affects the brand. The letter was sent out internally and to the external community. This was done to solidify the organisation's commitment to sustainability, build the organisation's brand as a leader in this market, and show accountability to those associated with the organisation. It helps solidify what is expected and what the organisation stands for (see Figure 54).

Figure 54: TEI Marketing Communication Social Media (Source: Author)

Community-building initiatives

From the initial interview findings, it was recognised that there was no community mindset in the organisations, individuals, or individual teams. A majority of stakeholders worked for themselves and did not consider others. In a company of only 150 people, nobody really knew each other, communicated or collaborated. From initial research, a community should be developed for the following reasons:

1. Internal stakeholder engagement
2. External stakeholder engagement

Empathy is a core aspect of building relationships and positive interactions and is an important aspect of any community success. Through observations, interactions, and interviews, research finds that there was no empathy built to any part of this organisation. It is a silo institution with all parties focused on their own well-being, and no one else matters. As a flat organisation, everybody reports to the owner and has their own work and their own revenue process. The company's structure was that money was to come back to the organisation and each team charged the other for supportive services or any help. This model made it harder to break down silos, as trust is non-existent in the organisation. Focusing on the three areas of community, communication, and branding has helped penetrate this type of ridged environment. In February 2016, an internal Community Building Strategy was launched. This started with the introduction of lunch and learn events (discussed earlier) and social-themed events and gatherings. The first social-themed event was held on Feb 14th, Valentine's Day, and was themed co-worker appreciation. This was communicated to all before the event, and a sign-up sheet and instructions were sent out. About 20 stakeholders from different departments attended. Everyone would have to bring a $10 gift to give to a co-worker. At the event, a game was played, and individuals got to trade gifts from each other. The event was a success, as everyone enjoyed themselves and got to know others better. This also helped build internal champions and volunteers for future events, committees, and those who became confident in bringing ideas of improvement forward. These events influenced leadership to see the need for community-building events and their positive effects. As part of the wellness committee launch in January 2018, a discussion of hiring an extra HR individual who would focus on these events and the employees' wellness was being looked into.

It is with the understanding that little initiatives are as important as larger holistic strategies; these can lead to greater results. Design thinking helps one see beyond the issues to find creative and innovative solutions. One example used in this case focused on community building. This concept developed from observations that as people were meeting each other at Lunch and Learn or other created networks, they did not know where anyone they met was located for them to engage them again. So as part of a solution, working with the internal architecture team, a floor plan with everyone's name and phone extension was created and brought to leadership for approval. This was then sent out to all employees and given to all new employees. This artefact opened doors for communication and connection to all employees. It also helped influence an employee to bring an idea to the Change Committee to develop an internal website database of all employees, including their titles, work, and pictures. This internal site was created by

September 2017. This was led by the employee who brought the idea forward and other internal volunteers. Some of these strategies and artefacts designed for community buildings were as follows:

- *Internal community gatherings/holidays, and celebrations*. These events created a sense of unity and connection with internal staff that was not there before. They helped create empathy, care for others, and foster trust.

- *Wellness committee.* This was launched in 2018 to help develop a parental leave policy, re-evaluating HR, and Hiring New Person to manage those policies. This committee evolved from understanding the need to care for employees and work that the organisation must transition to for its internal community.

- *Lunch and Learn committee.* This was developed to help others understand what each department does and how it aids in the process. People from all departments joined, got to eat together, and discussed a topic for one hour.

- *Real Estate Board of NY – Sustainability Pledge*. Helped unify and identify the organisation with a set group of leaders in the industry. This is made visible to those who want to invest, rent, or work with/for TEI.

- *Paris Climate Accord letter and communication*. Helped unify and identify the organisation with a set group of leaders in the industry. This is made visible to those who want to invest, rent, or work with/for TEI.

IDT process has allowed stakeholders to connect with others, see how they do things, help them focus on their needs and others' needs simultaneously, help them become community makers, and become leaders at all levels as it helped build knowledge. Stakeholders became designers, leaders, and community members with empathy for each other.

Pilot and testing

Design thinking defines business challenges and finds new ways to address them by combining empathy, creativity, and user feedback (processes and practice) as it solves problems (Gremett, 2011). Throughout all the steps of this study, design thinking methodologies were used. After every event or artefact roll out, feedback was sought out and received from participating stakeholders, and if needed, adjustments were made to the specific initiative. Examples of pilot and tested artefacts include:

- *Building Policies* – This is a book of policies that are defined and broken down for the management of all properties.

- *Building Wellness Facts* – This is a visual to be placed in lobbies or well-travelled areas in the building, communicating the policy book.

The building policies were vetted in an internal process for them to be approved, as discussed previously. To continue the process of embedding it into the portfolios holistically, two sites were chosen as the prototype buildings. One building was in New York City, and one was in another state. The buildings were chosen because of the champions that were already in place internally and at the external locations. These included asset management teams and facility management teams. Working with internal and external champions, educational information was created and given about both the Policies and Wellness label. Working with building stakeholders (some of these were building facilities' management and engineering teams, CO-OP board, tenants, and building vendors), educational information was brought to them to guide them to best practices in the building. This process aided in understanding the challenges that should be analysed so solutions can be developed. The processes were then designed for implementation and can be eventually replicated in other locations. Prototypes and testing are there to help catch the challenges that others might face before a larger-scale execution occurs.

As observed from this case study, utilising design thinking methodology has helped bring a human-centric process that integrates expertise from multidisciplinary backgrounds to create a collaborative and iterative improvement to innovative systems, processes, and services (Chick and Micklethwaite, 2011; Liedtka and Kaplan, 2019). It has promoted a vibrant interactive atmosphere that encourages learning through rapid conceptual prototyping. It has helped create an adaptive body of behaviours and values to help transition an organisation's culture to desired outcomes.

5.3.4 Initial findings review – Case Study 3 Summary

This case study commenced with knowledge gathered from Case Studies 1 and 2. It is underpinned by findings suggesting that unifying branding, communication, community, speaking the same language, and design thinking aids in culture change for sustainability implementation. The preliminary research conducted upon entering Time Equities Inc. aimed to investigate and build strategies around these five core imperative areas, as other data-collecting approaches were implemented.

The findings of Case Study 3 suggest that in established organisations, the change agents are required to develop systems to manage the change of mindset, processes, and behaviours deeply embedded. The research has revealed that building an empathetic, collaborative, and learning internal community enables

the change agents to influence and design change as they move the organisation in the desired direction. The case study uncovered that the change agent should identify internal practices and barriers to transforming individuals, processes, people, and policy. Furthermore, findings illustrate that they have to build a strategy that would educate, open communication systems, and build trust with all stakeholders to be able to manoeuvre any sustainability initiative in the future. Therefore, empathy emerges as a core aspect of building relationships, positive interactions, and an essential element of community success, impacting community building, collaboration, and opening communication systems in the organisation. It can be concluded that design thinking should be taught and applied to all stakeholders so that as the strategies start to be implemented, champions at all levels can take on responsibilities and help move the organisation in the desired direction.

From these findings, it can be assumed that design thinking aided the empathy-building process and innovation for the organisation. The data further revealed that this allows one to see beyond the issues to find creative, innovative solutions. This case study also allowed the understanding that small initiatives are as important as larger holistic strategies, which can lead to more significant results. The findings illustrate that the IDT process has allowed stakeholders to connect with others, realise how they do things, help them focus on their needs and others' needs simultaneously, and help them become community makers and become leaders at all levels, as it helps build knowledge.

After further analysis of the data, it was observed that not all core imperatives were managed or perceived equally. Branding, communication, and community are tangible concepts, but design thinking, speaking the same language, and empathy are intangible; this led to the evolution of the IDT framework structure and alignment of the core imperatives. The three core imperatives can be independent and function as individual focus concentrations. Still, they should work in unison and be aligned with each other, as they are interconnected. The remaining three core imperatives, Design Thinking, Speaking the Same Language, and Empathy, are strategic tools for these areas' strategies that are to be used holistically in the organisation. The research reveals that they should be embedded in the core of all stakeholders' behaviours. Figure 55 shows the evolution of the model framework.

Figure 55: Integral Design Thinking Evolution Framework Model (Source: Author)
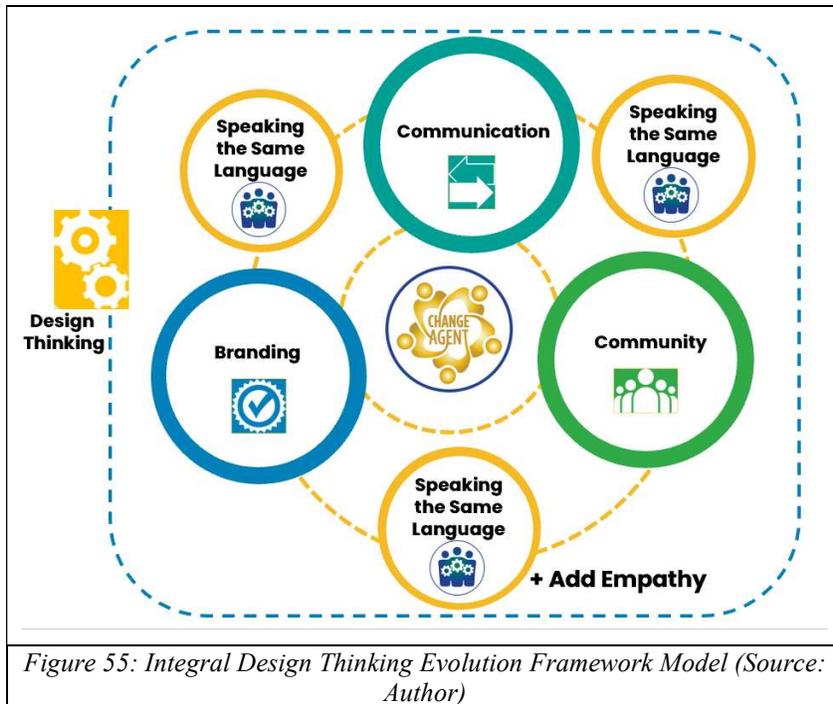
This case study highlighted the importance of empathy in the overall process and how it should be built into all levels as well. The addition of empathy to the IDT framework as a main aspect of the strategic framework was considered. Design thinking's initial task is to empathise for the specific task, understanding users and who you are designing for; however, the research revealed that empathy should be a holistic concept embedded into the organisation to streamline behaviour change. These findings have evolved the framework and the evaluation that empathy requires to be incorporated with speaking the same language into communication, community, and branding strategies. This brings the artefact to have six core imperatives of concentration: design thinking, community, branding, communication, speaking the same language, and empathy. After evaluation of the data and findings of Case Study 3, eight major takeaways were uncovered; the first six matches the findings in Case Study 2, but two new findings were revealed from this case study (see Table 15 for detailed information):

1. There was a lack of empathy and collaboration in the organisation to inspire others to follow through and to become champions for the organisation towards sustainability.
2. There was a lack of a shared vision and proper communication at all levels of the organisation.

Case Study	Research Problem	Action Research Reflection Projects / Artefact Creation	Integral Design Thinking Framework Development
Company C	**Imbed Sustainability into Organization**		
Case Study 3	Nobody understood what sustainability was to the organization	• Created a Green Innovation Team with representation from all levels of the organization • Created an informative company wide presentation that initiated the definition of sustainability for the organization • Created a company pledge that defined sustainability for the organization • Created Lunch and Learn events that introduced sustainability strategies and technologies for the real-estate market	Speaking The Same Language / Empathy / Communication / Branding / Community
Case Study 3	Every department and acquisition team was siloed, made it difficult for the sustainability team to do it's work	• Created company team building events for internal staff from all departments • Influenced and supported the creation of the Educational Committee that hosted a lunch and learn for internal departments to share information • Influenced and supported the creation of Change Committee to address needs of the organization holistically	Communication / Community / Empathy / Holistic Design Thinking Methodology
Case Study 3	There was no true understanding of where the portfolio and sustainability footprint was for the organization	• Created strategies for data collection and a platform for reporting to share data with internal and external stakeholders • Created a logo and brand image	Branding / Communication / Speaking The Same Language
Case Study 3	Sustainability was not communicated internally or externally	• Assisted in the creation of a website for information sharing and transparency development for the organization • Designed and developed marketing information for internal and external stakeholders	Branding / Communication / Speaking the same language
Case Study 3	Internal Management leadership did not work well together and that hindered the progress or ability of the sustainability team	• Influenced and supported the creation of the Management Development Committee • Influenced and supported the creation of the Executive Committee	Communication / Community / Empathy / Holistic Design Thinking Methodology
Case Study 3	Not every team managed their properties the same way and that made it difficult for the sustainability team to gather data and develop comparative reporting	• Designed and developed building sustainable building policies, connected them with leasing and legal • Designed a Building Nutrition Label to communicate to building occupants, connected it to building policies, leasing and legal • Designed an incentive program that was connected to Building Nutrition Label, Building Policies, Leasing and Legal	Communication / Speaking The Same Language / Community / Holistic Design Thinking Methodology
Case Study 3	Federal Mandates and City Regulations causing stress on costs and influence of getting things done	• Designed and created a REBNY Sustainability Pledge to unify Building Management Community • Signed the "We are still In" Paris Climate Agreement • Influenced and supported the creation of the Wellness Committee	Branding / Communication / Community / Empathy / Speaking The Same Language

Table 15: Research Connections – Case Study 3 (Source: Author)

5.5 Conclusion - Comparative Analysis of Case Studies

All case studies have revealed the importance of human-centric change management and that design activities are social in nature. For true change to occur, it is imperative to satisfy human needs and acknowledge human elements at all levels. This can be achieved by establishing a learning and evolving company mindset. Design thinking mindsets give the ability to recognise change events and accurately plan for future outcomes, while increasing collaboration, relocating resources, and improving processes to help the organisation be more flexible to change initiatives. Creating such perspectives allows all involved in the change to understand the organisation's current state and be able to innovate a path to meet projected future needs. The case studies illustrated that the IDT strategy framework aids change management leadership in evaluating the viability and executability of response actions to ultimately implement and commit those that transform scenarios into success.

All cases demonstrated that there is a lack of understanding of what sustainability means to the organisation. They revealed that the absence of communication, community, and branding alignment has made it more difficult for leaders in sustainability roles to advance their needed change agendas forward. The overall research path and case study development uncovered the evolution of IDT within the research. This process was initiated by strategic planning and led by the use of design thinking methodologies. Furthermore, obstacles that existed and interfered with the organisation's evolution were recognised and evaluated throughout the process.

The differences between Case Studies 2 and 3 were leadership support and action. The success rate in Case Study 3 was better as the leadership implemented change and followed through with its messaging. In Case Study 2, leadership dropped the ball on the transformation efforts; this gave internal stakeholders the perception that they did not care, leading to inaction by those involved. It was clear that the small steps taken by leadership are the building blocks that help build trust and a collaborative environment. Furthermore, it can be concluded that understanding how micro efforts affect macro-ones is essential, as leadership creates strategies for the overall organisation. For example, in Case Study 3, top leadership took on roles to show care; they made small and large initiative moves to establish guardianship for their people. They also gave a voice to all stakeholders who helped create bottom-up innovations.

This study was designed to understand a holistic, high-level strategy for implementing change. The study revealed that sustainability management leadership should map the design process with what steps need

to be taken to aid in faster adoption and implementation of sustainability/ESG initiatives. The findings reveal that the areas a change agent should understand and improve are:

1. Implementation of a design-thinking mentality on a holistic level
2. Make sure messaging is understood and stakeholders understand how to speak the same language at all levels.
3. Make sure that empathy is built into all aspects of the company's mentality.
4. Opening communication channels and improving the process.
5. Aligning branding messaging to organisation, communication, and mission.
6. Make sure the community is built internally and connected to external channels.

CHAPTER 6: Extension and Validation - Interview of Leaders in the Industry

6.1 Introduction

Drawing on interviews with 17 leaders of social, governance, and environmental (ESG) sustainability to further validate the integral design thinking (IDT) strategy framework. Interviewees were selected by their positions in the industry and by the recommendations of other leaders (refer to Table 9 in Chapter 3). From the public sector, interviewee leaders worked in the government, healthcare, and education sectors; from the private sector, interviewee leaders were from real-estate, manufacturing, technology, banking, and entertainment. Some interviews were conducted in person when possible, and others were conducted via conference call. All were hand documented, and some were also recorded.

Researching these organisations revealed that irrespective of the type of industry, leaders in sustainability management address the same themes. Some examples are shown below, and they include a review of a sample of the companies' virtual sustainability messaging and transparency taken from their website:

- **Verizon** has a *responsibility* section on its website that is branded as '*citizenverizon*' with a slogan of 'Taking responsibility for our shared future.' This initial section talks about environmental, social, and governance (ESG) issues. This is also used to show the transparency of actions to differentiate themselves for both employees and customers. There is a *recognition* sub-section where they market their efforts and show how they are better than the competition. For example, they stated, 'Verizon has been listed for three years in a row, but this is the first year as an industry leader. Verizon ranked #19 as an industry leader in Telecommunications; ATandT ranked #23 and T-Mobile #49th.' in the 2020 Forbes Just 100 List. (https://www.verizon.com/about/responsibility, Accessed Nov. 2020)

- **Advanced Micro Devices (AMD)** has a *corporate responsibility (CSR)* section on its website that has branding of 'purpose, people and planet.' It is a hub for transparency for the organisation, the core issues the company focuses on, and third-party recognition awards for their work in the environmental, social, and governance issues. Information about the giving community is also highlighted. (https://www.amd.com/en/corporate-responsibility, Accessed Nov. 2020)

- **Microsoft** has a *CSR* that covers ESG issues. They have branded their sustainability page only with 'Reduce and replenish'; the rest is not branded but has information and transparency on important issues to the organisation and their effort. These include sustainability, justice reform,

and community engagement (https://www.microsoft.com/en-us/corporate-responsibility, Accessed Nov. 2020).

- **Capital One** has a specialised site for their *sustainability* messaging environment.capitalone.com. This covers topics on their commitment to ESG issues. It also has a tab on accountability and recognitions, where they have their environmental milestones, reduction data and awards (https://environment.capitalone.com/, Accessed Nov. 2020).

- **Inova Health System** has a *sustainability* web page that is branded 'Inova Is Committed to Establishing an Environment That Is Safer and Healthier for Our Patients, Team Members and Community.' This is where they communicate their efforts and transparency for their environmental and community work. This includes sustainability reporting, environmental causes, and community volunteerism events. (https://www.inova.org/sustainability, Accessed Nov. 2020)

- **Tishman Speyer** has a *sustainability* section under its expertise on their website. This shows transparency about their commitment, certifications, reporting, ESG policies, and partnerships. There is a quote from top leadership about the organisation's commitments: 'We leverage cutting-edge technology and industry-leading operations, and construction practice to build sustainable properties around the world.' Rob Speyer president, and chief executive officer. (https://tishmanspeyer.com/expertise/sustainability, Accessed Nov. 2020)

- **Humanscale** has a *CSR* section as part of its about page that covers ESG issues. They have built transparency in their annual reporting and brand messaging with 'Less bad is not good enough' and 'Working to Create a Net Positive Impact.' (https://www.humanscale.com/about/csr, Accessed Nov. 2020)

The organisations are publicly claiming environmental, social, and governance positions, and an assumption can be made that the samples reveal that these organisations have developed reporting about the company's ESG activities and collected data to back up their statements. These statements showed that they have had to create communities for volunteerism and philanthropy efforts to communicate them out to the public. The format of the messaging and the ability to collect it reveal that they have had to build messaging for communication and branding to external stakeholders, and have utilised this messaging to show leadership in their market.

As these examples demonstrate, each organisation finds a way to define and communicate sustainability to its internal and external stakeholders. It is perceived that they are developing ways to communicate it out for transparency, build it into their branding and into what the company stands for, and develop a

community around what the company believes in. The interviews were conducted with the leaders that have worked to help develop or grow these initiatives, data collection, and marketing for the organisations.

Chapter 6 will cover Phase 3 evaluations, where the validation and extension of the ideas of this research are explored. The following will cover a discussion of the interview process, outcomes, and conclusions. The selection of participants for the interviews was designed with an interdisciplinary approach. The premise is that this generates an understanding of themes and ideas that cuts across disciplines as it aids in finding the connections with relations to the real world in the context of organisational sustainability management. This chapter is organised in the following format:

• Analysis

• Results

• Interviews summary and takeaway

6.2 Analysis

The overall questions were designed to assist in understanding the connections, challenges, and themes between sectors. These findings were then compared to the IDT framework for further analysis and evaluation. The interviews were examined through 'reflexive thematic analysis', where coding is open and organic and themes are the outcomes of data coding and iterative theme development. Braun and Clarke (2020) advised that 'Analysis, which can be more inductive or more theoretical/deductive, is a situated interpretative reflexive process' (p. 6). The interviews were first transcribed to initiate the initial process of defining parameters and finding gaps, and then patterns were identified within and across the data. The next steps taken were to take segments of the raw data relevant to the research questions, build blocks for the analysis, and develop the foundations of themes. The next steps were the analysis and development of broader patterns of meaning, connections, and influence that are important to the relation to this study's aims and objectives (samples of the information documented are in Appendix F and G). Sample coding examples are represented in Tables 17,18,19, and 20. This process is used to generate ideas and connections for the overall findings of the research and interview process. Through reflexive thematic analysis, the authors' first step was to find meaningful answers to the research questions. The data were transcribed and analysed then coded. Coding simply involves the author distinguishing connections and discrepancies in the data. The codes, or classifications to which each idea is mapped are then put into context with each other to create themes. A theme encapsulates critical facts about the data related to the

investigation's question and signifies some level of patterned response or meaning within the data set. Conclusions are then made to the response to the research questions, or purpose of the study (Braun and Clarke, 2006).

Findings from the interviews indicate that sustainability has transformed from what it was a decade ago. The three critical change themes identified are as follows:

- **The evolution of sustainability**
- **Developing a process** to help push sustainability imperatives
- **The evolving sector** has brought with it demands that should be addressed by sustainability leadership.

The interviewees suggested that change is driven by external and environmental factors and the choices that organisational leadership takes. The six sub-themes that were developed through analysis are as follows:

- The evolution of sustainability
  - **Innovators and socio-political activists**
  - **Cultural challenges should be addressed and understood**
- Developing process
  - **Internal drivers have pushed organisations to rethink how they manage and run their organisations.**
    - Unity and collaboration
    - New methodologies
    - Find ways to improve communication
  - **The lack of a holistic strategy is the downfall of all change initiatives.**
    - The integrative design development process
    - Unifying messaging
- Evolving sector
  - **Lack of leadership at the helm**
  - **External drivers have pushed organisations to add sustainability/ESG leaders to their organisation**

The overarching themes that were formed through the analysis showed the following as the strategic thinking strategies that should be considered:

- **The integrative design development process**
- **Unified voice and messaging**
- **Align change with organisational culture and benefits**
- **Be adaptable and allow for evolution**
- **People matter**

6.3 Results

The following sections review the findings and analysis of the 17 interviewed leaders. Review of coding, analysis, and key themes developed. The author presents information derived from the responses given to the questions associated with background and role, value, marketing, and communication, factors of sustainability, and leadership views and comments. Overall, the findings demonstrate that, compared to 10 years ago, the sustainability market has transformed and continues to do so in the United States. These changes result from role redefinition, ongoing evolution, and process reinvention.

Table 17 provides an understanding of the interviewee's background and roles. These were broken down into six categories: if they moved into the role from within the organisation; if they were responsible for sustainability; if they were at the organisation for more than seven years; whether they had to influence the organisation holistically; if they were involved in sustainability for more than 10 years; and whether they were responsible for the CSR of the organisation as well.

Table 18 provides an understanding of value and marketing. Similarly, they are represented in six categories: if sustainability was part of the mission statement of the organisation; if there was communication developed for internal stakeholders; if there was communication developed for external stakeholders; if reporting was mandated; and if suitability was defined; and whether data needed to be collected.

Table 19 provides an understanding of communication. Similarly, six categories emerged: if the organisations had silos; if the interviewees had to create collaborative teams; if it was only a top-down communication strategy and process; if it was only a bottom-up communication strategy and effort; or if it was both a top-down and bottom-up effort; and if there were any green teams or committees developed.

Table 20 provides an understanding of the factors of sustainability. These were also broken down into six categories: if there were any federal mandates; if there were client/investor demands; if there were employee/student demands; if there were local regulation demands; if the head of the organisation promoted and bought into sustainability efforts; and if transparency should be developed. These helped to identify themes, produce findings. The evidence was then reviewed and analysed to find connections and themes.

This information was subsequently compared to the literature review and case study information gathered throughout the study.

6.3.1 The evolution of sustainability

Background & Role	Moved into Role	Responsible for Sustainability	7+ years at organization	Influence Organization	10+ Years involved	Responsible for CSR
Technology	X	X	X	X	X	X
	X	X	X	X	X	X
	X				X	
Banking	X	X	X	X	X	
Education K-12		X		X	X	X
Higher Education		X		X	X	X
		X		X	X	X
Real-estate –TA	X	X		X	X	
Real-Estate – A&M	X	X	X	X	X	
	X	X	X	X	X	
	X	X	X	X	X	X
	X	X	X	X	X	
	X	X	X	X	X	X
Government		X			X	
Healthcare	X	X	X	X	X	X
Manufacturing	X	X	X	X	X	X
Entertainment	X	X	X	X	X	

Table 16: Interview Findings - Background and Role (Source: Author)

The Evolution of Sustainability has brought the need for these leaders to take on more responsibility and become socio-political activists and innovators. Understanding the evolution of individuals' industries and roles is important to address the gap of the study. The initial research concept is that current leadership roles do not understand the need or have the background to address change management and strategy development required for the embedding of sustainable behaviours into the organisational culture. Initial questions were asked about background and role (*see Table 16*).

The findings demonstrate that about three-fourths of the interviewees moved into their role internally when a need in the organisation developed. Some of the demands included reporting mandates, city policy mandates, and customer transparency demand. The remaining interviewees were hired to fill roles that followed the same path. This shows that, as the industry was adjusting to requirements, internal personnel stepped up and took over the work that had been demanded from the organisation from outside sources. One example of this is Human Scale, which had initial demands for certification of their products. Jane Abernathy was an industrial designer at the organisation and volunteered to take on the extra work of certification for their product to become LEVEL certified in 2010. By 2012, higher demands were placed on the organisation, her team grew, and she gained the title of Sustainability Officer; by 2018, her new title as Chief Sustainability Officer was given 'so the company can communicate the value it places on sustainability and give me more power to influence and engage everyone at all levels' (Jane Abernethy, Humanscale 2020).

The increased role of leaders has pushed them to attempt to figure out how to collaborate with other agencies, departments, and third-party stakeholders; they have had to learn how to be strategists, change-makers, and influencers. More than half of the interviewees stated that they had been at their organisation for more than 7 years and transitioned into their roles from other sectors. Almost all participants led their organisations' sustainability initiatives and mandates, while all had a passion for or interest in sustainability for ten years in one way or another. More than three-fourths of the participants had learned to be influencers in their roles to get anything done. These roles are growing to not only include environmental criteria, such as energy, water, and waste but also social and ethical responsibilities, from philanthropy to social and ethical implications and policy. About half have said that their role has transitioned to include CSR over the past few years. This shows that they have had to learn how to be **innovators** to transform existing organisational behaviour so that they can implement the necessary change.

This is forcing leaders in these roles to become **socio-political activists** as they instil behaviour and policy change to the organisations in which they work (Horrigan, 2010; Champniss and Rodes, 2011). For example, Jonathan Flaherty of Tishman Speyer moved into his role because he understood the organisation's culture and how to influence from within. He shared that the organisation had hired two sustainability managers from 2007 onwards, but neither was able to produce what was needed at the organisation. As he had started with the organisation from the ground and moved his way up in the organisation, the leadership approached him to take on that role. Understanding culture and how to manage

it in an organisation is of great importance for the success of sustainability management leaders. Further discussions on this topic are presented in Chapter 7.

The interview findings revealed that more should be done in this transition and the necessity to better understand how to move the process faster. These leaders understand that it is essential to create environments that have communities working together in one vision and not only concentrate on the self. On the evolution of the market, Justin Murrile states, 'It's time to link arms and step forward and help each other to come along.' Where the market has coined and focused on the triple bottom line of people, planet, and profit, the evolution of understanding the issues and a holistic vision of influence brings in the concept of purpose. Seema Wadhwa of Inova Health System stated, 'Purpose is the foundation people, planet, and profit are built on.' Focus on the purpose with those elements in mind is vital to drive the mission and vision of the organisation and create a profitable culture while it is caring for their people and the communities they operate in. All the leaders interviewed stated that their organisations wanted to attract the best talent, retain employees, and understand the need to push their organisation to do more. Human Scale's Jane Abernethy, who has been leading the US-based manufacturing company's sustainability initiatives, sees the importance of helping define and unite the vision of their stakeholders to purpose. She recently defined the course of action for internal stakeholders as 'Net Positive = Doing more good than Harm.' This is the first step to start changing mindset and aligning the process with intent. This shows that **cultural challenges should be addressed and understood** as these leaders look to rebrand and transition behaviours in the organisation.

6.3.3 Developing process

Value & Marketing	Part of Mission Statement	Internal Communication	External Communication	Reporting	Sustainability Defined	Data Collection
Technology		X	X	X	X	X
Technology	X	X	X	X	X	X
Technology	X	X	X	X	X	X
Banking		X	X	X		X
Education K-12		X	X	X	X	X
Higher Education		X	X	X		X
Higher Education		X	X	X		X
Real-estate –TA		X	X	X		X
Real-Estate – A&M		X	X	X		X
Real-Estate – A&M		X	X	X	X	X
Real-Estate – A&M	X	X	X	X	X	X
Real-Estate – A&M		X	X	X		X
Real-Estate – A&M	X	X	X	X	X	X
Government		X	X	X		X
Healthcare	X	X	X	X	X	X
Manufacturing	X	X	X	X	X	X
Entertainment	X	X	X	X	X	X

Table 17: Interview Findings - Value and Marketing (Source: Author)

As the market continues to change and demands increase, leaders are still exploring how to execute needed changes and **developing process** requirements. Table 17 and Table 18 show quantitative summaries of the results from interviews. The interview findings revealed that transparency is a major factor in their effort and the need to collect data has influenced the development and the growth of the sustainability teams. Some examples of data collection are for reporting, transparency in action and disclosures, and benchmarking. This is being pushed by the market of consumers/employees that want to support organisations doing the right thing for the health of the environment, their people, and the communities in which they live (Engert et al., 2016). For the 17 multidisciplinary organisations, all those interviewed said that they had to work with others and create collaborative teams to get their work done. They affirmed that they all developed green teams and committees of stakeholders at all levels to build champions and have influence in all areas of the organisation. They agreed that creating *unity and collaboration* is a necessary ingredient to be able to embed sustainability into their organisation (Capra, 2002; Senge et al., 2008). For example, Jim Landau from Met Life Real Estate disclosed that he was the chairman of two committees that were created to help develop and push sustainability initiatives. The first was the ESG

Advisory Committee, which had the heads of the major departments that included marketing, equity, and development. This committee would collaborate on what the path, goals, and efforts of sustainability would be for the organisation. The second committee was the ESG Working Group, which was made up of managers and stakeholders from all parts of the organisation, including architects and asset managers. This collaborative team takes the requirements developed by the ESG Advisory Committee and finds ways to enact them. He stated that this facilitates building champions, developing adaptable measures, and creating ownership to the cause for easy adoption and implementation.

The interview findings show that *new methodologies* should be established at the organisation to help push the Sustainability initiatives. From building on internal and external communication systems, finding ways to develop transparency, collecting data needed for reporting, breaking down silos, and developing collaborative teams (Gnyawali and Madhavan, 2001; Benn et al., 2014; Oskarsson and von Malmborg, 2005). These efforts should be developed to be both top-down and bottom-up for better adoption. One of the objectives of this study was to review the organisational approaches, methodologies, and tools that are deployed with respect to innovation and change management processes, including top-down and bottom-up approaches and their effectiveness.

The interview findings illustrate that leaders in these positions should be influencers, show passion, and drive to be effective in their roles. They should be able to create collaborative efforts with both internal and external stakeholders. Justin Murrill of Advanced Micro Devices (AMD) stated, 'It has to be top-down and grassroots bottom-up approach while creating partnerships with outside organisations.' Leaders in these positions have to be able to motivate and connect with stakeholders at all levels, both internally and externally. A holistic strategic approach should be taken, but if the heads of an organisation do not fully advocate and support the change initiatives, then it will not be successful. Fulya Kocak Gin of Nareit stated, 'Strategy has to be top-down and bottom-up, but without the true vision of leadership, it will fail.' This was also stressed by James Gowen of Verizon, who stated, 'It has to be a top-down and bottom-up approach, but with a true leadership vision at the helm pushing it, Verizon has had that leadership that has helped us move forward.' These findings show that **internal drivers have pushed organisations to rethink how they manage and run their organisation.** These drivers include employee demands for social equity and work-life balance, the need to develop an internal organisational community, and securing the organisation's position in the market.

Less than half of those interviewed stated that it was only a top-down effort in their organisation, only two of those interviewed stated that it was a bottom-up effort in their organisation, and the remaining interviewees stated that it was both a top-down and bottom-up effort. The interviewees who created a top-down and bottom-up approach had the greatest success and ease in doing their work. This means having leadership that supports efforts, communicates them and has stakeholders from all levels of the organisation taking on these challenges and owning them. The evidence suggests that the ones that have only a top-down approach have not been able to change the behaviour of those in the organisation at all levels and have found difficulty in implementation. For example, Jonathan Flaherty of Tishman Speyer stated that his organisation has a top-down approach and that it is important, but to date, these behaviours are not part of their organisational culture. He stated, 'It is necessary to have top support, but it is difficult to push Sustainability measures across the organisation.' The ones who indicated they have a bottom-up approach asserted the difficulty of their job and that their efforts will not survive when they move on and that the next person who takes on the work has to start from ground zero. To build true lasting behavioural change and organisational culture adoption, it is essential that sustainability leaders manage top-down and bottom-up support and influence.

The interview findings show that sustainability leaders should ***find ways to improve communication*** to influence all stakeholders. They shared that communicating and branding messaging, both internally and externally, has helped the organisation build pride and support with consumers and employees alike. All of those interviewed stated that sustainability is marketed via internal and external communication channels. Some examples of internal communication are monthly newsletters, internal communication boards, email blasts, and organisational-wide information internal network pages. Some external channels are social media, such as twitter and LinkedIn. James Ford communicated that all Microsoft employees are encouraged to share all sustainability initiatives and messaging on LinkedIn and other social media platforms. He stated that when the new CEO, Satya Nadella, came on board in 2014, he changed their mission statement, 'To empower every person and every organisation on the planet to achieve more.' James said that from that time onwards, sustainability messaging and branding were elevated in the organisation. Less than half of the interviewees stated that only within the past year or two has sustainability been built into their mission statements. The remainder of the participants stated that their companies have defined and communicated what sustainability is and means to their organisation. Here, we observed that the market is experiencing the need for sustainability messaging to be more strategic and holistic and to be built into every aspect of the organisation (Martinez et al.,2019). In another example, a

strictly industrial design background, Jane Abernathy, from Human Scale, had to figure out 'how to be super clear about my ask and make it not a requirement or a have to do.' She had to figure out how to give people value, tie it back to a mandate, and make it reasonable to the individual. This was a challenge that all the interviewees faced.

Opening communication channels and building collaborative teams is necessary for any change initiative and adoption of sustainability in organisational culture (Nelissen and van Selm, 2009; Esty and Winston, 2006; Johnson et al., 2017). The findings show that all the interviewed sustainability leaders had to work and struggle to break down silos. Pete Zadoretzky of Bozzuto Management Company indicated that the sustainability initiative started around 2011, but he was hired in 2013 with no true foundations developed. He pushes sustainability initiatives, but if he leaves, there are no true foundations embedded into organisational process or culture and all efforts will be erased, and new people will start from ground zero. The interview findings show that if there is **a lack of a holistic strategy for implementation and adoption,** all attempted initiatives will fail (Mintzberg and Quinn, 1996; Freedman, 2013; Luca, 2020; Porter, 1986; Mintzberg, 1994; Stiner, 1979).

The interviews showed that all stakeholders affected by the change should be engaged and given ownership and a voice. Peter asserted that 'it is hard to get messaging across siloed teams,' and that is one of his challenges. All interviewees shared that the big challenge is in communication, collaboration, and influence efforts. Jane Abernarthy disclosed that she has learned to be extremely clear about her asks to others over the years, tying the ask to a requirement or something tangible and having to do's for the organisation. She said, 'Most people do not say now a lot if the messaging is clear but for those who do, give them time to think and keep asking, and give them the power of choice when possible'. She concluded this part of the conversation by stating that she sees the power of proper communication, acceptance, and influence when she gives value to what is being done and shows a path to their win and ownership of the cause. *The integrative design development process* will aid in the development of proper communication channels, and communication with empathy will streamline the efforts of sustainability leaders.

A review of the results revealed that understanding culture and how to manage it in an organisation is of great importance for the success of sustainability management leaders. Leadership should understand how to build and manage internal and external communities to influence and move them in the right direction. *Unifying messaging* with the organisation's mission and vision helps to break down barriers that sustainability leaders face as they attempt and change management initiatives. The market is experiencing

the need for sustainability messaging to be more strategic and holistic and to be built into every aspect of the organisation. The findings show that communicating and branding the messaging internally and externally has helped the organisation build pride and support with consumers and employees alike. Developing proper communication channels and communication with empathy will streamline the efforts of sustainability leaders. Collaboration helps build champions, develop adaptable measures, and create ownership of the cause for easy adoption and implementation. To build true lasting behaviour change and organisational culture adoption, it is essential that sustainability leaders manage top-down and bottom-up support and influence.

Communication	Had Silos	Collaborative Team	Top Down (TD) Effort	Bottom Up (BU) Effort	Both TD & BU Effort	Green Teams Or commits
Technology	X	X			X	X
	X	X	X			X
	X	X			X	X
Banking	X	X		X		X
Education K-12	X	X			X	X
Higher Education	X	X	X			X
	X	X	X			X
Real-estate -TA	X	X			X	X
Real-Estate – A&M	X	X		X		X
	X	X	X			X
	X	X			X	X
	X	X			X	X
	X	X			X	X
Government	X	X	X			X
Healthcare	X	X	X			X
Manufacturing	X	X	X			X
Entertainment	X	X			X	X

Table 18: Interview Findings Communication (Source: Author)

6.3.4 Evolving sector

The evolving sector has brought with it demands that should be addressed by sustainability leadership. New technology, social media, and information sharing have created a more informed consumer that is facilitating the evolution of this market, as it mandates organisational transformation (Champniss and

Rodes, 2011). Table 19 shows data collected from the interviews for the factors that influence sustainability that are reviewed in this section.

As these global implications evolve, greater demands are placed on transparency, social equality, and accountability. All those interviewed said that federal- and local-level mandates have influenced a sustainability team's development and growth in their organisation. Seema Wadhwa from Inova Health System, coming from a civil engineering background, explained that she was initially hired as a consultant for the hospital system to help support their LEED-mandated demands for their hospital projects. As more regulation and transparency demands occurred and they gave her more diverse work and finally hired her to help also lead their Healthier Hospitals Initiative, which is a coalition of major health systems and organisations committed to improving sustainability and safety across the healthcare sector in the United States. As these types of external collaboration develop, leadership should understand how to build and manage internal and external communities to influence and move them in the right direction.

Across the board, the evidence suggests that client and investor demand, customer demand for transparency, and employees and/or students have influenced the development and growth of a sustainability team in their organisation. More than half of those interviewed said that their organisation's head has led and influenced the development and growth of a sustainability team in their organisation. They said that their jobs would not have been possible without their support. James Gowen of Verizon stated that Hon Vestberg, CEO, has been his biggest champion and an unbelievable leader. He communicated sustainability messaging in everything he did and said, 'Don't say what we are, do it.' Eugenia of the Tower Company agreed with the importance of leadership and messaging alignment. She revealed that Tower Company is a family-owned business. One of the younger partners, Jeffery Abramson, has said 'it is the organisations' responsibility to do this' and has pushed for the organisation to be a leader in the sustainability movement. He has supported her initiatives, adopted new technologies, and integrated the adoption of this thinking into the organisational culture through his messaging and support. Unifying messaging, with the mission and vision of the organisation helps break down barriers that sustainability leaders face as they attempt and change management initiative (Lau and Woodman, 1995; Rousseau and Tijoriwala, 1999; Michela and Vena, 2012; Bartunek et al., 2006; Soenen et al., 2017).

Factors for Sustainability	Federal Mandates	Client / Investor Demand	Employees / Students	Local Regulations	Leadership	Transparency
Technology	X	X	X	X	X	X
Technology	X	X	X	X	X	X
Technology	X	X	X	X	X	X
Banking	X	X	X	X		X
Education K-12	X			X		X
Higher Education	X		X	X		X
Higher Education	X		X	X		X
Real-estate –TA	X	X		X		X
Real-Estate – A&M	X	X		X		X
Real-Estate – A&M	X	X		X	X	X
Real-Estate – A&M	X	X		X	X	X
Real-Estate – A&M	X	X		X		X
Real-Estate – A&M	X	X		X	X	X
Government	X			X		X
Healthcare	X	X	X	X	X	X
Manufacturing	X	X		X	X	X
Entertainment	X	X		X	X	X

Table 19: Interview Findings – Factors of Sustainability (Source: Author)

However, if there is **lack of leadership or a visionary leader at the helm**, sustainability leaders will have a harder time implementing and moving the sustainability agenda forward in their organisation. For example, Peter Zadoretzky said as his efforts are bottom-up management approach, it has made it harder for him to be able to influence and push initiatives forward. He says 'The business is a family owned and it is top-down management structure, but sustainability efforts are a bottom-up trajectory as I have to convince them of every step I take. It makes it harder to get support… if I am not here tomorrow all that is done so far will be gone.'

The findings demonstrate that organisations that transitioned to sustainability have done so because of federal and local policies and regulations. In addition, they are being pushed to move into this market by their investors, clients, and employees. The consumer market is driving transparency that forces organisations to figure out how to collect data for reporting and other market driven initiatives. New market terminologies such as 'Low Carbon Economy' or 'Net Positive' show that leaders in these roles must constantly strategize how to move the organisation forward and define these demands for the organisation. These findings show that **external drivers have pushed organisations to add**

Sustainability/ESG leaders to their organisation. Some examples of these drivers include regulations, peer leadership, climate change resiliency strategies, and the drive of current generations' beliefs.

Andrew Green, head of Environmental Sustainability for Capital One, stated, 'The hottest issue we are facing today is transitioning to a low carbon economy, and it doesn't matter where it is coming from, all businesses will have to face it.' This suggests that these leaders have had to understand the constant evolution that is happening in the market and figure out how to drive the organisation in that direction. They see the need for this evolution for the growth and survival of their organisation. Dare Llori, Head of Sustainability for Marlin Entertainment headquartered in the UK, stated, 'Sustainability in the early years was a nice to have or only to follow regulations, but now it is business critical to deliver a competitive advantage.' Regarding the needs of organisations' ability to transition to this new world economy and thinking, it is becoming a global paradigm and will require leaders to build holistic strategies that incorporate ESG issues (Beer et al., 1990; Kanter et al., 1992; Kotter, 2005, 2012; Beer, 1980; Judson, 1991). These findings show that organisations should **be adaptable and allow for evolution.**

6.3.5 Strategic thinking strategies

Reflexive thematic analysis revealed five overarching themes that sustainability change managers should develop and adapt (see Figure 56). One, sustainability management leaders should develop integrative design process strategies to influence all stakeholders affected by the change to be engaged, given ownership, and a voice. Two, sustainability management leaders should create a unified voice and messaging for the development of collaboration, belief, and understanding. Three, sustainability management leaders should align change with organisational culture and benefits, as change cannot be implemented and sustained if not aligned with corporate culture. Four, sustainability management leaders should create adaptive teams that allow for organisational transformation to progress as the current economic market continues to evolve. Five, sustainability management leaders should educate and develop the understanding that people are the essential commodity to an organisation, and investment in them is the best way to ensure success and growth. A short summary of each of the five overarching themes is provided as follows:

**Integrative design development process -** The integrative design development process should be initiated. A formal approach to managing change should be built, established at the beginning, and often tailored as change moves across the company. The process development begins with the leadership team and then the engagement of key stakeholders and leaders from all levels that the change will affect.

Unified voice and messaging - All eyes will turn to the business leader and the management team for strength, support, and direction. The leaders themselves should embrace the new approaches first to challenge and motivate the rest of the institution. They should speak with one voice and model the desired behaviours. Change effort requirements include plans for identifying champions throughout the company while pushing responsibility for the design and implementation down so that transformation flows through the organisation. At each layer of the business, the identified and trained champions should be aligned to the company's vision, equipped to execute their specific mission, and motivated to make change happen.

Align change with organisational culture and benefits - The vocalisation of the case for sustainability and the incorporation/positioning to organisational vision are invaluable opportunities to establish or compel leadership-team alignment. Messaging should be adaptable to different stakeholder teams. The best transformation programmes reinforce core messages through regular, timely advice that is both feasible and inspirational. Communications that flow both top-down and bottom-up should be targeted to deliver stakeholders the proper information at the appropriate time and then solicit their input and feedback. The alignment strategies will benefit both the organisation and stakeholders.

Be adaptable and allow for evolution – Sustainability leadership should be explicit about the philosophy and fundamental behaviours that will best support the new way of doing business and find opportunities to model and reward those actions. This involves creating a baseline, identifying an explicit end-state or desired culture, and formulating detailed strategies to transition. Essentially, controlling change requires constant revaluation of its impact, the organisation's willingness, and ability to adapt to the next transformation wave. Only when fed by real data from the field and backed by evidence can reliable decision-making processes be made. Change agents supplied with factual information can then make the necessary modifications to maintain momentum and drive results.

People matter – Some leaders contemplating change dwell on the plans and processes rather than focusing on the human-centric issues that arise from change implementation. Most leaders considering change understand that people matter. Leadership at all levels should be as honest and transparent as possible. Stakeholders react to what they see and hear around them, and they should be engaged in the transformation process. They should know how their work will change, what is required of them during and after the change programme, how they will be measured, and what success or failure will mean for them and those around them. Having them take ownership and help develop these standards will enforce the adoption of their everyday behaviour.

Figure 56: Interview Findings Challenges for Change
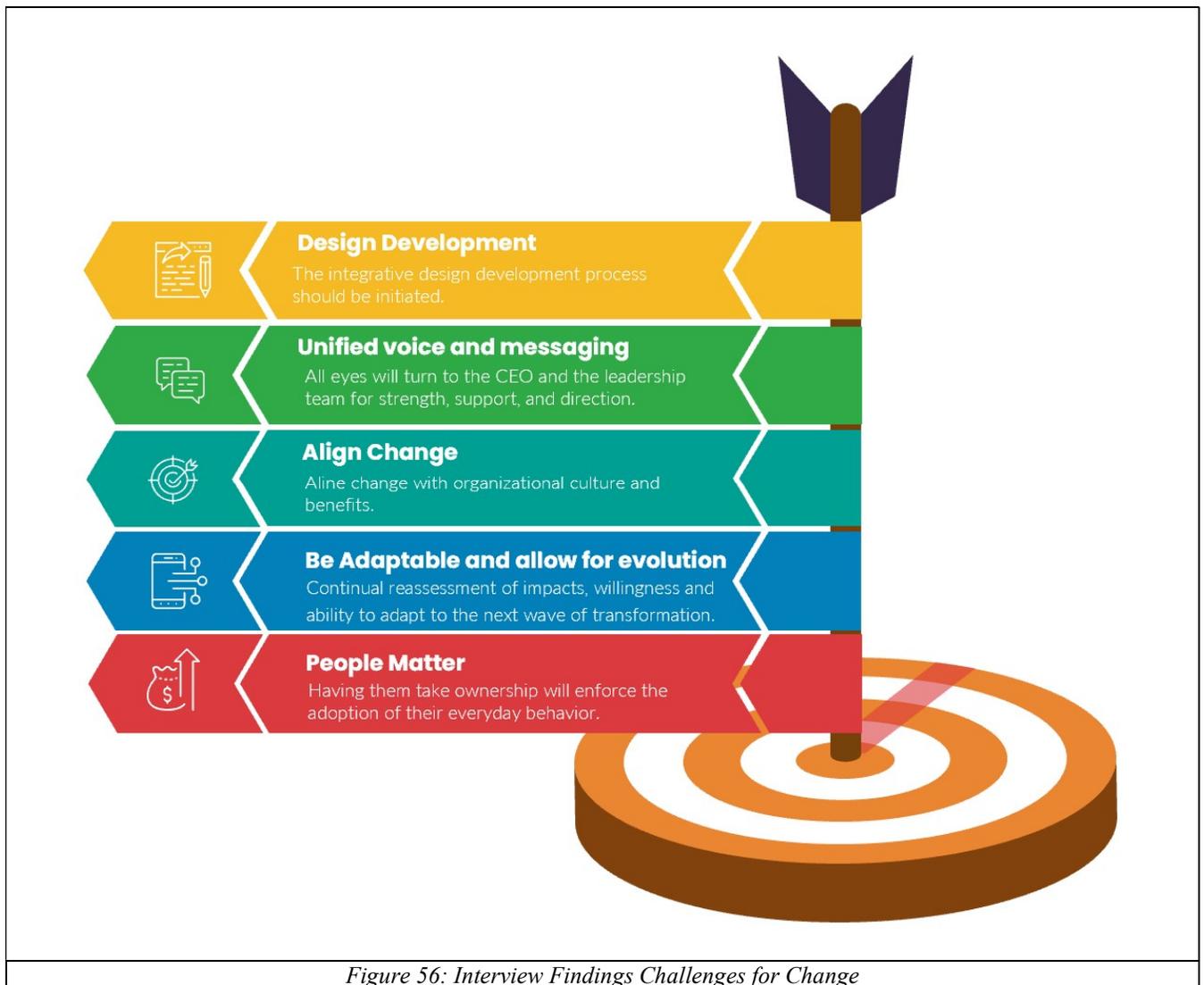
6.5 Conclusion and Takeaway

As previously discussed, compared with 10 years ago, the sustainability market has transformed and continues to do so. The author was able to secure a variety of interviews from both the private and public sectors. This was done to assess whether sector and business types affected the response to the sustainability agenda and whether there were variations in responses across industries. The interviews revealed that sustainability leaders face the same challenges across sectors and industries. They indicated that the narratives were similar within and between sectors, and when it comes down to the sustainability agenda, they have the same challenges across the board. Changes result from role redefinition, ongoing evolution, and process re-invention. The interview findings show that most leaders started in the origination and grew into the role or wrote their own job description. They all came from different fields and have been at their current company for four or more years. They started in the compliance or

certification realm and are only a team of two to six, even in larger organisations. Their jobs evolved from environmental to include social issues as well as marketing, out-facing communication, transparency, policy, and risk management. All transitions occurred within the past 10 years or less in their organisation.

The interviewees revealed that there have been similar challenges they have had to address. They all had to figure out how to influence others, work with others, manage executives, manage others they could not control, what was important to the company, and how to define the messaging internally and externally. As market trends and requests evolved, they all had to take on more responsibility to meet demands. The findings reveal that the spike in the evolution of the US sustainability market started in 2007. Before that time, sustainability initiatives/CSR/ESG were nice to have at an organisation, but today, it is a must-have for organisations to be competitive and a leader in their industry. All involved stated that if their CEO/leadership did not fully support these efforts, it would have a negative effect on their work. The following are highlighted themes from the findings:

The sustainability sector in the United States has evolved and continues to transform. This has helped cultivate and transition the role of leadership. It has pushed leaders to become innovators and social-political activists.

Sustainability/ESG leaders are implementing change management processes to make them happen, but they are not enough. It starts with strategies that create unity and collaboration with stakeholders, ensuring that communication messaging is delivered consistently internally and externally. Leadership will need new methods to improve processes and communication to influence all stakeholders while defining procedures and implementation. These are proper first steps, but leaders will need a new way of thinking and be able to innovate to move the systems of change faster in their organisation.

A continued sector evolution has made it necessary for organisations to be agile and innovative. Technology and social media have allowed knowledge to reach more people and give them access to more in-depth information. Climate change has affected communities on a global scale, and healthy conversations for both the mental and the physical have become the number one topic of concern worldwide. The industry's principals are finding ways to address issues and continue to position their organisations as market leaders.

External drivers have pushed organisations to add Sustainability/ESG leaders to their organisation. These drivers include regulations, peer leadership, climate change resiliency strategies, and the drive of current generations' beliefs.

Internal drivers have pushed organisations to rethink how they manage and run their organisation. These drivers include employee demands for social equity and work-life balance, the development of an internal organisational community, and securing the company's position in the market.

The lack of leadership or a visionary leader at the helm. The leadership and executive teams dictate organisational behaviour. If these influential members do not fully stand by the vision and initiatives that should be adopted, then the majority of corporate team members will not.

There are existing strategies uniformly used within these leadership positions—understanding that each organisation has its own culture and barriers to change. Leaders should understand the importance of organisational, community, and national culture to effect ESG transition into market behaviour. The new economic movement is pushing for a collaborative culture working for the groups' benefit and focusing on the long-term effects of its actions. As leaders of ESG get into organisations, they should understand the organisational culture to affect change fully.

Lack of a holistic strategy is the downfall of all change initiatives. Small initiatives should be part of a broader plan; the effects of not designing the right approach can cause a lot of negativity throughout the organisation.

CHAPTER 7: Discussion and Framework Introduction

This section presents and examines the findings obtained from this study. The study is founded upon a critical analysis of emerging themes derived from a review of literature, personal professional experience, case studies, and interviews. The themes include the importance of design thinking strategies to organisations undergoing cultural change, current barriers to implementation of sustainability initiatives, and the market policies that are creating a need for more effective strategies for sustainability management and leadership. The study followed a multi-trajectory literature approach that concentrates on the following themes: (i) sustainability in business, (ii) strategy, (iii) design thinking (DT) leading to innovation, and (iv) organisational change management (OCM).

This chapter is composed of the following:

- Findings – shifts in the US sustainability market
- Key drivers for change
- Challenges for change
- Comparative analysis of case studies and interviews
- IDT strategy framework
- IDT strategy framework visual aids

7.1 Findings - Shifts in the US Sustainability Market

Findings from the interviews, literature, and case studies revealed that, compared with 10 years ago, the sustainability sector in the United States has evolved and continues to transform. Changes result from role redefinition, ongoing evolution, and process re-invention. Sustainability/environmental, social and governance (ESG) leaders are implementing change management processes to make them happen, but they are not enough, and a continued sector evolution has made it necessary for organisations to be agile and innovative. Three critical changes identified (Figure 57) are the evolution of sustainability, developing process, and evolving sector. Society, business, and government need to change behaviours in thinking, acting, or working, as well as modify their values in a new era of climate change (McKibben, 2011). These findings shed light on the fundamental shifts that have taken place in the ESG market over the last decade. They validate that the sector is now unrecognisable due to role redefinition, process reinvention, and ongoing evolution.
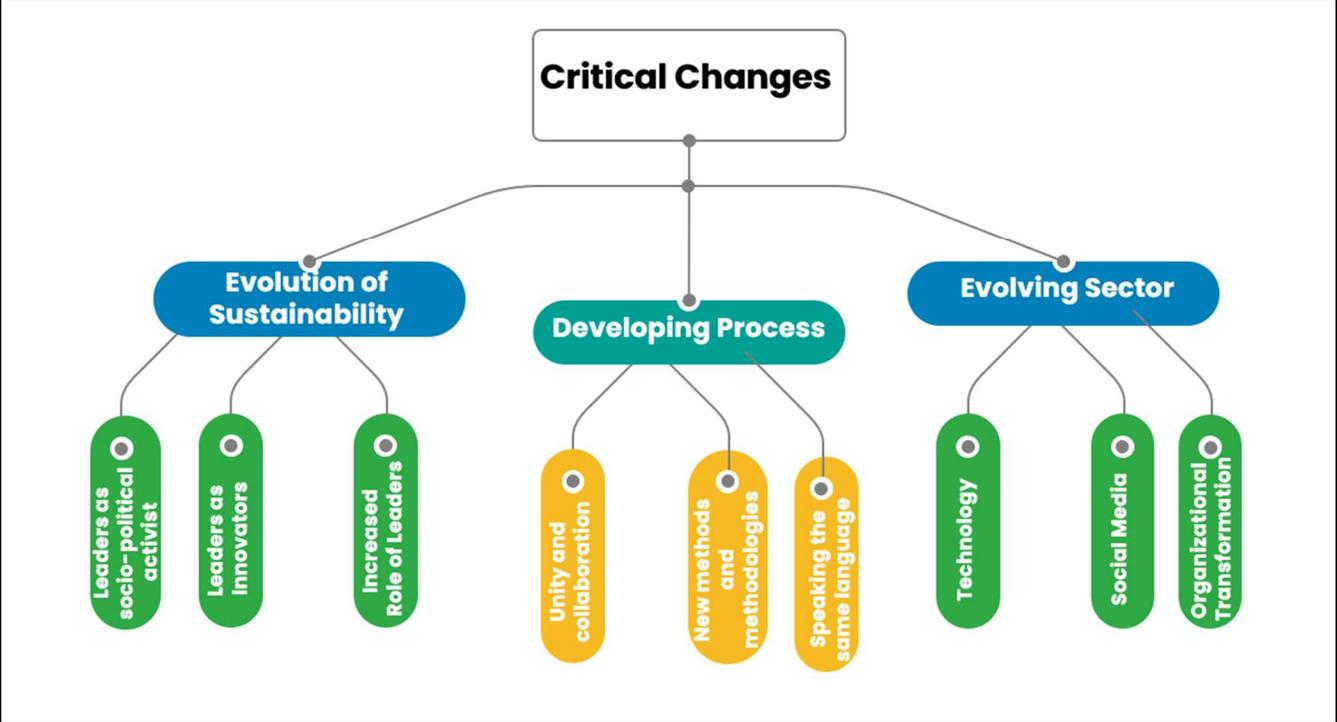
Figure 57: Interview Findings Critical Changes in the Sustainability Sector (Source: Author)

7.1.1 Evolution of sustainability defined

The first critical change is that there has been a constant evolution of definition of sustainability over the past decade or so. The author's findings reveal that the evolution of sustainability has helped cultivate and transition the role of leadership. It has pushed these leaders to become innovators and social-political activists. This evolution is underpinned by the literature review, case studies, and the sustainability leaders' interviews. Sustainability's most known definition is associated with sustainable development and was defined by the United Nations' Brundtland Commission in 1987 as that sustainable development needs to meet present and future generations' needs. In 2005, a world summit on social development set forth three goals: economic development, social development, and environmental protection. These have translated to today's triple bottom line: people, planet, and profit. As organisations consider these three areas of practice and how they work together, further evolutions of what is needed has come to be understood. Some of these are: net positive/circular economy/carbon neutral/embodied carbon/corporate social responsibility (CSR). All of these encompass sustainability, and leaders in these positions are developing systems to track and influence them. Since 2016, the sustainability conversation and role have transformed and connected to the health of people and our planet. In 2019, the new paradigm of purpose was introduced to the mainstream; this has brought everything to the next level and tied all of them together. This understanding has evolved from research that sustainability leaders have been pushing

sustainability for over a decade, with a recent evolution from the triple bottom line to quadruple bottom line to include purpose. These merge all definitions of sustainability into one: ESG.

The ESG leader as a socio-political activist

The author's findings reveal that ESG leaders understand the need to build communities and support them. They understand the need to shape these communities, both internally and externally, for the growth of their bottom line. The results show that these leaders are realising more that their people are their most valuable assets and that empathy will need to be understood and adopted at every level to be able to define and understand solutions for each individual organisation. They further suggest that creating caring and healthy environments for them and their families will only be beneficial to organisational growth and sustainability. They are seeing the connection of CSR to the holistic picture of change. They have built and implemented CSR initiatives, such as diversity and inclusions, family maternity leave, living wages/minimum hourly pay, onboarding education, philanthropy, and community volunteerism. Other works agree that in today's socio-political environment, leadership needs to learn how to manage and enhance empathy for success (Pahl and Bauer, 2013; Czap et al., 2012; Berenguer, 2007).

ESG leader as an innovator

The findings from this study have shown that ESG leaders realise the necessity to be innovators, to transform existing organisational behaviour, so they can implement the change that is needed. The author's findings reveal the need for sustainability leaders to have the right strategies and processes in place. The results show that it is essential to build collaborative networks and have champions at all levels of the organisation to help design and implement the desired change. The study brought to light the need for a system that would allow for constant revaluation, and improvements are required to be in place at all levels. For example, Verizon has a volunteer green team of 31,000 people, including upper management, who mobilises others to work on ESG initiatives. Human Scale has redefined its internal messaging to net positive = doing more good than harm, and has redefined its mission statement to '…products that improve the health and comfort of work-life' (Human Scale, 2020). From 2017 to 2018, Capital One changed its focus from energy to the best place to work and started to address climate risk. In 2012, the New York Department of Education's school food division teamed up with five of the nation's largest public school districts to use their buying power to combat waste and see how they can meet the cities' Zero Waste targets. This collaborative effort brought compostable trays to their 1800 schools. Together with the Urban School Food Alliance, the initial work removed 225 million polystyrene trays a year from landfills. The

author agrees with Bolton's (2011) philosophy that developing design thinking strategies will give leaders the ability to visualise the unseen, learn what to focus on, what to use, understand what tools are needed and apply them.

The role of a sustainability leader

The findings from this research show that the purpose of a sustainability leader start with leaders that look at reducing energy, water, and waste from their organisation or leading a certification/compliance process. The interviewed sustainability leaders evolved into this role from within their organisation, wrote their job criteria as needed, or filled a need that as consultants and moved to full-time work. A decade ago, the term 'sustainability' was new to the industry and in what it meant to each organisation. The study revealed that in most organisations, there were no definitions or processes in place initially for sustainability. This research pointed out that 2007 was a year where significant transitions happened: the economy seemed to be booming, and legislation and regulations on federal, state, and city levels were starting to be put in place for sustainability imperatives.

An example of this was NYC's PlaNYC, 2007; this strategic plan brought together over 25 city agencies to work towards a greener, greater New York vision. The city aimed to reduce greenhouse gas emissions by 30% of the 2005 levels by 2030. Then, in 2008, the market crash effects caused organisations to look for cost savings, and as unemployment grew, it opened the door to many to start their businesses and consultancies to support this space. These events opened up new positions for leaders with sustainability titles. These leaders, who were a team of one up to three in early stages, needed to figure out how to collaborate with other agencies, departments, and third-party stakeholders. They had to learn how to be strategists, change-makers, and influencers. Yet, more than a decade later, most teams consist of two to six people. Sustainability leaders had to become change agents in the organisation to change behaviours and implement initiatives. This research supports the work of Capra (2002) and Senge et al. (2008), who noted that change agents must incorporate the concept of the interconnection of natural and social webs to enlighten all forms of individual and organisational behaviour. As shown in the interviews, all have the leaders had to develop collaborative teams and figure out who to work with, how to work with them, and how to influence others who are not under their direct management to achieve their goals.

7.1.2 Developing process defined

The second critical change is developing process, where ESG implementation methods are still being defined. The author's findings show that the three areas of focus are unity and collaboration, new methods

and methodologies, and speaking the same language. It starts with strategies that create unity and collaboration with the stakeholders, ensuring that communication messaging is delivered consistently internally and externally. These are proper first steps, but leaders will need a new way of thinking and will be able to innovate to move the systems of change faster in their organisation. This change is being driven by external and internal factors that are leading to a new way of thinking on an organisational level. This will be discussed in Section 7.2.

Unity and collaboration

The discoveries from this research suggest that in corporations where sustainability started, there was no understanding of collaborative efforts, as initial market development was for compliance and collecting energy data, waste data, etc. Leaders did not initially realise the complexity of true actions for change, as they needed to work with diverse and multi-disciplinary groups and individuals to accomplish all tasks they were presented. After about a decade of trial and error, the current research revealed the need for mass collaboration and collective efforts for lasting behaviour and cultural change to occur. This collaboration helps break down barriers within an organisation and unify them under one community and vision; this extends to internal stakeholders and outside sectors. These collaborative efforts are building support for leaders pushing the same agendas to share ideas and information and unify under one cause. Jim Landau of Met Life Real Estate shared that he leads and is part of multiple committees that help push his organisation's sustainability agenda. Some of these include the ESG Advisory Committee, which has heads of all departments to help oversee sustainability efforts, and the ESG Working Group, which includes managers and stakeholders from all levels and parts of the organisation. He stated that this helps build champions, develop adaptable measures, and creates ownership to the cause for easy adoption and implementation. The current research highlighted that including people from every function, department, and level of the business—and key external stakeholders—in analysis, planning, and execution is essential (Capra, 2002; Hallin et al., 2016; Senge et al., 2008).

New methods and methodologies

In today's changing world, there is a sense of urgency that is upon us regarding climate risk and the overall health of people, communities, and planet. The research findings show that traditional measures have not been enough, and now, sustainability leadership will need to seek new methods and methodologies that will help amplify actions and assist in the implementation of strategies that will move direction. As organisations take the lead and put leaders in positions to aid in this transformation, they will need to have

a new way of thinking and be able to innovate to move the systems of change faster in their organisation. Hallin et al. (2016) advised that there is a need for businesses and organisations to continue learning in today's business climate. From the author's findings, the design thinking methodology is a tool to aid in creating an agile and continuously learning organisation. This can be seen in Case Study 3 after the educational seminar on design thinking to the organisation and the positive effects it had in moving the stakeholders in the desired direction.

Speaking the same language

This research's findings suggest that ESG leaders should operate across departments, crossing disciplines, and at all levels of the organisation. They need to manage relationships both internally and externally and build collaborative relationships as they understand and promote the organisation's accurate messaging and voice. The findings further suggest that to achieve this, they will need to comprehend all stakeholders' needs at all levels and be able to speak the same language to develop buy-in, acceptance, and adoption of initiatives. Sustainability leaders have had to make this through data of financial gains, education of stakeholders at all levels, message creation to brand building and transformation. Some examples of utilised strategies are educational workshops, reporting for transparency both internally and externally facing, policy development, goals, target setting, internal organisational signed pledges, external group signed pledges, vision, and mission statement revisions, and third-party certifications that are relevant to their industry. In Case Study 2 included the creation of the Advisory 'Innovation Council' working group composed of 52 people, all from diverse backgrounds and groups. These are representatives from city agencies, city unions, sustainability coordinators, principals, parents, facility managers, and non-profit partners who helped in the understanding and alignment of challenges and needs that all groups can stand behind and work to improve.

7.1.3 Evolving sector defined

The third critical change is the evolving sector, where the ESG sector continues to evolve rapidly. The research revealed three main areas of focus: technology, social media, and organisational transformation. Technology and social media have allowed knowledge to reach more people and give them access to more in-depth information. Climate change has affected communities globally, and conversations about mental and physical health have become the number one topic of concern worldwide. Leaders in the industry are finding ways to address issues and continue to position their organisations as market leaders.

Technology and social media

In the past decade, technology and social media have allowed knowledge to reach more people and give them access to more in-depth information. Climate change has affected communities on a global scale, and conversations about health, both mental and physical, have become the number one topic of concern globally. This research showed that drivers have continued to push industry reform and evolve the ESG sector as a leader to address these issues. For example, Marlin Entertainment started hiring park sustainability managers around 2009 to help meet the new regulations and compliance set by local governments. In 2014, the 'Being a Force for Good' department was created that would help manage these sustainability managers and encompasses: an environmental/sustainability team leader, a social and philanthropy team leader, and an accessibility and inclusion team leader. In 2019, Marlon's sustainability team's new vision statement was released:- 'To deliver low carbon experience for our guests.'

Organisational transformation

Findings from this study revealed that the roles of these leaders are increasing and evolving. In 2019, close to 200 of the top US companies signed the Statement of Purpose of a corporation (businessroundtable.org, 2020). This was a move by leading organisations to redefine how a corporation should behave and run. That same year, the CEO of BlackRock, Larry Fink, issued a letter stating that organisations need to pursue purpose beyond profits. His letter stressed that purpose is not the sole pursuit of profits but the animating force for achieving them: '…a company cannot achieve long-term profits without embracing purpose and considering the needs of a broad range of stakeholders…Ultimately, purpose is the engine of long-term profitability.' As a result, his firm articulated and adopted a new set of 'engagement priorities,' including a company's 'approach to board diversity; corporate strategy and capital allocation; compensation that promotes long-termism; environmental risks and opportunities; and human capital management' (BlackRock, 2020). Doppelt's (2003) research and findings also stressed these topics and emphasised that organisations have to change goals by crafting an idea vision and guiding strategies. Therefore, organisations will need to transform to be able to adapt to all measures that encompass the requirements that come with these commitments and regulations.

7.2 Key Drivers for Change

The findings from the interviews, literature, and case studies indicate that transformation is being propelled by external and environmental factors and the internal decisions that organisational leadership

takes (Figure 58). These findings emphasise the critical drivers of change and demonstrate their range and complexity. They illuminate the external factors imposed on these change agents and reflect the internal choices that organisations make.
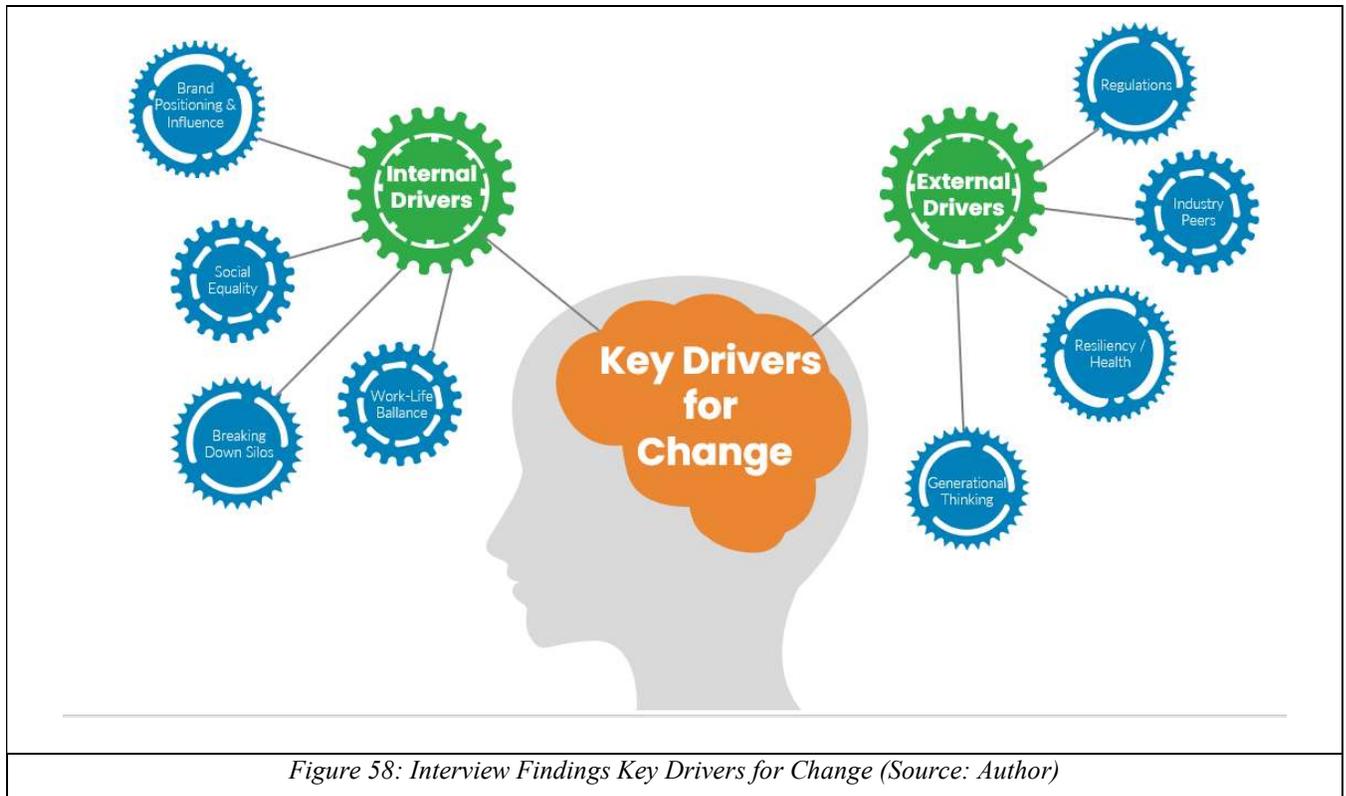
Figure 58: Interview Findings Key Drivers for Change (Source: Author)

- **External drivers have pushed organisations to add sustainability/ ESG leaders to their organisation.** These drivers include: regulations, peer leadership, climate change resiliency strategies, and the drive of current generations' beliefs.
- **Internal drivers have pushed organisations to rethink how they manage and run their organisation.** These drivers include employee demands for social equity and work-life balance, the need to develop an internal organisational community, and the need to secure the organisation's position in the market.

7.2.1 External drivers for change

Key external drivers directly affecting change in the adoption of social governance and environmental initiatives include regulations, industry peers, resiliency/health, and generational thinking evolution.

Regulations

The findings from this research show that regulations, reporting, and carbon emission reduction targets from federal, state, and city levels have pushed organisations to create sustainability teams to manage and report on these protocols. For example, as observed in case study two, the passing of PlaNYC passed by Mayor Bloomberg in 2007 and ONE New York that was rolled out on Earth Day 2015 by Mayor De Blasio that legislate carbon reductions of 80% by 2050 had pushed the creation and growth of New York City's Department of Education's sustainability department and team.

Industry peers

The findings from this study show that market influencers are drivers in the industry. Some want to be the first to use new technologies or are willing to take risks to be leaders of their industry, and others wish to follow those who have already done it. As industry leaders step up, voice their commitments, and share their methodologies, others follow that path and help transform us into a new economy.

Resiliency/Health

The findings from this research show that current climate change is affecting every government and industry. Resiliency has become a top topic of conversation, as more storms, drought, fires, rising sea levels, and earthquakes are observed in different regions. These put lives at risk, affecting the supply chain, assets, investment risk management, and an organisation's sustainability. As the topic of resiliency came into the forefront of conversations, so have the subject of health. The author's findings reveal that the sustainability conversations have transitioned into stakeholder and environmental health, where organisations are now having to manage and develop solutions to these topics of discussion. This raises additional questions on how to create healthy environments for our people/communities, how to produce more robust products, and how to produce healthier foods. All these ties back to the ESG conversations.

Generational thinking evolution

Understanding generational thinking, how this is helping the transition to a new economy, and the need for organisational evolution are required to attract and retain future generational talent. This realisation is helping to transform corporate culture. Here is a simplified breakdown of the generational workforce:

Baby boomers (born 1944–1964) are between the ages of 54 and 76 and are close to retirement age or are now running organisations. Gen X (born 1965–1979) are between the ages of 41 and 55 and are starting to be in executive positions or are running the organisation. Millennials (born 1980–1994) are between the ages of 26 and 40, and they are the main body of the experienced workforce. Gen Z (born 1995–2015)

is between the ages of 5 and 25; they are the future workforce. Millennials and Gen Z generations have grown up in the communication age and have information at their fingertips. A large portion is estimated to be activists and health conscious. Those in this group understand their buying power and the power of unification for a cause. They are demanding ESG compliance of organisations and transparency of their actions for them to choose where they will invest their knowledge and capital.

Organisations recognise how they must evolve to manage the critical issues central to Millennials and Gen Z, who will be the dominant percentage of the future workforce and the primary source of labour. Understanding the mindset and motivations of this workforce will be necessary to retain talent and be able to implement the change initiatives needed for organisational growth. Each generation label serves as a short hand to reference nearly 20 years of attitude, motivations, and historical events. ESG are top concerns to the new generations, where now they are the current and future investors driving the market change. They know how to use their voices to influence and demand better health for themselves, their communities, and the global environment. Laszlo (2005) advised that organisations need to shift focus from shareholder to stakeholder management to attract top talent, be competitive, and be leaders in their industry. The present research supports Laszlo's argument and considers that change agents will also need to understand each generational thinking of stakeholders both internal and external to the organisation to be able to influence, manoeuvre all in the direction of ESG, and reposition the company in its market.

7.2.2 Internal drivers for change

Transformation is not only affected by external drivers but also by internal drivers connected with the mindset and positioning of organisational team members and the choices that they are making. Key internal drivers directly affecting change in the adoption of social governance and environmental initiatives are social equality, work-life balance, breaking down silos, and brand positioning and influence.

Social equality and work–life balance

As new generations come into the workforce, their demands are changing the landscape and continuously evolving as they become leaders. This latest evolution and group of leaders brings a higher level of demand from their organisations. One example is social equity, which means that all in the business are respected, have the same rights, feel safe to communicate their opinions, feel ownership within the company, and feel part of a community. Today's leadership sees the challenges for transformation, is looking for strategies to embed these into their company culture, and recognises their importance for talent acquisition and retention. Some of the topics organisations are managing include transparency, equal pay, diversity,

and inclusion, the health of stakeholders and environment, work-life balance, glass ceilings, and social media shaming as mental, physical, and environmental health has become a dominant topic of conversation.

Work–life balance has also become an essential aspect of a healthy work environment. Preserving work–life balance aids stress reduction and averts breakdown and chronic stress associated with negatively impacting mental health. By creating a work environment that prioritises work–life balance, businesses can save money and preserve a healthier, more productive workforce (Forbs, 2018). In Case Study 3, work with the change committee revealed the need for an additional human resources practitioner that would develop community and a better understanding of stakeholder needs, through the committee policy for parental leave was designed for both genders that stakeholders positively received. In Case Study 2, a creative thinking working group was delivered to leadership to find solutions and streamline processes. Everyone was energised, and a few implementable solutions were developed, but none were followed through, which caused a lot of negativity and further disconnects within the organisation.

Breaking down silos, opening communication, and collaboration

The findings from this study reveal that traditionally run companies have inherently developed silos. Silos are micro-entities with their micro-culture within the larger business. In these traditional organisations, people hold specific knowledge and ways to do the well-established and recognised; the silo provides a safe place to keep these close and untouched. Leaders who grew up in this environment believe that it is much simpler to get things done by running the smaller world of the silo than by integrating one's area into a greater whole. Johnson et al. (2017) shared that organisations need a new roadmap to understand the change they need. Sustainability leaders are helping to create these roadmaps as they push change initiatives.

Discoveries from this research show that leaders in positions to push social governance and environmental issues help drive a new way of thinking that is aiding in breaking down these silos. These new mental models are being introduced to assist in integrating people, ideas, and actions across numerous teams while making businesses more adaptable in responding to challenges. Some examples from the case studies and interviews are collaborative workshops/working groups, educational lunch and learn events, community-building gatherings, and cross-disciplinary committees. The research suggests that the answer to breaking down silos commences with altering beliefs about individuals, work, and the organisation. This can be seen when there are shifts in thinking from knowledge with certainty, for example, a belief that there is one way to perform a task, to the understanding of having experience combined with curiosity,

where there is a confidence that feedback of others outside an existing silo can be complementary and adds value. The author's findings reveal that as sustainability leadership communicates and expands the organisation's shared purpose; it aids in bringing down walls between team members, in opening communication, and in building collaboration to understand the change they need.

Brand positioning and influence

In this study, the findings show that competition is driving organisations to adopt ESG foundations, as this has become a necessity to secure standing in their market. An example from the interviews was from Dare Llori, Head of Sustainability for Marlin Entertainment headquartered in the UK, who stated, 'Sustainability in the early years was a nice to have or only to follow regulations, but now it is business-critical to deliver a competitive advantage.' A study by CONE Communication in 2015 found that Millennials will comprise more than one of three adult Americans by 2020 and 75% of the workforce by 2025. This study shows that this generation will take action to support corporate social responsibility (CSR). This would be achieved through purchasing power, sharing their voice with family and community, and volunteering for a cause supported by a company they trust. CONE's research indicated that they will also use social media to amplify their impact, as they share positive information about a company they care about and even listen to others to learn more about specific companies and issues. Millennials are willing to make personal sacrifices to impact issues they care about; they will pay more for a product or service they believe in and take a pay cut to work for a responsible company. The author concurs with Hawken et al. (1999) and Giddens (2009) that this new movement is creating the next industrial revolution, where society needs to find innovative ways to look at human, financial, manufactured, and natural capitals. The interviews provide evidence of this, with organisations such Marlin Entertainment called its sustainability/CSR department 'Being a force for good' in which the department head's title is 'Head of being the force for good' and where their sustainability and social departments reside. Another example is Human Scale, which has rebranded itself with the new motto of 'Less Bad Isn't Good Enough' that is being translated to action for internal and external stakeholders.

7.3 Challenges for Change

While change is necessary in the evolving new world economy, leaders face many challenges that they will need to address. Findings from the interviews, literature, and case studies indicate that there are challenges holding the sector back that hamper positive development (Figure 59). This research reveals that a lack of leadership support, cultural barriers and challenges, and a lack of a holistic strategy are the

downfall of all change initiatives. These findings suggest that there are challenges within the sustainability sector and that a new way of thinking needs to evolve that would aid and not hamper desirable progress.

Figure 59: Interview Findings Challenges for Change (Source: Author)
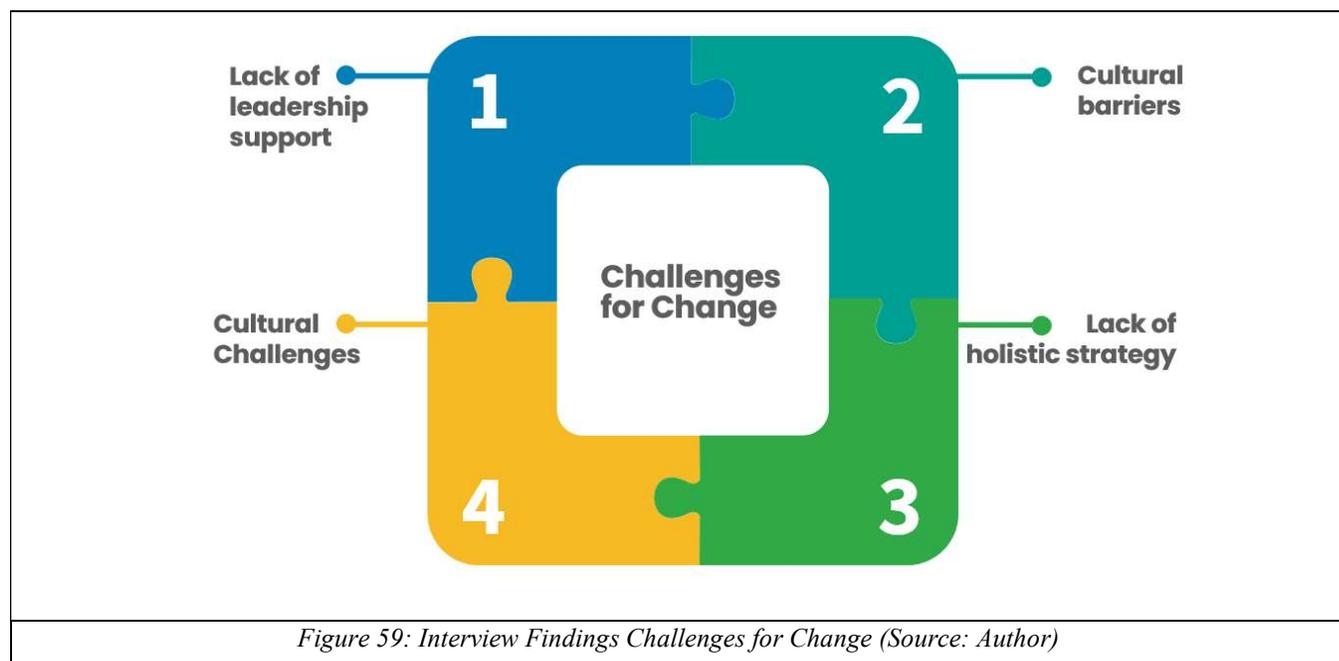
7.3.1 Lack of leadership support

The current research findings show that some organisations do not give hired leaders the full support and vision they need to move ESG initiatives forward to the next level. The leadership and executive teams dictate organisational behaviour. The findings reveal that when these influential members do not fully stand by the vision and initiatives that need to be adopted, the majority of the corporate team members will not as well. The leadership and executive teams exemplify organisational behaviour. In Case Study 3 with Time Equities Inc., ownership voiced the desire to support sustainability and initiatives but would not support efforts and hold others accountable. The researcher found that if these influential members do not fully stand by the vision and initiatives that are being adopted, then the majority of the corporate team members' will not support these initiatives, as culture and behaviour are directed by the leaders' traits, values, and ethics. Another example from the interviews, Peter Zadoretzky said his efforts are bottom-up, making it harder to be able to influence and push initiatives forward. He said, 'The business is family-owned, and it is a top-down management structure, but sustainability efforts are a bottom-up trajectory as I have to convince them of every step I take. It makes it harder to get support…if I am not here tomorrow, all that is done so far will be gone.' This lends support to Doppelt's (2003) assessment that there will be major challenges if there is a lack of a clear vision of sustainability in the organisation. The author revealed

that adoption needs to be universal in the organisation, both top-down and bottom-up, to be fully adopted and incorporated in a universal behaviour change.

7.3.2 Cultural barriers and challenges

The study findings reveal that leaders need to understand the importance of organisational, community, and national culture to effect ESG transition into market behaviour. Dramatic changes are happening on so many global market levels, and they do not stem only from climate change. This study's findings suggest that culture/behaviour changes need to happen from national, state, and community to organisational levels to transition into the new economic market. Culture and behaviour changes that are happening are causing turmoil on a larger scale as social governance, and environmental issues are being brought to the front of the conversation and being connected to each other. From a personal level to a global scale, the topic of health and understanding the web of connections are being studied and reported on. There are existing strategies that are uniformly used within these leadership positions; the researcher's findings reveal the importance of sustainability leaders understanding that each organisation has its' own culture and barriers to any change. The interviews revealed that it is of no consequence what industry sustainability leaders are in; they face similar obstacles for similar initiatives, but all have had to adapt to their organisations culture to push these forward. Thus, these findings shed further light on Burnes' (1996, 2004) and Dawson's (1994) work, in that transformation should not be perceived as a string of linear events within a given point of time, but as a constant, open-ended process of adaptation to evolving circumstances and conditions.

As leaders in the ESG market take in this information and are pushing change, they will need to also understand the culture of the place in which they require an evolution. For example, traditionally, the US has been built on cultural individualism and short-term orientation, where it is about self and profit. The new economy movement is pushing for a collaborative culture that is working for the organisation's benefit and focusing on long-term effects of its actions. As leaders of ESG get into companies, they need to fully understand the organisational culture to effect change. For example, Tishman Spire had a few leaders trying to push ESG measures in their organisation. The leaders were from outside the organisation and did not understand the culture and how to effect it. All outside hires were not successful, as they could not deliver change. Therefore, organisational leaders saw the need to hire from within, as internal candidates have a stronger knowledge and well-developed understanding of the organisational culture. Jonathan Flaherty is as an example of someone who has grown through their ranks, had the leadership

skills, and understood their culture and market. He took over the role as he understood the culture, what he needed to deliver, and how he needed to talk and behave for him to influence internal change.

The author's findings show that cultural challenges need to be addressed and understood. Sustainability leaders and change agents need to focus on cultural strengths, tying them to the messaging, and finding those internal champions who believe in that change to help them move forward. This effort's essential part is the culture and change experts (this might fall back on the sustainability/CSR/ESG head and their team) in the organisation. Engagement needs to come from the CEO and their team, middle managers, team members, supervisors, and all staff. All need to feel that they are part of the change team and that they are necessary to make it happen. Change agents will need to be there as counsellors that ensure the programme and to give expert advice. Current research findings reveal that as change leaders attempt to implement ESG initiatives, they will be required to develop a holistic strategy for change, agreeing with Unruh et al. (2016), who noted that few companies have developed sustainability strategies but consider them important.

7.3.3 Lack of a holistic strategy

The leadership interviews revealed that most leaders have diverse backgrounds and do not come from a business school or formal education that has to do with implementing change initiatives. In today's transitioning world economy and changing work dynamics, organisations have to transform or build themselves into a changing and dynamic organisation. Some of the leaders interviewed stated that when they leave their current organisation, they believe that the initiatives that have started and are running will probably not exist if no one is there to push them. Statistically, most change initiatives' success rate is low, at about 50% (Candido and Santos, 2015). They might fail because too many actions are implemented at one time without prioritisation or change programmes from the top are dictated without proper development strategies and communication, or engagement with the organisational population/or those affected by the change as a whole. Scholars find that initiatives are being implemented in a singular and isolated manner, so they fail to evolve to the next level (McDonough and Braungart, 1991, 2002; Doppelt, 2003).

The author's findings show that the effects of not designing the right strategies can cause a lot of negativity throughout the organisation, which will ultimately cause the change initiatives to be derailed and fail. For any effort to succeed, there should be proper engagement and communication at all levels. The biggest mistake made by a manager leading this change is thinking that communication is the same as engagement.

Both are very important and both need to be done. For example, one can not only implement some discussion, some training and a reward system thinking this alone will help move the organisation to a new place. Small initiatives need to be part of a broader plan. The effects of not designing the right approach can cause a lot of negativity throughout the organisation, which will ultimately cause the change initiatives to be derailed and fail. Those types of initiatives might work for a short period but will not last. For lasting change, organisational culture needs to be addressed, as it is crucial to change management programmes' success. Most change management programmes deal very effectively with the formal aspects of an organisation, such as process flow, structure, and performance management systems. Still, the simplified definition of culture is 'How things get done!'. Culture is a combination of formal aspects as well as how someone thinks, believes, acts, and feels. Thus, as change is being implemented, the cultural issues need to be addressed and dealt with; otherwise, a real, impactful change will not occur.

7.4 Summary of Findings

The findings from the case studies, interviews, and literature highlight the fundamental shifts that have taken place in the ESG market over the last decade. These have been forcing the market and organisations to evolve in both environmental and social aspects to be competitive. The positions of sector leaders have evolved and are unrecognisable to their earlier forms because of role redefinition, process reinvention, and ongoing evolution. These findings illuminate critical drivers for change and reveal their range and complexity. They also highlight external factors imposed on these change leaders and reflect the internal choices that organisations make.

These discoveries indicate that there are challenges within the sustainability sector and that a new way of thinking needs to evolve that would aid and not hamper desirable progress. These discoveries align with findings from the literature review, where McKibben (2011) assessed that society, business, and government need to change behaviours in thinking, acting, or working, as well as modifying their values in a new era of climate change. As the current economic market evolves, so will organisations. They must be adaptable and allow for evolution while aligning branding messaging to organisation, communication, and mission.

The combined findings suggest that strategies will need to be implemented holistically to aid in the adoption of change management programmes, such as ESG initiatives in organisational culture change. Scholars have indicated that organisations will have to streamline processes and relationships, eliminate non-value-added activities, empower people at all levels in the organisation, and build accountability

(Senior, 2002; Graetz, 2000). Conclusions from the interviews showed that an integrative design development process needs to be established that would include all stakeholders affected by the change. They need to be engaged and given ownership and a voice. Discoveries from the case studies demonstrated that implementation of design thinking mentality (discussed in Case Study 3, Section 5.3.3) on a holistic level will open doors to the organisations adopting integrative collaboration methodologies and having them become learning or adaptable ones. Developing design thinking strategies will give leaders the ability to visualise the unseen, learn what to focus on, what to use, and understand what tools are needed and how to apply them (Bolton, 2011). This is where the IDT strategy framework helps in the design development of the needed interventions. Inferences from the literature indicate that so far there is little evidence in the field of approaches that incorporate all the diverse elements of sustainability (Seelos and Mair, 2005b).

Both the interviews and case studies demonstrate the importance of organisations having a unified voice and messaging. This is where collaboration, belief, and understanding of messaging is required to be at all levels of the organisation: internally, with partner organisations, and external stakeholders. The literature supports this paradigm as well, where it is clear that including stakeholders from every function, department, and level of the business and key external stakeholders in analysis, planning, and execution is imperative to successful change implementation (Capra, 2002; Hallin et al., 2016; Senge et al., 2008). This is tied to organisational communication, community, speaking the same language, and empathy. An example of this was represented in Case Study 2, Section 5.3.3.

The findings of this research show that positioning of change with organisational culture and benefits is necessary, as change cannot be implemented and sustained if not aligned with corporate culture. This involves making sure that empathy is built into all aspects of the company's mentality, opening communication channels, and improving process. Change should be a constant, open-ended process of adjustment to shifting situations and requirements (Burnes, 1996, 2004; Dawson, 1994).

These findings show that a new focus on people is created in this new world economy paradigm and that there is a lack of a comprehensive systems model that is strategic yet also has elements that are executable at the tactical level (De Wit and Meyer, 2005). Organisations need to shift the focus from shareholder to stakeholder management, creating an organisation with a people-focused culture (Laszlo, 2005). This new mindset that people are the essential commodity to an organisation, and investment in them is the best way to ensure success and growth. It is essential to establish a new way of thinking and make sure that this community is built internally and connected to external channels. *People matter* helps develop

ownership that will enforce the adoption of everyday behaviour. People are the essential commodity to an organisation, and investment in them is the best way to ensure success and growth.

7.5 Integral Design Thinking Strategy Framework

This section will discuss the IDT strategy framework in more detail. The IDT framework has three core focus areas—communication, branding, and community—with two focusing disciplines: empathy and speaking the same language, and design thinking binds all of them together. IDT will also incorporate tools that will aid researchers/practitioners (referred to as change agents in the framework) tailored from other sources at each phase. The following are the tools that will assist practitioners at each phase of the creative thinking process:

- Phase 1 tools – step 1, 'Interaction Matrix' is tailored from Wilber's Integral Vision, and 'Building Purpose' adapted from Scharmer's U Theory
- Phase 2 tool - step 2, 'Intervention' tailored from Doppelt's Seven Interventions for Sustainability
- Phase 3 tool – step 3, 'Design Value Creation' tailored from Laszlo's Eight Disciplines of Value Creation

This research study began with the perception that there were gaps in the strategies of how leaders in the sustainability/ESG markets were attempting to push change through the challenges they were facing. The research focus was to find a strategic framework that would aid these individuals and ease their efforts to implement the modifications desired for the organisation and society at large. The leading development of the research was that organisational culture needs to embed sustainability into holistic behaviour and processes. This study's findings revealed that organisations require a new road map to understand the transformation they need but lack a comprehensive, systems model that is strategic, yet also has elements that are executable at the tactical level (Seelos and Mair, 2005b; Levy, 2001; Beer and Nohria, 2000; Sirkin et al., 2005; Mirrelees and Miller, 2008).

This research set out to find a link or to define a bridge for sustainability leadership where a lack of holistic strategies existed. The solution of this study was the development of a strategic framework, IDT (See Figure 60), to help build connections and define some gaps to enable the implementation of behaviour change in organisations attempting the implementation of ESG measures into their culture.
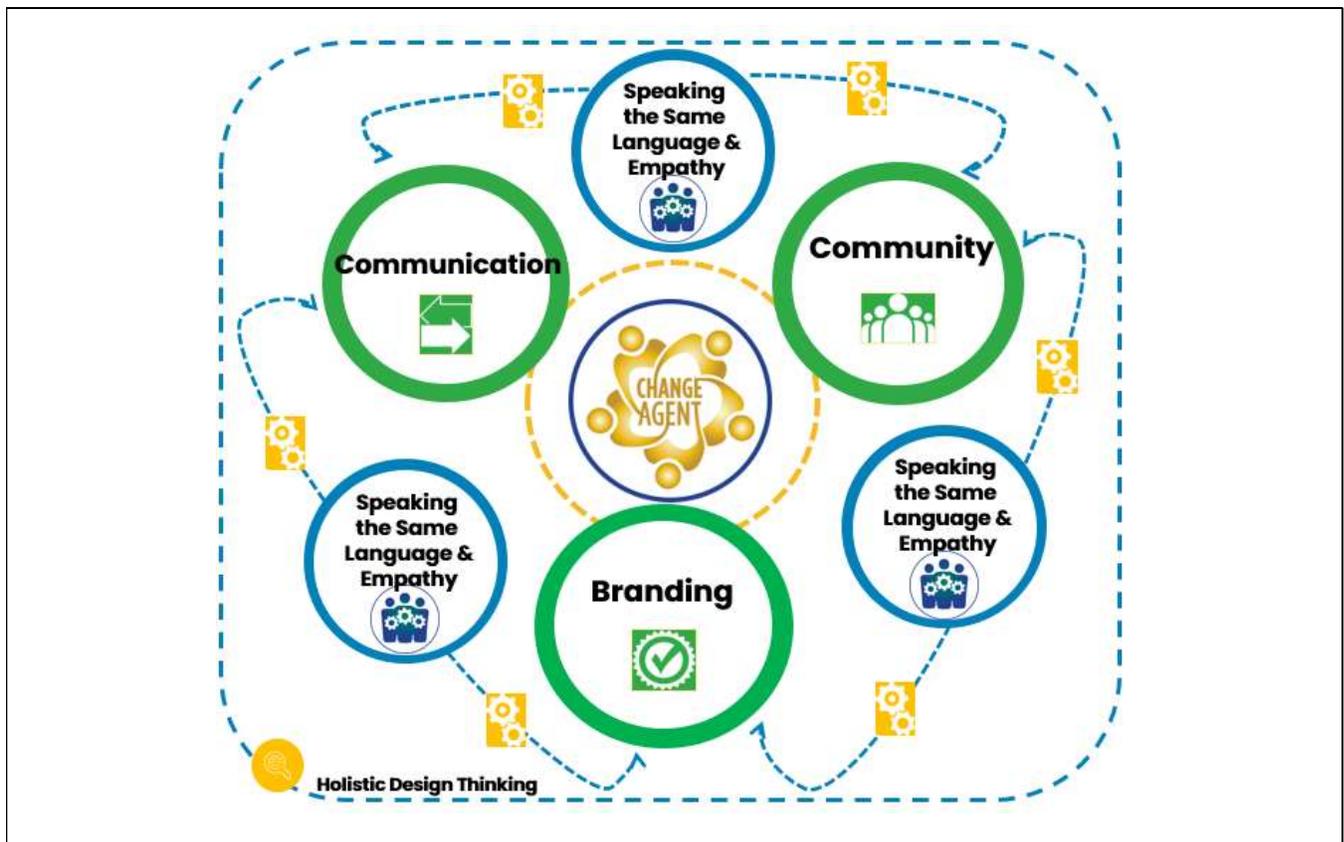
Figure 60: Final areas of Integral Design Thinking Strategy Framework (Source: Author)

IDT framework was designed to help sustainability leadership understand the areas they need to focus on and to help them implement and embed sustainability initiatives at a faster rate. Several scholars have argued that most sustainability leaders develop initiatives in a linear manner and do not consider holistic strategies or understand the web of connections that they need to work to streamline their process to be able to work easily in their organisational environments (Doppelt, 2003; McDonough and Braungart, 1991, 2002; Seelos and Mair, 2005b; Johnson et al., 2017; Unruh et al., 2016). This holistic strategy framework is a tool to help them in the thinking process and focus as change management had not been taken into full consideration in their attempt to implement initiatives. The framework (see Figure 60 and Figure 65) is broken into six core imperatives that need to be thought of and tackled. All core imperatives work together and are connected, and strategy development will need to address these together holistically. The six core imperatives are as follows:

1. Design thinking
2. Communication
3. Community
4. Branding
5. Speaking the same language and empathy
6. Holistic design thinking methodology

7.5.1 Design thinking and holistic design thinking methodology (HDTM)

The case study research aided in the author's awareness that a more holistic understanding of organisational systems should be addressed; this should be part of the model and the creation of strategies to implement cultural shifts. The holistic design thinking methodology (HDTM) development was formulated and adopted for the IDT strategy framework through the case studies and literature review research. The thesis's investigation knowledge cycle is summed up into a HDTM framework. The final thesis findings take shape through a design thinking process with a soft system thinking approach that developed the HDTM to help create a holistic view and analysis of the research. Checkland, (1999) advises that systems thinking involves pondering in layers defined by a researcher. He explained that holistic thinking theory, established in the 1950s, considered businesses as a compilation of systems, while systems thinking combined systems components that made up an organisation. He further stated that system thinking can facilitate the unity of science by merging the analysis of various different disciplines' problems and help develop solutions.

This research utilised a combination of design thinking and a complex adaptive system (CAS) approach to develop a HDTM to help achieve the organisational case studies' holistic vision. HDTM (see Figure 61) developed while solving real-life sustainability management research. This is a combination of SSM learning cycles for action, where change agents need to think about a problematic condition on a holistic scale in an organisation, and DT methodology, where thinking of the problems is the focus of developing a solution that is human-centric. In Case Study 3 research and analysis, HDTM was realised after the evaluation of findings and critical distance from the case study. This also aided in the final development of the artefact IDT strategy framework.
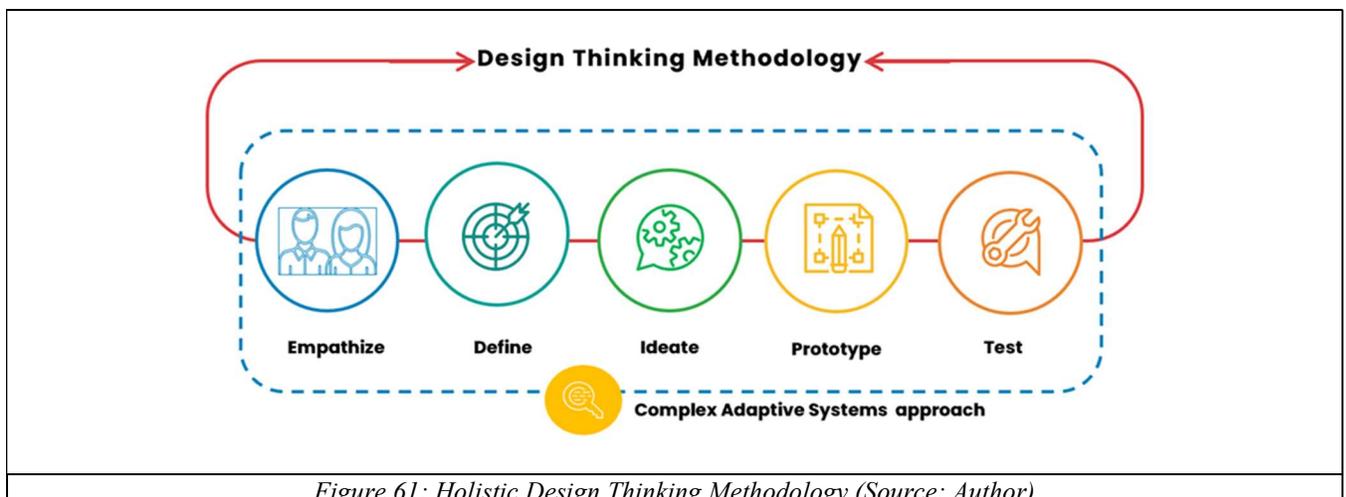

Figure 61: Holistic Design Thinking Methodology (Source: Author)

CAS help the manager see the organisation holistically with all the parts. Porter's (2009) CAS approach has a four-part system that covers: Principles and assumptions, theories, methodologies, and strengths and weaknesses. He indicated that as sustainability leaders consider these parts, their success will require understanding the complexity of systems', ongoing learning and bottom-up evolution, non-linear systems, and developing appropriate incentives, monitoring outcomes, and making adaptations as needed. The addition of the design thinking process to this formula created HDTM. The design thinking process is repetitive, flexible, and focused on collaboration between sustainability leaders and users, with an emphasis on bringing ideas to life based on how real users think, feel and behave. Design thinking tackles complex problems in an iterative approach of five steps. Figure 62 summarises the process.
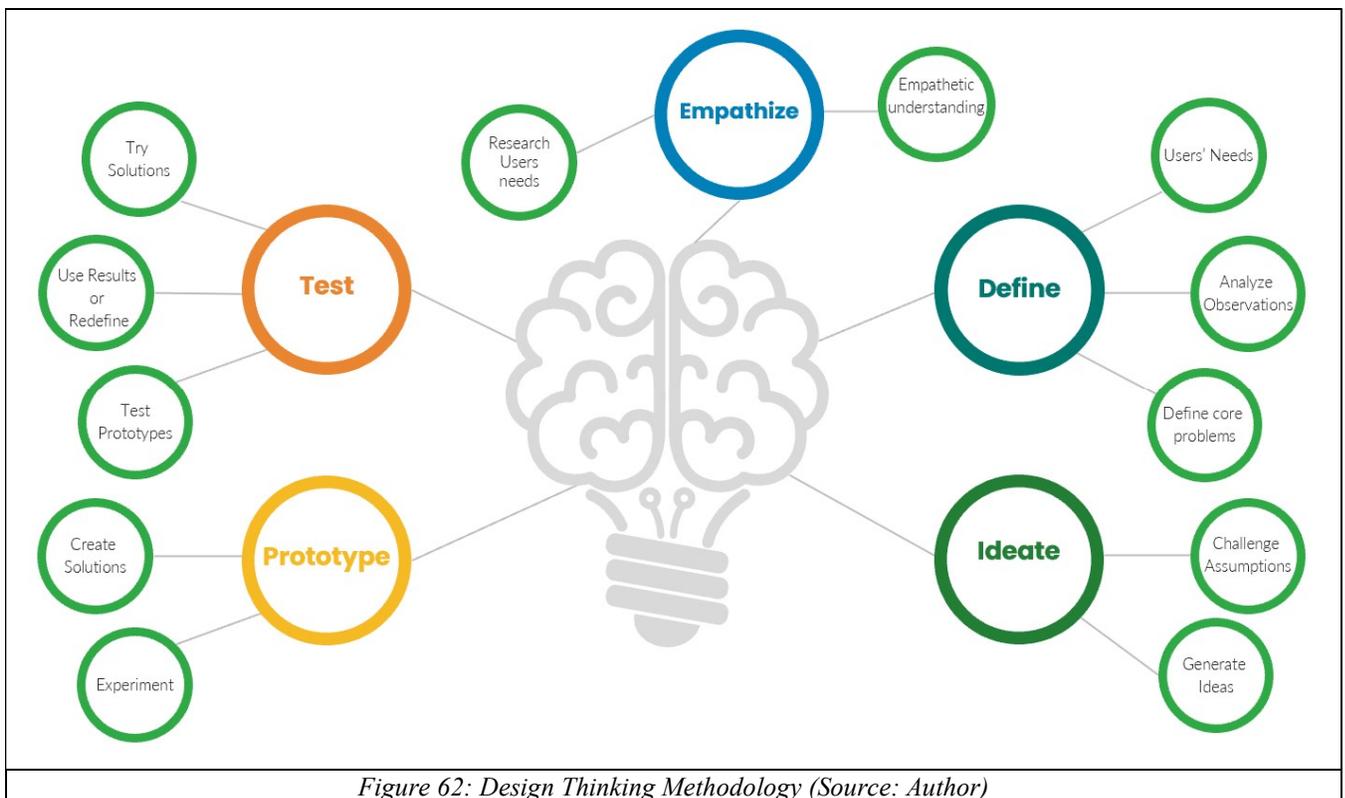
Figure 62: Design Thinking Methodology (Source: Author)

The five stages of design thinking start with empathise. Here, the author understands the users' needs and gains an empathetic understanding of the problem. Empathy is crucial to a human-centred design process, as it allows collaborative groups to set aside personal assumptions about the world and gain real insight into users and their needs. The author then moves to define the needs and problems; these are designed and developed from the collected information accumulated during the empathise stage. Here, the author analyses observations and synthesises them to define the fundamental challenges identified. The ideate stage is where the author challenges assumptions and creates ideas. At this stage, the identification of

innovative solutions to the problem statement is made. Then, the design solutions are brainstormed for alternative ways to view the problem. The prototype stage is the experimental phase, where the best possible solution for each challenge is found. The last stage is to test and find the best solution. As design thinking is iterative, this can be the final step; however, some groups often use the results to redefine one or more further challenges. Thus, in the design thinking process, one can return to previous stages to make additional iterations, modifications, and improvements to findings or rule out alternative solutions.

The design of the IDT holistic strategy framework combines all the core imperatives for the ability to develop critical thinking of these areas, how they work together, and to aid in developing unified strategies for organisational cultural shifts, see Figure 60 and Figure 65 of the framework. The framework comprises five different core imperatives with design thinking, and HDTM applied in all of them. As discussed earlier, design thinking is about looking at all issues with an open mind and incorporating empathise, define, ideate, prototype, and test, while HDTM includes design thinking, but it adds a soft system thinking approach. The first main core imperatives to initiate strategy development are communication, community, and branding. These first core imperatives are the main concentrations that the change agent must consider when entering the organisation to begin change management strategies. Initial questions to be asked are how to build a community, how to communicate messaging, and how is it going to brand sustainability. All the remaining core imperatives will need to be analysed for existence in the organisation and embedded as part of processes and thinking. These core imperatives work independently from each other but also need to be working in unison.

7.5.2 Communication, branding, and community

The findings from interviews and case study research revealed that the lack of communication between individuals, departments, and external partners hindered the ability to properly implement these initiatives. These findings also reveal that most organisations and sustainability leaders do not fully understand the conditions required for change management adoption when implemented. To help influence and open communication channels, change management strategies need to be employed on a holistic larger scale for acceptance universally within the organisation. If proper communication channels are not accessible, it will be harder or impossible to implement holistic level thinking. When considering implementing sustainability initiatives, which include environmental, social, and governance, this research found that management requires the buy-in of leadership, have the organisation's voice attached to it, and have the champions moving the initiatives from all levels of the organisation. These champions should understand

the vision, the ethics behind it, and how it is positive for them and the company at large; this is part of creating a collaborative community. If an organisation does not communicate the value of the initiative, then trust, the belief, or the will of the individual that they are trying to influence will not exist, leading to the initiative's derailment (Frese et al., 2007; Hornung and Rousseau, 2007; Parker et al., 2006; Oreg et al., 2011). Leaders of sustainability need the transformation of thinking from a linear singular scheme focus strategy to realise the web of connections of a broader system that will ease the implementation of these smaller programmes (Michela and Vena, 2012; Bartunek et al., 2006; Soenen et al., 2017). The developed IDT framework is a tool to help them transition into this form of thinking, aid in the understanding of a holistic vision, and to help them influence others into this behaviour change.

An example of this strategy is when a person comes into a sustainability position. Irrespective of the title of the change agent (sustainability manager, CSR director, VP of inclusion and diversity, procurement manager, etc.), they need to understand the web of connection of process and how the organisation accomplishes everything. There is an added understanding that it comes down to operations, human resources, facility management, the ethics integrity of an organisation, etc. Such transformation has connections to all the working systems and people of that business. The organisation's mission and vision need to embed this purpose into organisational philosophy. This strategy can be seen in the steps Microsoft's new CEO, Satya Nadella, took in February 2014. James P. Ford, Microsoft, shared during his interview that Satya Nadella understood what was needed for actual change to occur, so within the first five months in his role, he changed the purpose end of the mission of the organisation: 'to empower every person and every organisation on the planet to achieve more' (Microsoft.com, 2020). From there, he engaged company leadership to start developing a strategy and to see what that means to the organisation. As part of the design, he built the foundations of reporting and transparency. Then communication channels were expanded, engagement about sustainability began, and the communication of achievements to every employee was designed. Sustainability achievements began to be transmitted, as well as what the organisation was doing moving forward. (Interview, James P. Ford, Microsoft). In January 2020, Microsoft announced carbon-negative goals by 2030, and by 2050 they 'will remove from the environment all the carbon the company has admitted either directly or by electrical consumption since it was founded in 1975.' said Microsoft's President Brad Smith (News.micosoft.com, 2020).

As the example above shows, after embracing new principles and goals, the company modifies the regulations that define how work is done by creating new strategies, tactics, and execution plans (Doppelt, 2003). These are the first steps for sustainability to be moved to a more extensive scope. This new shift in

the organisation's strategic repositioning can help create a unique and valuable position for the organisation (Porter, 2009). This will also help the organisation shift its focus from a shareholder to a stakeholder focus. Stakeholder groups are both internal and external to the company. This strategic move will aid in transition elements for cultural shifts for the organisation. Johnson et al. (2017) stated, 'Indeed, aligning strategic positioning and organisational culture is a critical feature of successful organisations' (p.172).

Interview findings from James P. Ford (Microsoft) revealed that proper communication channels were developed and communicated on multiple levels, both internally and externally. Internally, it was shared on their internet (company's internal communication platform) through two monthly emails, conferences, and town halls that happen every month, as well as everywhere that employees had access to information about the company. During the interview, he said that this information was even communicated through LinkedIn postings to all staff for them to be able to communicate that information out as well. This process was also connected to the community and branding.

Leadership's ability to communicate organisational and individual benefits to stakeholders so they believe, understand, and consider that reason for a change meaningful tends to have a more favourable attitude to the change and increases the chance of acceptance (Michela and Vena, 2012; Bartunek et al., 2006; Soenen et al., 2017). As observed in Microsoft, the change initiative started with shifting the organisation's actual voice or what it stood for; it continued to work through communication and branding, and it defines what it means for the organisation. This is also observed in Case Study two, where a collaborative working group defined sustainability, from which branding and communication strategies were developed, and these collaborative change agent champions brought it back to their organisation/team to communicate it and build their own internal strategies from that point. These steps require the unification of communication, brand, and community working in unison. As organisations develop and communicate strategies to their employees, they will need to build transparency within reporting and build an outline of how to give that information to all employees at all levels. The process aids in creating the foundations for stakeholders to understand it, believe in it, and then be the champions to decipher it out beyond the borders of their organisation.

7.5.3 Speaking the same language and empathy

The two remaining core imperatives are speaking the same language and empathy. These core imperatives are as crucial as the first three but will need to be applied to all three as part of the holistic strategy.

Speaking the same language is the understanding that there are different layers that the change agent will need to understand: be able to create the right stories, the right processes, and the suitable communication styles to reach stakeholders at different levels. This approach should be evaluated and adjusted for all three of the main sections of branding, communication, and community.

The last one is empathy; this will need to be built into each layer as well. Some examples of empathetical thinking are understanding work at all levels for stakeholders, the knowledge of stresses on the individuals, sectors, or sections, and the ability to address them as strategies and solutions are being designed and implemented. As information is gathered and demands are analysed, there is a need to embed design thinking into the organisation holistically to allow for the transition of organisational thinking transformation and adoption. This will need to be applied to both individuals and processes, as the framework Figure 60 shows how design thinking and HDTM are associated with the sections.

Both the same language and empathy work together as a uniformed team; both are needed to build understanding, trust and unity. One example of this process is from Case Study 3, the development of the Global Citizen Pledge, which was signed by 90% of the headquarters personnel. It brought the definition of sustainability and what it means to the organisation, and it had eight priorities that it cared about. Another example is in Case Study 2, where 52 people from multidisciplinary agencies, non-profit organisations and school stakeholders came together under the Advisory 'Innovation Council' and worked together to define what sustainability meant for the New York City Department of Education and how each unit can do its part to work together to make it happen.

7.5.4 Integral Design Thinking alignment and visual example

The interview findings revealed five overarching themes that sustainability change managers need to develop and adapt. Figure 63 shows the findings from the interviews with the corresponding information from case studies on how the Artefact IDT holistic strategy framework will help those areas of need. IDT framework will be discussed in the next section. IDT Strategy framework will aid in:

- ***The integrative design development process*** – Helps develop integrative design development process holistically in an organisation, where all stakeholders affected by the change can engage, have ownership, and a voice.

- *Unified voice and messaging* – Facilitate the creation of unified messaging internal and external to the organisation, while also creating understanding and support. This helps unite messaging for collaboration, belief, and understanding.

- *Align change with organisational culture and benefits* – Helps align change and build collaborative efforts for organisational behaviour change, as change cannot be implemented and sustained if not aligned with corporate culture.

- *Be adaptable and allow for evolution* – Helps continual reassessment of impacts, willingness, and ability to adapt to the next wave of transformation, so as the current economic market evolves, so will organisations.

- *People matter* – Helps develop ownership that will enforce the adoption of everyday behaviour. People are the essential commodity to an organisation, and investment in them is the best way to ensure success and growth.

Figure 63: Study of Interview Findings and IDT Framework Alignment (Source: Author)
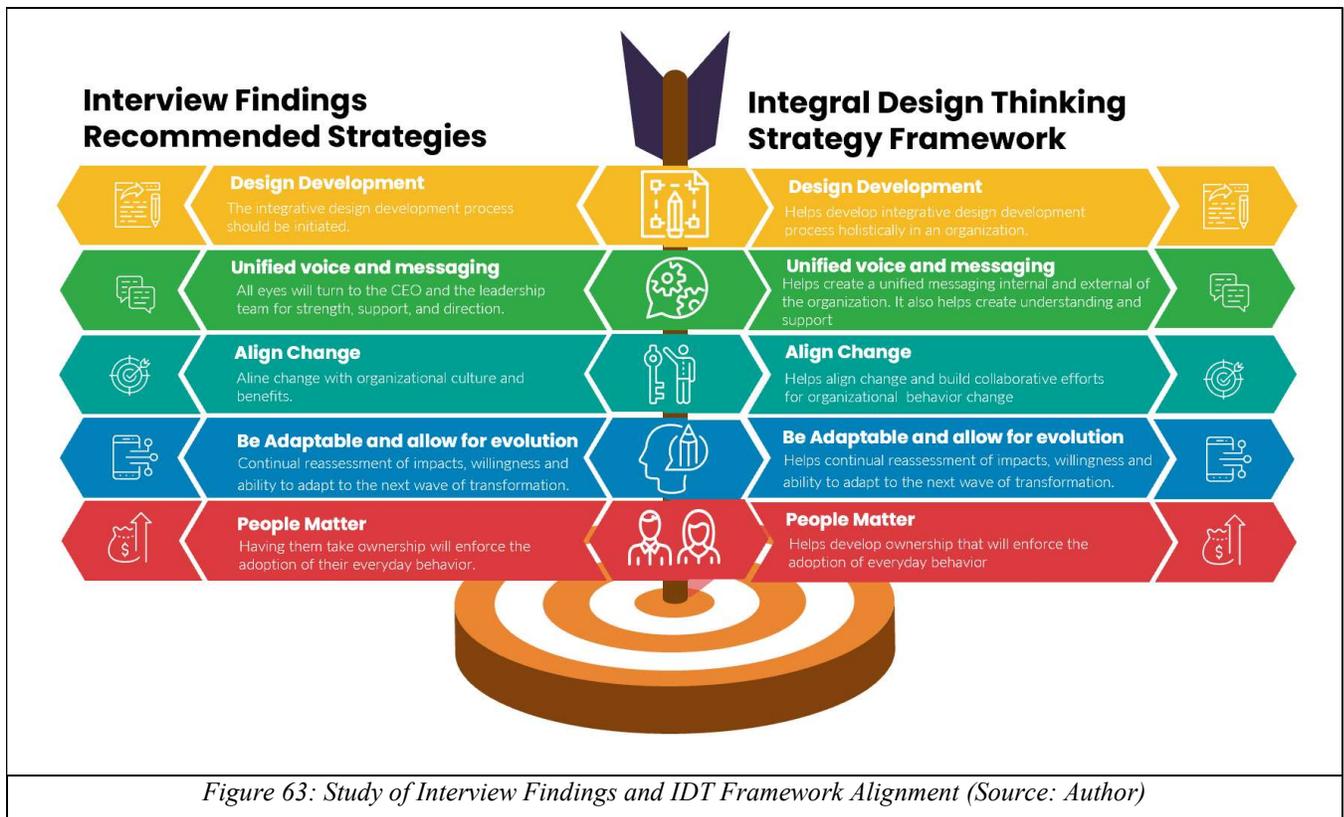
Figure 64: IDT – Case Study 3 Example Visual was developed to show where the IDT core imperatives were used (see below and next page). This shows steps and where the author utilised initiatives and artefacts and how they relate to each section of the IDT holistic strategy framework. Some examples

shown are understanding how operating systems work and people work and interact with each other via interviews of diverse stakeholders. Other initiatives were bringing education and design thinking methodology into the organisation, creating educational workshops, and examples for staff was a start that influenced others to commence innovation and collaboration in the organisation. A full understanding of framework foundations permitted the author to create collaborative and engagement opportunities, align branding and messaging for internal and external stakeholders, and create policies that brought together evolving brand strategies and organisational positioning. These measures created better communication flows and understanding of where the organisation stood, its goals, and ethics. These were some foundations that were built to allow true sustainability work to be done in projects, such as waste and energy management initiatives, to be adopted.

Figure 64: IDT – Case Study 3 Example Visual (Source: Author)
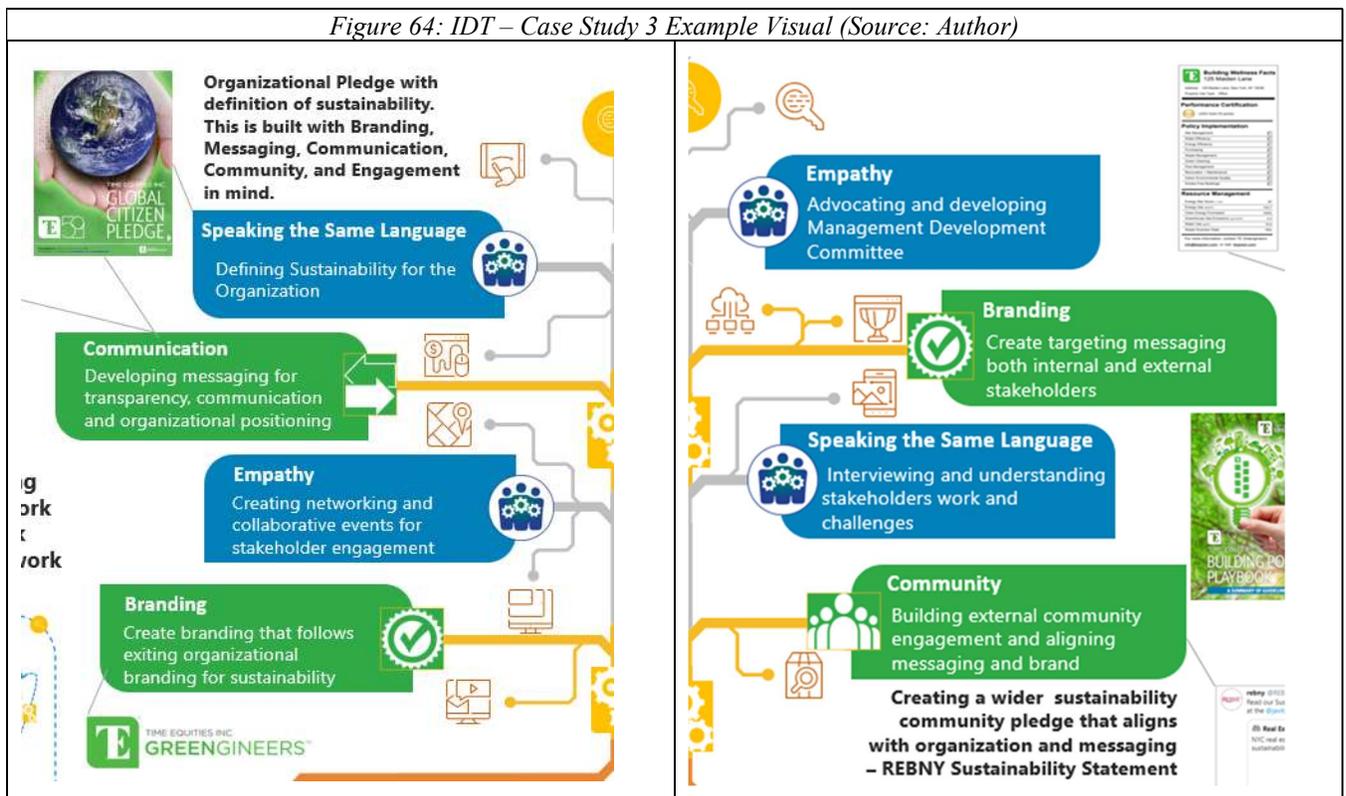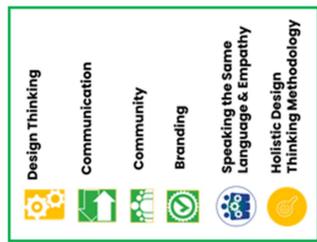
Integral Design Thinking
Holistic Strategy Framework
Case Study Example

Design Thinking
educational workshop
designed and developed
for internal stakeholders

Designed and developed facility management policy book, modified to show policy connections and educational information, incorporated it in leasing language, building wellness facts for building user engagement, as well as creating incentive awards. This brought together empathy, communication, community, branding, design thinking, speaking the same language.

Empathy
Advocating and developing Management Development Committee

Branding
Create targeting messaging both internal and external stakeholders

Speaking the Same Language
Interviewing and understanding stakeholders work and challenges

Community
Building external community engagement and aligning messaging and brand

Creating a wider sustainability community pledge that aligns with organization and messaging – REBNY Sustainability Statement

Organizational Pledge with definition of sustainability. This is built with Branding,. Messaging. Communication, Community, and Engagement in mind.

Speaking the Same Language
Defining Sustainability for the Organization

Communication
Developing messaging for transparency, communication and organizational positioning

Empathy
Creating networking and collaborative events for stakeholder engagement

Branding
Create branding that follows exiting organizational branding for sustainability

Integral Design Thinking holistic strategy framework Core Imperatives work together in a unified network and strategic process
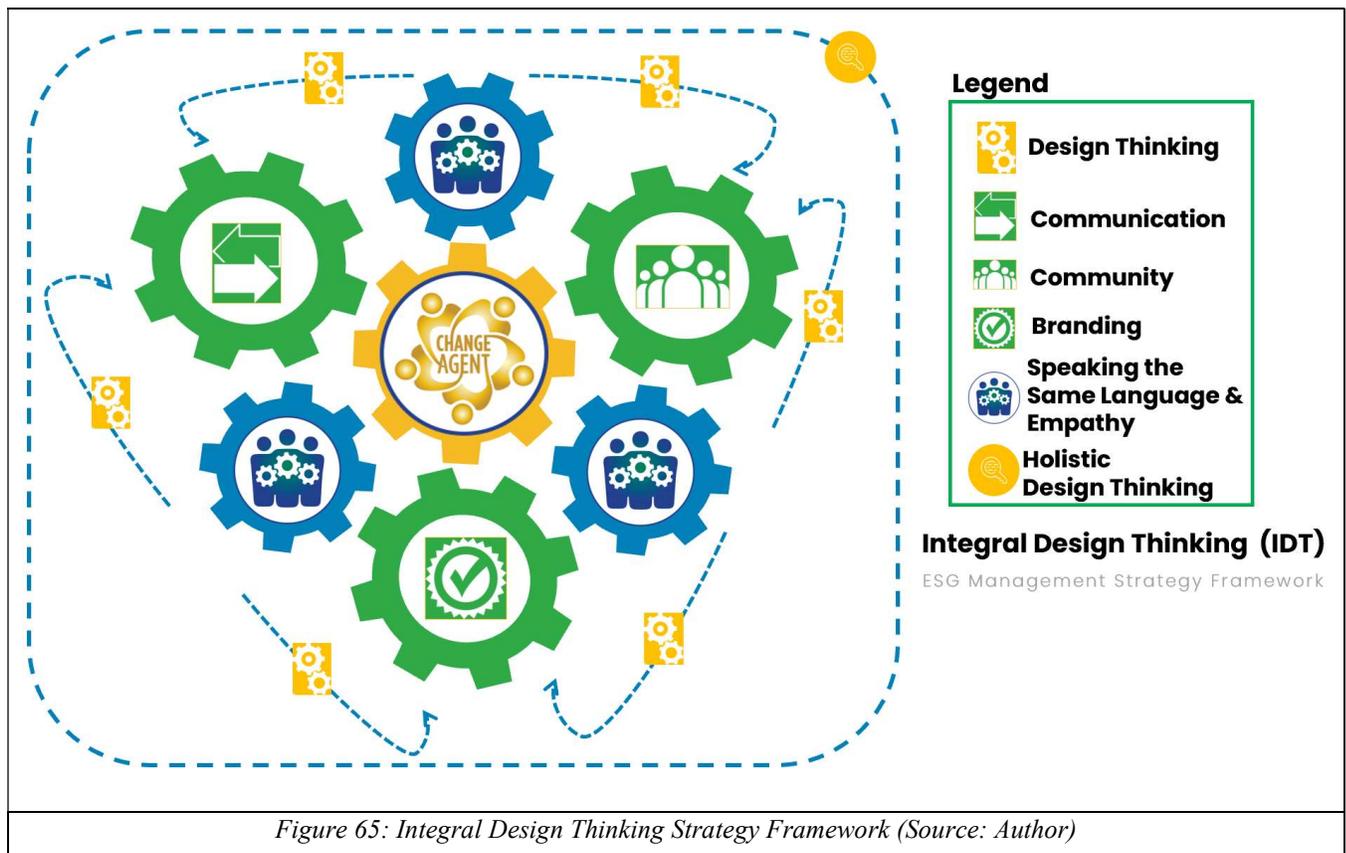
Design Thinking

Communication

Community

Branding

Speaking the Same Language & Empathy

Holistic Design Thinking Methodology

GREENGINEERS

7.5.5 IDT holistic strategy framework toolbox

Figure 65: Integral Design Thinking Strategy Framework (Source: Author)

The IDT framework is broken into six core imperatives that need to be thought of and tackled. Figure 65 was designed to be used with the IDT support information and visual aids with graphic representation for each core imperative. The following section will discuss the IDT toolbox that is represented by Figure 69, all core imperative support information, Case Study 3 example, and creative thinking tools in Section 7.6. Each of the core imperative support information is developed from this research and is designed to help in the sustainability and initiative development team's thinking process. This model can be applied and utilised by other change management practitioners for change implementation, and in the future, it can serve as part of the foundations for developing other tools.

7.5.5A IDT - Design Thinking support information

The design thinking core imperative intends to aid change agents in creating an organisation that is continually learning, adapting, and innovating in a constantly evolving new world economy (See Figure 66). The current research findings align with the concept that it is imperative to understand the connection of smaller programmes to the larger strategy, and design thinking methodology helps in that effort (Walton

et al., 2010; Lockwood, 2009; Brown, 2008; Cross, 2011; Elsbach and Stigliani, 2018). An example from Case Study 3, Time Equities Inc., is the creation of bi-weekly 'Lunch and Learn' for the organisation, which introduced topics such as design thinking and sustainability. This influenced the Education Committee's creation, where every department head would present information about their department and projects; this was also done to connect with breaking down silos, opening up communication channels, and building community internally. The educational workshops were open to stakeholders from every level; this also brought together employees that would never have interacted together on other occasions. This helped build friendships and collaboration outside the sustainability arena.

Figure 66: IDT – Design Thinking support information (Source: Author)

7.5.5B IDT - Communication support information

The communication core imperative's intent is for change agents to discover and understand communication flow in the organisation to be able to reform, utilise, and influence through these channels (See Figure 67). An example from Case Studies 2 and 3 are that both organisations had silo's that needed to be addressed. As sustainability initiatives need to be embedded in a holistic manner and communication is of critical importance, as data collection and feedback are essential for developing and reporting initiatives, and creating transparency are part of the work's foundations. The author agrees with scholars'

positions that building awareness, understanding, knowledge, confidence, behaviour change and cultural shifts is a process that is informed by peer-to-peer interaction, and learning should be understood and managed (Feldman and Pentland, 2003; Obstfeld, 2012; Cohen et al., 2014; Gavetti and Warglien, 2015). As findings have revealed that most sustainability teams are small, there needs to be a flow of information and best practices so that adoption by others can be owned and managed. The sustainability team's will be required to manage others not under their immediate control and receive feedback of desires and challenges so adjustments and improvements can be made. Some examples of efforts can be seen in case studies two and three. The author aided in the creation of working/volunteer groups and committees from diverse stakeholders, joining leadership meetings to deliver information, gathering information from/to different teams and departments, and creating information-sharing teams.
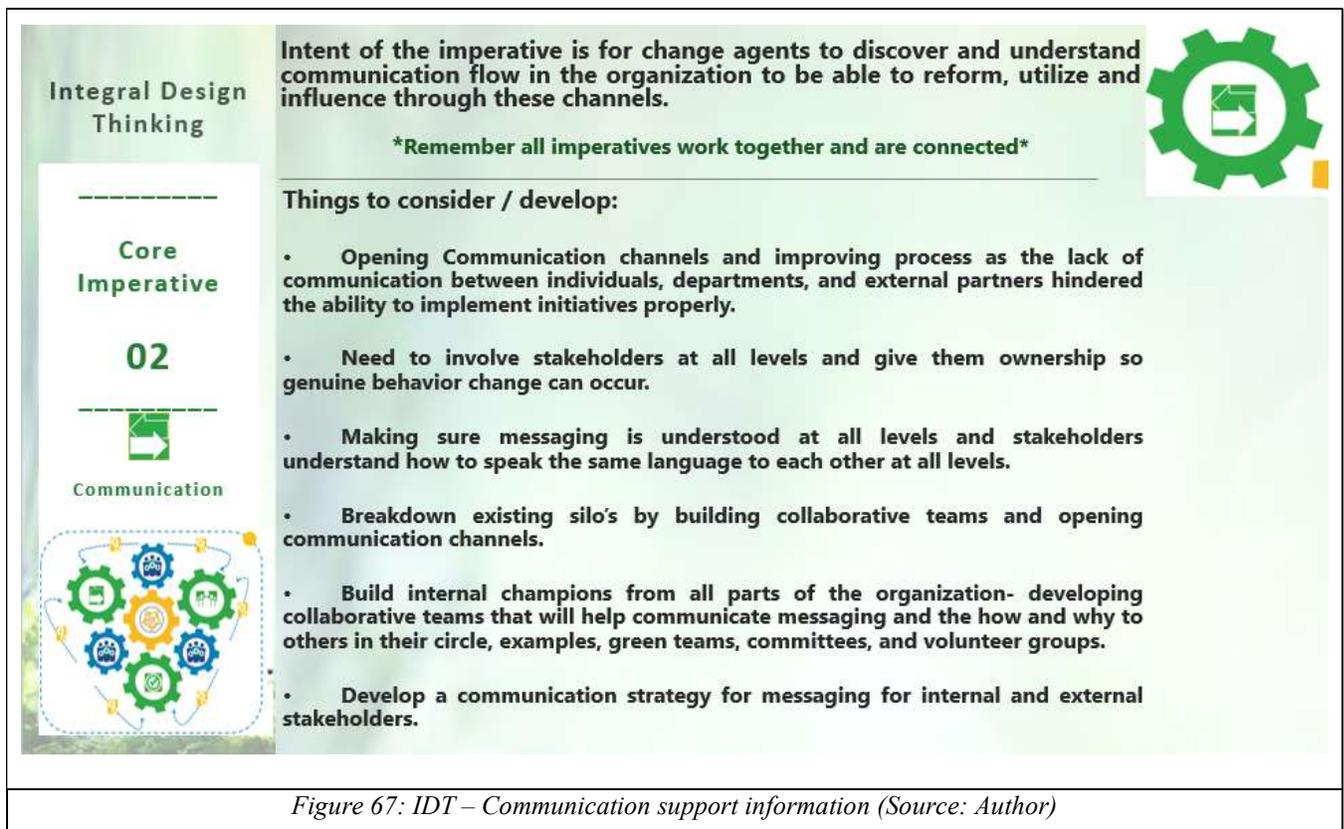
Figure 67: IDT – Communication support information (Source: Author)

7.5.5C IDT – Community support information

The community core imperative's intent is for change agents to discover and understand the community of an organisation, if it exists/evolve/develop as this will build trust, allow for shared knowledge and support as well as build a feeling of fellowship in the organisation (See Figure 68). This strategy was used and developed in the case studies to build unification in goals and interest, an incentive to align with

identity and values, and opened up channels for the sustainability team to be able to network and engage in cross-disciplinary collaborations when needed (Champniss and Rodes, 2011; Laszlo, 2005; Bidhan et al., 2010; Johnson et al., 2017). An example from Case Study 3, Time Equity Inc., is developing engagement around the organisation's Sustainability pledge announcement. Working with internal key team members from marketing, executive team members, and green team volunteers developed a strategy for engagement, for introductions to sustainability departmental to all staff, as most did not know the department staff or worked with them. The pledge was designed to be signed by employees in April, as it was earth month, and it would include a pen with the new logo as reminder and awareness and a plant that would sit on their desk for reinforcement of messaging to show others that they signed the pledge as well. Information was communicated from both the top-down and bottom-up. Everyone had the opportunity to come and sign the pledge, meet the sustainability team, who also engaged them about their work, and try to find connections with their work and the pledge initiatives. This example follows the messaging from scholars that leadership's ability to communicate organisational and individual benefits to stakeholders, so they believe, understand, and consider that reason for a change meaningful, they tend to have a more favourable attitude to the change and increase the chance of acceptance (Michela and Vena, 2012; Bartunek et al., 2006; Soenen et al., 2017).

Figure 68: IDT – Community support information (Source: Author)

7.5.5D IDT- Branding support information

The branding cores imperative's intent is for change agents to align messaging with the organisation's mission and vision to make sure messaging is translated to all internal and external stakeholders (See Figure 69 for visual aid). The researcher believes that an organisation must be able to govern its identity because it is important for recruiting, guiding employees, and attracting customers to grow its bottom line as it secures its positioning in the market it operates (Nelissen and van Selm, 2009; Esty and Winston, 2006; Johnson et al., 2017). An example of this is Time Equity Inc., Case Study 3, which created a brand image for the organisation that stood for its sustainability messaging but still followed its original brand image (see Figure 59, Chapter 5). The first step was to develop a definition of what sustainability meant to the organisation and develop a symbol that would help communicate that. The original logo for the organisation is blue; the author with the CFO's team and legal to create a green version that would be used on all sustainability messaging and reporting. This was then used on all messaging, both internally and externally, when the organisation was talking about any sustainability information. This was added to the website, all social media information, all marketing material, and information in unison with the original blue logo. This started to align messaging with an organisation's mission and values.

Figure 69: IDT – Branding support information (Source: Author)

7.5.5E IDT – Speaking the same language and empathy support information

Speaking the same language and empathy core imperatives intent is for change agents to build purpose, care, and understanding of organisational behaviour and culture (See Figure 70). The author agrees with scholars' assessment that enhancing compassion is often interpreted as a means to acknowledge others and surpass difference across social and spatial boundaries by creating mutual identities (Schultz, 2000; Berenguer, 2007; Czap et al., 2012; Pahl and Bauer, 2013). An example is Case Study 3, Time Equities Inc., which is developing a pledge for the organisation that defined sustainability and the intent the organisation cares about. This was signed by the majority of internal employees, communicated, and marketed to all third-party partners, as well as the public via social media channels. This action brought together all aspects of the IDT framework, developing a community with a shared vision, giving them ownership of the key intentions, developing awareness, and creating an understanding community on the subject matter. The process of communicating to third parties and the public showed that this was part of the organisation's mission and voice, which also solidified the messaging internally. This created an environment that allowed for collaboration on projects and initiatives being promoted by the sustainability team.

Figure 70: IDT – Speaking the Same Language and Empathy support information

7.5.5F IDT – Holistic Design Thinking Methodology support information

The Holistic Design Thinking methodology core imperative's intent is for change agents to understand existing holistic organisational systems and human-centred activities and be able to find areas where improvements need to occur, be modified and evolve for Sustainability/ESG implementation (See Figure 71 for visual). This research utilised a combination of design thinking and a complex adaptive system approach to develop a Holistic Design Thinking Methodology (HDTM) to help achieve a holistic vision of the organisational case studies (reference section 3.4.6). The researcher's philosophy aligns with the concept that it is imperative to discover solutions that take into consideration all stakeholders and obtain the compromised solution to fit the organisation's culture (Checkland, 1999; Checkland and Poulter, 2006). An example, from both Case Study 2 and 3, is that upon entering the organisation, semi-structured interviews were conducted with a large, diverse section of the company; this was done to find out how things worked and how people worked together. It is essential to understand how systems work, how they are used, and what barriers might exist. Through these interviews and observations mapping of organisational flow, connections were assessed to understand what holistic strategies were needed to be able to effect true behaviour change for sustainability.
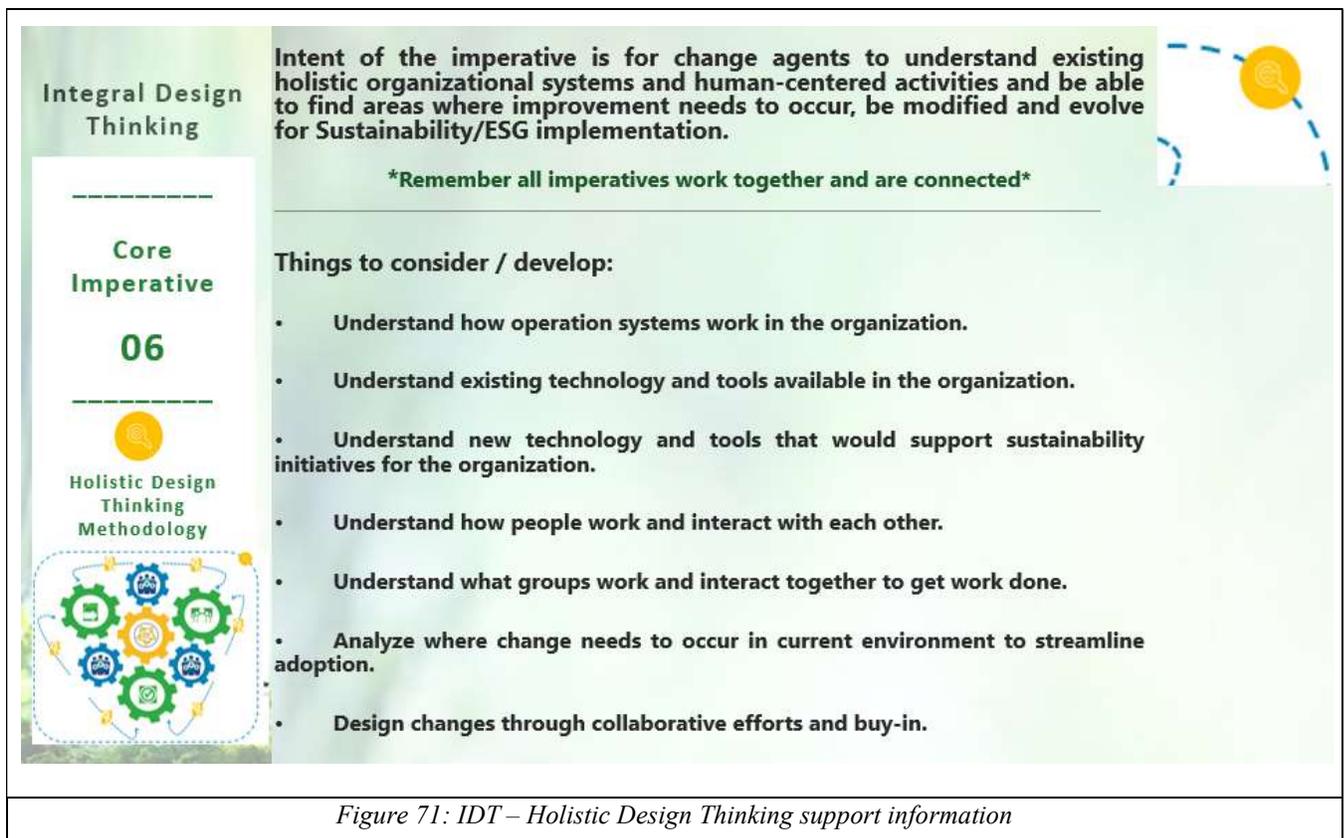
Figure 71: IDT – Holistic Design Thinking support information

7.6 IDT Strategy Framework Creative-Thinking Tools

The development of the IDT strategy framework creative-thinking tools intends to assist individuals interested in learning from and utilising this framework in a three-step process. Each graphic in the steps derives from experience of building the projects explored in the case, and from interactions with other leaders in the field. The graphics have also been created in a way that reflects core academic contributions. The tools aid in refining the focus and thinking of change agents. The IDT framework and design thinking methodologies also assist in achieving better results in terms of the changes that are sought. These were designed in three steps that could be applied to each of the phases in the methodology utilised in this research. Step one can be used in Phase 1 and is when individuals first attempt to understand what is required. Step two can be used in Phase 2 and is what needs to be thought of and done as that awareness develops. And step three, can be used in Phase 3 and is the process of creating the necessary value to accomplish implementation. These can be utilised at any time to help in the creative thinking process.

7.6.1A Phase 1 – IDT interaction matrix and building purpose creative thinking tools

In step one, leaders commencing implementation of sustainability initiatives or acting as change agents need to understand the web of connections within the organisation they are attempting to alter, so upon entering the company, they need to fully understand organisational systems, as well as processes and people. They will need to find out who those connections are and how they can assist in the impact to effect change. To support change agents in this step, a tool was created to aid the development of connections (See Table 20). The Interactions Matrix was designed to help understand relationships, both internal and external to the organisation.

The interaction matrix has four quadrants that assist in reviewing internal departmental connections, internal company connections, external partner connections, and external community connections. It is developed to show people close to the change agent and who are further away. Also, it shows where the gaps are and where better connections need to be made to streamline the process and build collaborative efforts. As one fills in the information, then they would have classifications as 1st level connections, 2nd level connections, 3rd level connections, 4th connections, and so on. The 1st level connections can also have extreme, high, medium, and low classifications. These would be a gradation of the intensity of interactions one has with that individual, department, partner organisation, or community members; then the second level, with similar concepts moving forward within those aspects, and so on.

As per Wilber's philosophy (see Section 2.3.3), one will need to recognise all web connections both internally and externally; thus, leaders of change management should have an understanding of the four quadrants' way of thinking. Some examples of the thinking process and questions that change agents can ask: connections to internal aspects for their work, internal departmental links, with who and how does their department function, who are those players, and then as a company, who are the departments that they rely on, to who are the third-party partners they work with to the community organisations they work with or effect. From this point, they can start understanding the web of connections that need to be erected, adjusted, or removed. With this exercise, change agents can analyse and develop who needs to be in the extreme position on their table and who needs to be at different levels. They can also see who they can reach out to and make them into their champions, even though they are at a low level of interaction. This step would need to be developed for existing organisational communication, branding, and community, so those three would need to be done individually, having these four quadrants of understanding, and then seeing how they all relate together. The interaction matrix will help leadership start to understand the connections and web of influence to manoeuvre into an organisation. For example, this was done in Case Studies 2 and 3 to understand who to interview and who should be part of the created committees or working groups. It can be seen in the example from leadership interviews at Met Life, where Jim Landau created different level committees to get buy-in and support, the need to understand who should be part of these groups and how they will be influential for the larger strategy.

It is imperative to analyse who the key blockers are, reposition certain stakeholders, and maintain the level of attention or power of some key stakeholders (Freeman, 2010; Bidhan et al., 2010; Walker et al., 2008; Johnson et al., 2017). This exercise would also allow for analysis and understanding of repositioning of individuals, or organisations. An example of this would be if a connection is a level 4th and on a low interaction level, but through thorough analysis, an understanding of the influence of this person, then they should be moved to level 1 and an extreme level of interaction to ease implementation. A repositioning tactic would be to include them in a collaborative group that already exists. Table 19 also shows a single quadrant mapping that could be done as quick exercises to help solve connections on many levels and open up the mind in a swift brainstorming exercise.

The matrix shows an IDT interactions grid organized by INTERNAL DEPARTMENT / INTERNAL COMPANY (top) and EXTRNAL PARTNERS / EXTERNAL COMMUNITY (bottom), with levels: Rare, 4TH Level, 3RD Level, 2ND Level, 1ST Level and mirrored 1ST Level, 2nd Level, 3rd Level, 4th Level, Rare.

	Rare	4TH Level	3RD Level	2ND Level	1ST Level	1ST Level	2nd Level	3rd Level	4th Level	Rare
Rare	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
4th Level	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	LOW
3rd Level	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
2nd Level	LOW	MEDIUM	MEDIUM	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	LOW
1st Level	LOW	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME	HIGH	MEDIUM	MEDIUM	LOW
1ST Level	LOW	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME	HIGH	MEDIUM	MEDIUM	LOW
2nd Level	LOW	MEDIUM	MEDIUM	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	LOW
3rd Level	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
4th Level	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	LOW
Rare	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW

Fourth level
Next Step Contacts Connections.

Third Level
Next Step Contacts Connections.

Second Level
Next Step Contacts Connections.

First Level
Closest Contacts / Connections.

	Rare	Fourth Level	Third Level	Second Level	First Level
Rare	LOW	LOW	LOW	LOW	LOW
Fourth Level	LOW	LOW	LOW	MEDIUM	MEDIUM
Third Level	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
Second Level	LOW	MEDIUM	MEDIUM	HIGH	HIGH
First Level	LOW	MEDIUM	MEDIUM	HIGH	EXTREME

Table 20: IDT – Interactions Matrix – Step 1 (Source: Adapted from Wilber's (2001) Integral Vision (AQAL)

Step 1 has two parts that will help change agents change their field of vision to advance innovation. Adapted from Scharmer's U-theory (see section 2.3.4), these leaders will need to: open the minds, open heart, presencing, and crystallising as they understand the web of connections (See Figure 72). In the IDT toolbox, it is the step that helps build purpose into the strategies. The cases reveal that 'building purpose' will need to be adopted on an individual level and then applied to the majority of the organisation and adapted into the organisational culture (Scharmer et al., 2002; Senge et al., 2004). Change agents will need to 'Open Minds' to set aside a voice of judgment, understand others' needs, and not apply to prejudge situations; this helps find the connections to empathy and speak the same language sections of the IDT model. Opening Hearts implies starting to have compassion for others and letting others in with no barriers. A simple example of this is in Case Study 3, where the education 'lunch and learn' started with opening minds to facilitate the understanding of sustainability and then transitioned to opening hearts where collaboration and understanding other groups' work in the organisation was instigated. Awareness will help in finding connections to the internal community of the organisation.

Presencing helps to build understanding of the web of connections, the latter's influence on one another, and how they connect to that internal community. In this step, individuals need to understand the organisation's internal community aspect, what is that pre-existing culture that exists, or what are the proper specific strategies for the organisation that need to be built. Crystallising occurs when visualising the connections is done. One needs to start sustaining those connections, seeing how to influence interactions, how to begin operating within that system, how to connect messaging, and the requirements for operation at those levels. This type of analysis will be the first step in the initial research, in line with Phase 1 in the developed design science research model. Examples of this can be seen in Chapter 5's Case Study 2 and three. Using design thinking to continuously try to find solutions for barriers, change agents can achieve these by:

- Setting aside a voice of judgment, understanding others' needs, and do not prejudge situations. These actions connect to empathy and speaking the same language.
- Having compassion for others and letting others in. This connects to the community.
- Understanding the web of connections and their influence on oneself and others. This connects to communication.
- Sustaining connections made through presencing and beginning to operate from them. This connects to branding.

Figure 72: IDT – Building Purpose – Step 1 (Source: Adapted from Scharmer Theory U: Seven Ways of Attending and CoShaping)
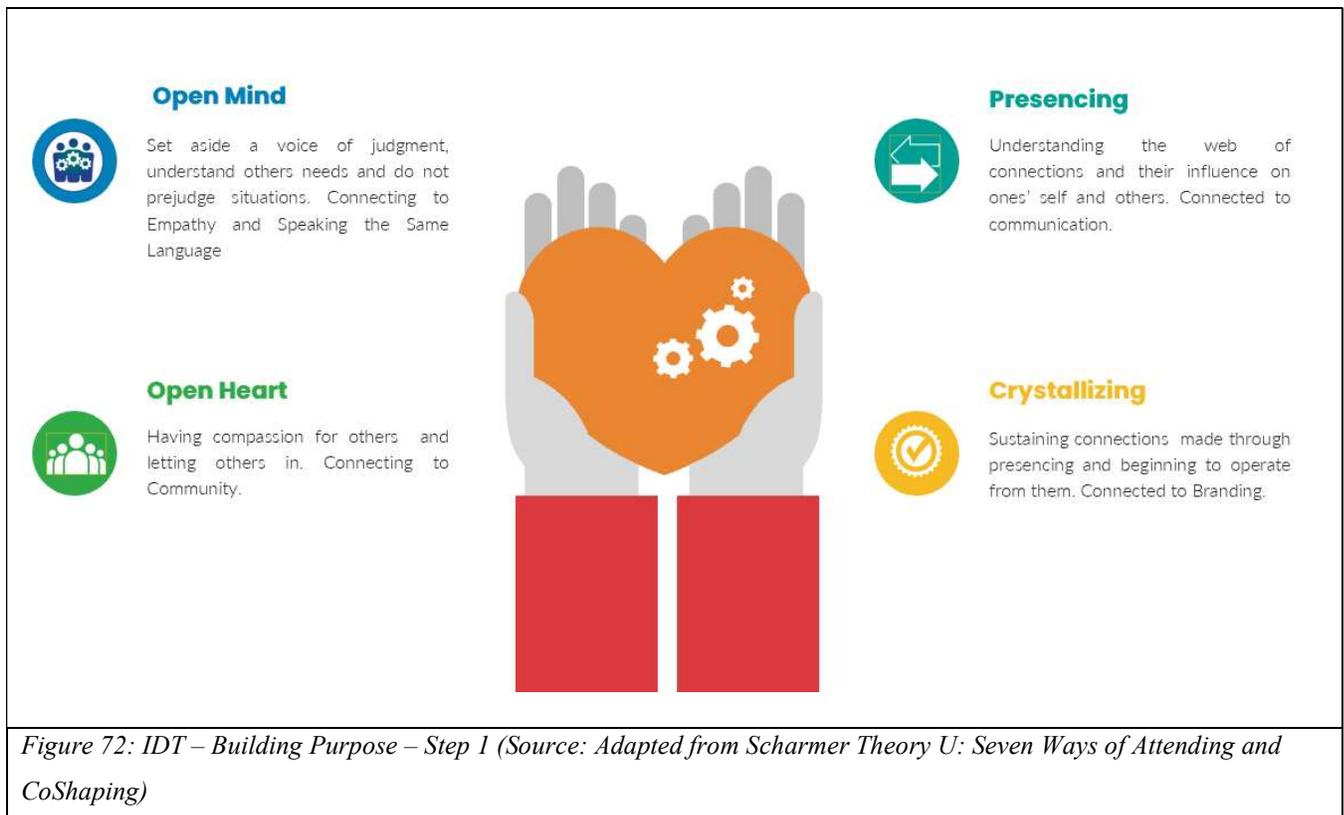
7.6.1B Phase 2 – IDT interventions creative-thinking tools

The inspiration for Step two in the IDT intervention tools is from Dopplet's seven interventions of sustainability. The author created a visual tool that is tied to the core sections of the IDT framework (see Figure 73). The interventions align with this study's research and fit perfectly with the findings (reference section 2.3.6). Change agents should have these seven interventions in mind as they manoeuvre in creating holistic strategies for the organisation, while focusing on the IDT framework sections. These leaders will need to think of techniques for changing mindsets in the organisation. An example of this would be developing engagement processes and building trust with all stakeholders. As they look at these interventions, they will need to streamline the process and rearrange the parts. Some questions asked could be: How does one need to mix the components within the organisation to optimise systems? Agents can start by relying on initial connections within those barriers found in stage one.

As per findings in the case studies, leadership's initial focus will be the unification of messaging within communication channels and community. Continuing with messaging, one needs to change goals by crafting a sustainability vision and guiding it to bring a more significant purpose into the organisation's story and unified identity. The leader has to ensure that information is being pushed through the company

by shifting information flows top-down and bottom-up and making sure strategies are designed and built to open up those channels and make certain there are working feedback loops. Actions and research process from the case studies have helped develop some questions to ask during the process: How is communication flow working? Are the teams educated and understand what, why, and how? Within best practise of the organisation, what exactly is happening within those aspects that were realised in step one?

- How/what strategies need to be put into place (such as educational workshops), etc.?
- What measures need to be changed?
- What policies need to be built for a unified vision to be happening? Are there existing policies that can be expanded?
- How to then bring the right people together (using info from step one's Interaction Matrix)?
- Who are those partners and community members that can be most influential?

It is also necessary to put together integrative design workshops to bring all of those people from those four quadrants together for collaboration. An example of this is in Case Study 2 section 5.3.3 Advisory 'Innovation Council', which was composed of 52 people all from diverse backgrounds and groups; these are representatives from City Agencies, City Unions, Sustainability Coordinators, Principals, Parents, Facility Managers, and non-profit Partners. This meeting helped in the unification of mission and goals and led to the creation of the New York City School Sustainability Pledge and DOE framework for sustainable schools artefacts. The focus of all efforts should be to align systems and structures to create a holistic vision of communication, branding, and community working as one unit, as empathy and a unified language are embedded at all levels in the organisation and its external partners. As in the design science research Phase 2 design solutions, Step two is where the artefacts' foundations would be developed, put into play, and tested.

Figure 73: IDT - Interventions – Step 2 (Source: Adapted from Dopplet's Seven Interventions of Sustainability, 2003)
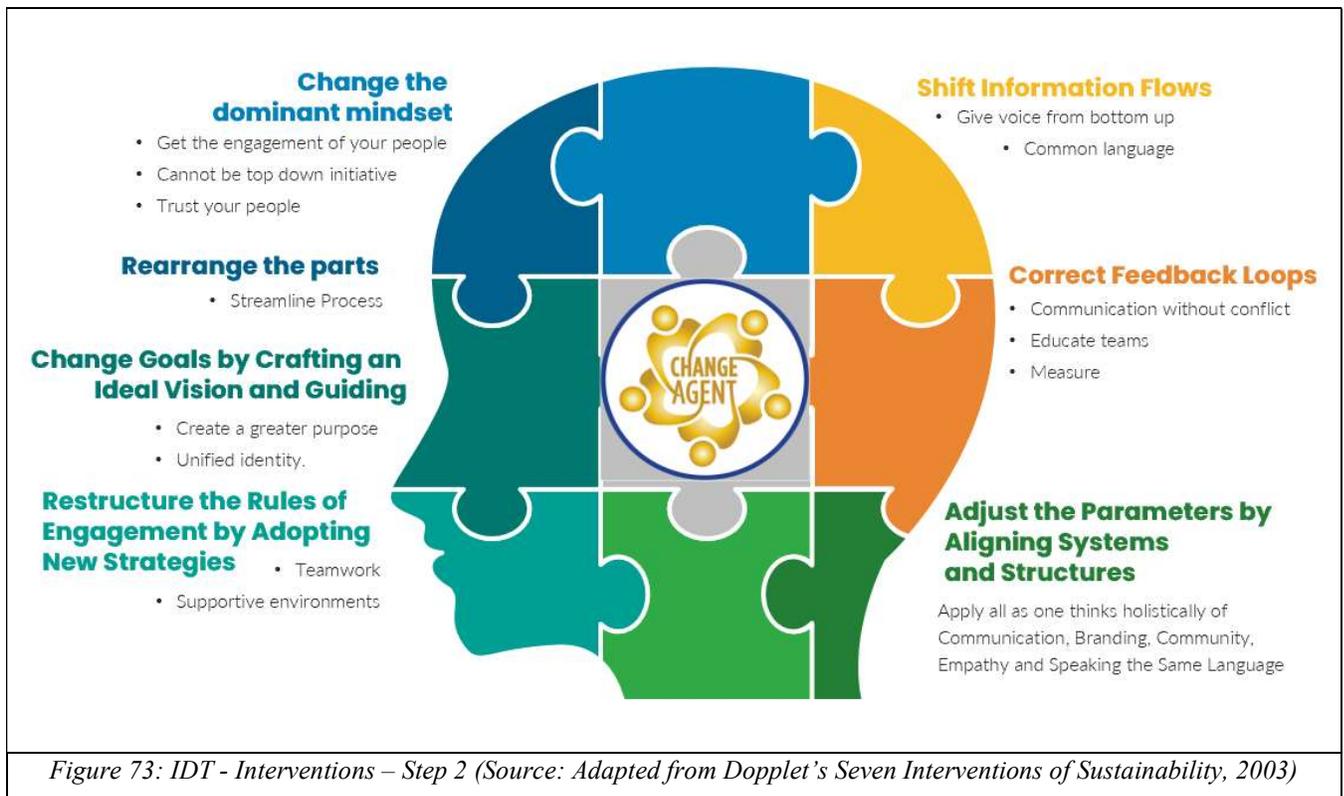
7.6.1C Phase 3 – IDT design value creation creative-thinking tools

Step 3 of the IDT toolbox is design value creation adapted from Laszlo's model of value creation (see section 2.3.6). These steps will aid in the artefact/process development and understanding of elements that will need to be created, communicated, and branded. Figure 74 shows two graphical breakdowns of the IDT design value creation process developed for an easier understanding of concepts and utilisation in various formats. All initiatives will need to be tested and validated before expanding them to a broader audience. Step 1 and 2 create an awareness of the organisation's current position and anticipate future expectations, as well as help set sustainable value goals. From there, the change agents will need to review strategies and make sure that they are designed with value-creation initiatives, developed with a business case in mind, and able to communicate the captured value of that strategy/Artefact. This would then be tested on a small group and re-analysed to the initial parameters if these are validated. This step would be initiated from the beginning, but for the more extensive implementation process. As in design thinking methodology, it is a repetitive, continuous evaluation and value creation process. These steps were undertaken in all case studies in the creation and validation of the artefacts.

Figure 74: IDT – Design Value Creation – Step 3 (Source: Adapted from: The eight disciplines of value creation - Laszlo, 2005, p. 123)
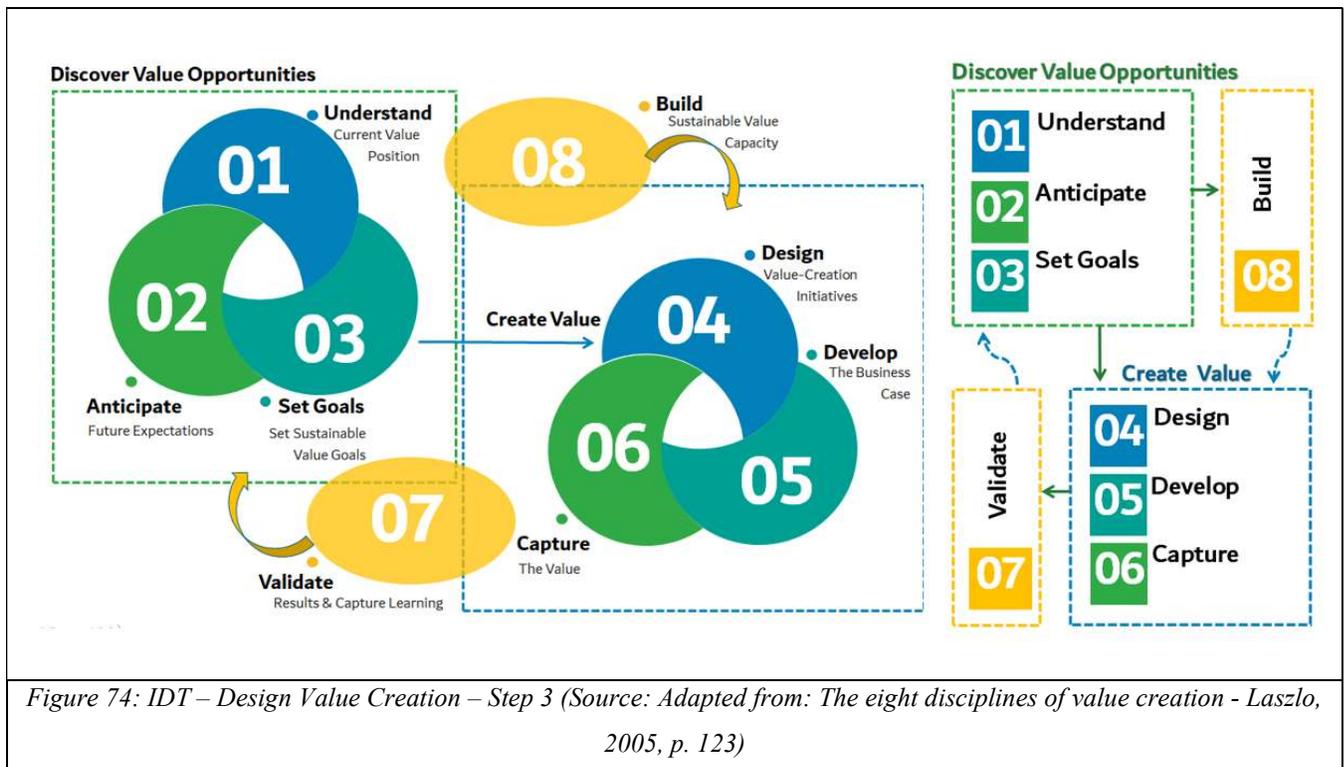
All the tools in the IDT toolbox are associated with design thinking philosophy and methodology. They aid in brainstorming, opening up minds to seeing outside the box, and creating innovative strategies for that specific organisation. They help breakdown process to an understandable level, so those who do not fully understand the design thinking process can easily manoeuvre and learn how to initiate it.

7.7 Final Remarks

The initial gap this study addressed was the lack of holistic strategy frameworks in sustainability management. After analysing and reflecting on the gap found in this study, the IDT holistic strategy framework was designed and developed to help change agents understand where the focus needs to be established for organisational culture shifts. This research set out to find a link or define a bridge for sustainability leadership where a lack of holistic strategies existed. The IDT framework is broken into six core imperatives that need to be thought of and tackled. It has three core focus areas: communication, branding, and community—with two focusing disciplines: Empathy and Speaking the Same Language, and Design Thinking binds all of them together. IDT framework was designed to help sustainability leadership understand the areas they need to focus on to help implement and embed sustainability initiatives at a faster rate. All core imperatives work together and are connected; the intent of each is:

- The design thinking core imperative one is to aid change agents in creating an organisation that is continually learning, adapting, and innovating in a constantly evolving new world economy—this aids in developing top-down and bottom-up management strategies.

- Communication cores imperative two is for change agents to discover and understand communication flow in the organisation to be able to reform, utilise, and influence through these channels.

- Community core imperative three is for change agents to discover and understand the community of an organisation, if it exists/evolves/develops as this will build trust, allow for shared knowledge and support, as well as build a feeling of fellowship in the organisation.

- Branding cores imperative four is for change agents to align messaging with the organisation's mission and vision and to make sure messaging is translated to all internal and external stakeholders.

- Speaking the same language and empathy core imperative five are for change agents to build purpose, care, and understanding into the organisational behaviour and culture.

- HDTM core imperative six is for change agents to understand existing holistic organisational systems and human-centred activities and be able to find areas where improvement needs to occur, be modified, and evolve for sustainability/ESG implementation.

Further support for change agents was established through the IDT toolbox to help the creative thinking process for change agents' strategy development. The IDT toolbox has a visual representation of the IDT framework, six core imperatives supporting information, Case Study 3 example, and four creative thinking tools. This offers the leaders/change agents the ability to assess, design, and develop procedures in an individualistic manner for each organisation and group. Of course, all groups are incredibly unique and will require different strategies to be built to create successful change. This framework's concept is for it to be adaptable to any organisation; it is about aiding the thinking and changing mindset of those who are attempting change within organisations. This research highlights the importance of creating tools that allow for creativity and experimentation.

Key findings that the sustainability sector in the United States has evolved and continues to transform. Sustainability/ESG leaders are implementing change management processes to make them happen, but they are not enough. A continued sector evolution has made it a necessity for organisations to be agile and innovative. Three critical changes identified are the evolution of sustainability, the developing process,

and evolving sector. The author's findings reveal that the evolution of sustainability has helped cultivate and transition the role of leadership and has pushed them to become innovators and social-political activists. ESG implementation methods are still being defined, and there are further developing processes that have three focus areas: unity and collaboration, new methods and methodologies, and speaking the same language. Further, external drivers have pushed organisations to add sustainability/ESG leaders to their organisation. These drivers include regulations, peer leadership, climate change resiliency strategies, the drive of current generations' beliefs, and internal drivers that have pushed organisations to rethink how they manage and run their business. These drivers include employee demands for social equity and work-life balance, the need to develop an internal organisational community, and securing the organisation's position in the market, while change is necessary in the evolving new world economy, leaders face many challenges that they will need to address, which hamper positive development. The study's findings reveal that a lack of leadership support, cultural barriers and challenges, and a lack of a holistic strategy are the downfall of all change initiatives.

These discoveries indicate that there are challenges within the sustainability sector and that a new way of thinking needs to evolve that would aid and not hamper desirable progress. These factors have forced the market and organisations to evolve on both environmental and social aspects to be competitive. Organisations must be adaptable and have allow for evolution while aligning branding messaging to organisation, communication, and mission. Key findings from the interviews align with case study findings to show that change agents will need to design development, unified voice and messaging, align change, be adaptive and allow for evolution, and that people matter. The IDT holistic strategy framework was designed to address these as it helps develop an integrative design development process holistically in an organisation where all stakeholders affected by the change can engage, have ownership, and have a voice. It facilitates the creation of unified messaging internal and external to the organisation, while also creating understanding and support. This helps unite messaging for collaboration, belief, and understanding. It helps align change and build collaborative efforts for organisational behaviour change, as change cannot be implemented and sustained if it is not aligned with corporate culture. It helps continual reassessment of impacts, willingness, and ability to adapt to the next wave of transformation, so as the current economic market evolves, so will organisations and helps develop ownership that will enforce the adoption of everyday behaviour. The IDT holistic strategy framework was designed to aid change agents in understanding focus areas, be creative thinkers to build holistic strategies, and aid in faster adoption of ESG imperatives into the organisational culture.

CHAPTER 8 – Conclusion and Contributions to Knowledge

8.1 Introduction: A Personal Journey

The author comes from a background in interior design and has worked in the design and built industry for over 20 years. Through this work, she saw the destruction that the built environment and manufactured products have had on the planet and global social health. Since 2008, she has tried to find ways to push change forward for the betterment of our future generations. Through this path and experience came the realisation that behaviour change is a necessity for the implementation of sustainability in organisations and society. This study was initiated in 2014 to find better ways to help implement behavioural change in companies and aid in organisational cultural change adoption for sustainability.

It was the belief of the researcher that as the world transitioned into the 21st century, a new economic movement paradigm had emerged, where environmental and individual health are pushing for a green industrial evolution, where individuals are realising that their purchasing power and the power of unification as a group or community can affect big business behaviour. It was seen that organisations were being influenced to start taking on responsibilities for their actions, affecting individuals' and communities' overall health in their care. Through the initial research, the findings revealed a gap between what sustainability leaders were attempting to influence and the strategies they were using to do so. This mindset initiated the process of the study.

Design thinking has been in the author's course of action and management toolbox for over two decades. Since receiving a master's degree in 2001 from BCU in Design Management, she has been using design thinking methodologies in her professional life. This revealed the positive effects this methodology had on work, the ability to manage and influence people and processes, and the ability to analyse situations and design needed innovations. In the author's view, design thinking is the ability to apply creativity to the formulation and resolution of problems and challenges. It helps create incremental changes by bringing together participatory, human-centred, and integrated design approaches. This helps to play a vital role in transforming individuals, collective attitudes, and behaviours. From this influence and understanding, design thinking became the key tool to help fill the gaps found in the initial observations.

Further research on sustainability strategies, initiatives, and procedures highlighted that a holistic strategy of implementation has not been applied. Sustainability leaders lacked an understanding of change

management and its connections to the behaviour change needed for implementing and adopting sustainability initiatives. This study brings forth the concepts and requirements for those connections of a holistic strategy that applies to organisational processes, messaging, and community. This research focuses on creating a framework and change of mindset, what those connections are for initiation of all sustainability or environmental, social, and governance initiatives into an organisation, and some tools that help in the employment of thought process for engagements. The designed IDT framework was developed to aid sustainability managers/change agents in the creative thinking process to move their organisations' environmental, social, and governance (ESG) implementation forward. This researcher recognises that each organisation is different, and thus needs evaluation and unique strategies to be developed.

Throughout the study, the author gathered information through literature research, observation in organisational settings, semi-structured interviews as a team member of the case studies, and outside leaders and their work. Additional assembly of evidence was achieved through working groups and the design of educational workshops. From this information, analyses evolved to find connections, definitions, and an understanding of needs so that artefact development can support the change management process. Reflexive thematic analysis was utilised throughout this process to design and develop the artefact Integra Design Thinking (IDT) holistic strategy framework.

Three key aims underpin the research: Research Aim 1 (RA1) examined the ways in and the extent to which design thinking approaches and associated tools might support innovation and culture change processes; Research Aim 2 (RA2) critically analysed the effectiveness of the organisational approaches, methodologies, and tools deployed with respect to innovation and change management processes; Research Aim 3 (RA3) identified the core and most highly effective strategies for the implementation of cultural shifts in sustainability initiatives. These are discussed further in Section 8.2. This study is designed to find the central area of concentration on which sustainability leaders need to focus to embed sustainable behaviour into their organisation's culture. The overall objective was to understand the challenges and barriers to sustainability leadership, what measures have been put in place that have been successful, and how design thinking methodologies might improve the process of adoption. Knowledge was acquired through the analytical literature review that identified the main constructs: sustainability in a business context, strategy, design thinking and organisational change management. Focus was held on the study's

aim and objectives throughout the research process and connected through the designed research contexts, instantiations, and artefacts.

The study was broken down into eight chapters. The initial chapter introduced the study to the reader. Chapter 2 introduced sustainability in an evolving world economy and the relevant theoretical conjectures of how design thinking, strategy, and change management methodologies might be integrated into sustainability management processes. Chapter 3 introduced the research methodology. Design science research with action research and holistic design thinking methodology learning cycles were presented and discussed, as well as their application to the current study. Chapter 4 presented the exploratory case study and UK interviews. Chapter 5 further discussed the two case studies that were conducted using the design science research framework. The case studies were different, as one was from the public sector, and one was from the private sector. They both addressed similar sustainability issues, and the same developed research strategies were applied to both.

The case foundations were divided into three phases: in Phase 1, a challenge was revealed; in Phase 2, artefacts were designed and developed as solutions; and in Phase 3, the artefacts were proposed as resolutions to a real-life organisational problem to mitigate the difficulties that stalled transformation efforts. Chapter 6 discussed the interviews conducted with multidisciplinary leadership to assess their challenges and solutions and find alignment with research findings and developments. An analysis of the findings from both was then reassessed to finalise the artefact and address this research's initial aims. Chapter 4, 5, and 6 aided in validating the theoretical and practical understanding of the IDT holistic strategic framework's influence and its positive impact on sustainability management. The case studies and interviews helped refine the philosophy, methodology, and research approach that formed the inquiry and established this thesis's IDT framework. Chapter 7 reviewed these findings and discussed the artefact IDT holistic strategy framework and tools that were designed and developed from this research study.

This research has reviewed existing insights that show that organisations that demonstrate a commitment to environmental and social development agendas need to improve stakeholder relationships, foster loyalty and trust, and garner a positive reputation that will support community standing and, potentially business performance. The work has analysed the use of the IDT holistic sustainability framework artefact and strives to help organisations understand the need for a cultural metamorphosis when talking about sustainability, understanding the tools, and environment necessary to achieve it.

The remainder of the chapter is structured as follows:

- Examination of aims and objectives
- Contributions to knowledge
- Future research agenda
- Limitations of the research
- Closing remarks and reflections

8.2 Examination of Aims and Objectives

The author's research was of a cross-national nature, where these exploratory interviews in the UK were utilised as a benchmark to guide the study that focused on the US sustainability management gaps and challenges. This research's objectives were to understand the challenges and barriers to sustainability leadership, what measures have been put in place that have been successful, and how design thinking methodologies might improve the adoption of these measures. The study focused on three research aims and objective areas to aid in developing the final artefact: the IDT holistic strategy framework.

8.2.A Addressing the research aims and objectives (RA1)

Research Aim 1 (RA1) was designed to examine the ways in and the extent to which design thinking (DT) approaches and associated tools might support innovation and culture change processes (especially those containing both top-down and bottom-up [stakeholder-managed] elements). The objectives addressed the importance of design thinking in business strategising in general, the influence of design thinking in innovation development, and the influence of design thinking in change management (and culture change processes). This research findings show that design thinking aids businesses in strategy and innovation development. It gives leaders the ability to learn what to focus on and what to use. The design thinking methodology of empathising, defining, ideating, prototyping, and testing allows practitioners/stakeholders to become critical and creative thinkers to be able to innovate and find strategic solutions.

DT helps these individuals understand the tools that are needed and how to apply them. This methodology helps develop collaboration, build empathy, and break down barriers in an organisation. DT methodology initiates solution development by bringing people together from every function, department, and level of the organisation, as well as key external stakeholders in an integrated collaborative process. This allows for a multidisciplinary approach to help in the analysis, planning, and implementation of needed

initiatives. DT helps find the gaps to streamline processes and relationships, eliminate non-value-added activities, and empower people at all levels to create not only a top-down organisation but also a bottom-up combination. As the design process is open-ended, DT methodologies can help transition an organisation into a continuously learning and adaptable system that is receptive to change. This way of thinking allows stakeholders to continually analyse processes, understand elements on a holistic level, and seek ways to improve supporting innovation development.

Through the case studies, the research findings show that DT strategies helped streamline the process, unify vision, open communication channels, and build a stronger caring community that works together. Utilising DT methodology and education to stakeholders helped change goals by crafting new ideas, concepts, and processes in a collaborative environment. Applying DT methodology has supported the creation of champions of change initiatives from the top-down and bottom-up levels in the organisation, helping secure the success and implementation of the required change. Throughout the study, the author employed DT methodology with a focus on communication, branding, community, speaking the same language, and empathy. This has helped guide and embed ESG initiatives more quickly as it has helped develop behavioural change in the organisation to allow for a culture change process. The IDT holistic strategy framework gives leadership a comprehensive systems model that is strategic yet has elements that are executable at the tactical level.

8.2.B Addressing the research aims and objectives (RA2)

Research Aim 2 (RA2) was designed to critically analyse the effectiveness of the organisational approaches, methodologies, and tools deployed with respect to innovation and change management processes. The objectives addressed key factors driving sustainability-oriented organisational change and repositioning, understanding the extent to which employees/stakeholders are involved in creating and shaping change processes to define mechanisms that aid the facilitation of top-down and bottom-up organisational innovation.

Current research findings reveal that companies consider sustainability an added value to safeguard future generations, but few have implemented holistic strategies to aid their organisations in the transition. Research highlights the need to involve employees/stakeholders in creating and shaping change processes. Most interviewees said they had implemented green/collaborative teams from all parts of the organisation to help and support initiatives; this benefit can also be seen in this investigation's case studies. The findings reveal that those who attempt both top-down and bottom-up approaches observe a higher success rate,

reduce the stresses of implementation, and secure the behaviour change that supports the initiative's perpetuation. The study emphasises the need to involve stakeholders at all levels and the necessity for them to take ownership so that genuine behaviour change can occur.

The study's findings reveal that key factors driving sustainability-oriented organisational change and re-positioning come from the knowledge that the world is operating in what economists are referring to as the Fourth Industrial Revolution, and that non-compliance is not an option if an organisation wishes to remain in business. The findings from this research support the arguments of scholars such as Hawken et al. (1999), Bell (2008), Giddens (2009), and Goleman (2013), who noted that society, business, and government need to change behaviours in thinking, acting, and working, as well as modify their values in a new era of climate change. This era has also given way to scrutiny and additional costs on organisational behaviour towards its people, environment, and communities. Advancement in technology and social networks has developed capabilities for information sharing via social media and other outlets that have instigated more people to unify and cause organisational transformation. This has propelled organisations to be more transparent in their actions, ethics, and operations. These events have directed organisational leaders to, now more than ever, see the need for change to remain competitive and in good standings in the public eye.

A large percentage of sustainability leaders have implemented initiatives in a singular and isolated manner, which then fails to evolve adoption to the next level. The current research findings reveal that there is little evidence of holistic strategies that integrate all the diverse components of sustainability. As the industry continues to grow and transition, organisations need to find innovative ways to look at financial, manufactured, human, and natural capitals in an all-inclusive manner. The evolution forces organisations to figure out how to transition and hold their leadership position in the marketplace or manoeuvre to the top. It is my aspiration that the IDT strategy framework will assist in filling this gap.

8.2.C Addressing the research aims and objectives (RA3)

Research Aim 3 (RA3) was designed to identify the core and most highly effective strategies for the implementation of cultural shifts in sustainability initiatives. The objectives were to identify and examine the design thinking process and approaches, thus identifying and investigating change management processes and procedures, connections with artefact sections, and the design thinking approach. Research shows that leaders must integrate the concept of the interconnection of natural and social webs, or systems thinking, to enlighten all types of stakeholders and organisational behaviour. Design thinking

methodologies and approaches aid in helping create an understanding of these webs. Leaders must comprehend what, where, and how strategies can be designed and implemented for optimal effects.

The study showed the need for businesses and organisations to continue learning, enhance empathy, and design thinking methodology and processes to aid the creation of these foundations. In examining and identifying change management procedures and approaches, the findings show that organisations seeking sustainability need to shift their focus from shareholder to stakeholder management. The study revealed that the IDT methodology can help in creating that mind shift in an organisation. This framework supports change agents by creating a clear vision for sustainability that the transition team needs. The information gathered and the artefacts designed help to rearrange the parts required for change. The IDT holistic strategy framework helps change agents develop a new road map to understand the areas of transformation that are necessary for that organisation.

Throughout the case study research, the artefacts produced as tools/solutions helped guide and aid in the needed transformation. The development was achieved through collaboration with stakeholders from all levels inside and outside the organisation. These individuals became the ones who championed the adoption and implementation of the measures. The artefacts were tested on a small group to verify their validity and then disseminated to a broader audience for execution. Through this process, best practices were created, messaging for different groups was developed, and the information was shared holistically. An example is the development of the Global Citizen Sustainability pledge for Case Study 3. The process for this started with a small, diverse group of internal and external champions. The information was brought to them, and feedback was obtained to create a final version of the pledge, before taking it to a larger group and committees for further evaluation and adjustment. This was followed by the development of strategies for implementation. Thereafter, the artefact was brought to the decision makers for approval, while alignment and connections continued to be made to the six core imperatives of the IDT framework. Through the research and interview process, the IDT holistic strategy framework was designed, developed, and evolved by understanding needs and connections. The findings reveal that this model will aid in the holistic focus for strategy development by sustainability leaders and for the implementation of ESG initiatives.

8.3 Contributions to Knowledge

The findings from this study can be crystallised into a set of contributions to knowledge that relate mainly to themes of organisational innovation, professional practice, and collective cultural change. The work has attempted to address some gaps in knowledge—both those identified by the author and by other commentators—and to innovate new methodological approaches that combine elements drawn from a range of disciplines and paradigms. The overall aims have been to (a) further the sustainability management research agenda, and (b) deliver practical tools and approaches that will aid professionals in addressing real-world challenges relating to the promotion and realisation of sustainability goals in contemporary US organisations. The contributions of the study combine both theoretical and practical elements that are designed to inform those involved in studying or operationalising sustainability-oriented organisational management strategies. They also focus on the creation of methodologies to support behavioural and organisational metamorphosis, outcomes that will be of central importance to sustainability practitioners and those active in connected fields of the social sciences. Contributions derived from the study are fourfold and can be sketched as follows:

a. *Stimulating, influencing, and guiding organisational culture change—using a blended bottom-up and top-down approach—constitutes a fundamental point of embarkation in contemporary sustainability management practice.*

Analysis of the rich empirical materials generated in the course of the study, combined with a review of the extant literature, revealed important mismatches and disjunctions in the approach of contemporary organisations as they engage with the generation/implementation of essential ESG measures. A process of authentic cultural change is a necessary factor in the creation of effective and lasting sustainability initiatives, and one that underpins the realignment of behaviours that will buttress and amplify sustainability-oriented innovation. If such innovation is to become a core and perpetual feature of organisational life, sustainability management practitioners will be required to deliver holistic strategies that drive and guide thoroughgoing cultural change. It is evident that persuasion, influence, creativity, pragmatism, and informed collaboration/engagement have become key skills in the toolkit of the contemporary sustainability practitioner. Whilst this contribution is one that is positioned in the realm of theory, there are important lessons here too at the level of evolving practice.

b. *Adoption and application of the IDT holistic strategy framework will aid sustainability leaders in identifying and defining critical areas of focus for effort and activity in connection with organisational culture and behaviour change.*

Following the initial contribution and acknowledging cultural change as a primary element in sustainability-oriented organisational redesign, the adoption of the IDT framework can support sustainability practitioners in the development of the structured/shared critical thinking processes that underpin co-created metamorphosis. The IDT embodies six core imperatives: communication, community, branding, shared language, empathy, and holistic design thinking. The considered and blended deployment of these imperatives will aid practitioners in developing a profound understanding of the elements and pathways required in the construction of an agile culture in which stakeholders feel empowered to take the initiative in relation to sustainability themes and related actions. This contribution has its foundations in sound academic theory but is driven powerfully by practitioner experience. It is anticipated that the contribution will be of value to the sustainability leadership and development community.

c. *The application and practice of the IDT holistic strategy framework toolbox functions as a pedagogy in the assistance and guidance of sustainability leaders to navigate the critical thinking process of the IDT framework's essential areas of focus for organisational culture and behaviour change.*

Acknowledging that pedagogy differs for all organisational stakeholders and that organisational practice and foundations are dissimilar, various tools were developed to aid practitioners in the critical thinking process to assist in organisational culture and behaviour change efforts. The IDT holistic strategy framework toolbox consists of supporting material for the creative application of the six core imperatives. The tools were broken into two divisions: first, to comprehend each of the IDT framework's core imperatives intent and critical areas of focus; second, the navigation and mapping of process to aid in the construction of an agile culture inspired by other scholars' research and theory. This contribution focuses on pedagogy and has foundations from scholarly research. It is anticipated that this contribution will be of value to educational institutions and sustainability practitioners.

d. *A human-centric approach, combined with analysis and connections of organisational operations and systems, the holistic design thinking methodology (HDTM) will aid sustainability leadership in the comprehension, application, and critical thinking process of the foundational evidence required for strategy development.*

A new paradigm in holistic methodology and approach for culture change was instigated by the foundational understanding and strategy development needed upon the initiation of sustainability implementation in an organisation. HDTM came to fruition from the current research analysis of the literature review and actions within the case studies. The revelation evolved from the research assessments

and comprehension that a core understanding of both human-centric practice and organisational operations and systems would be required for cultural shifts to be influenced and directed in the desired path. Combining complex adaptive systems and design thinking approaches produces a richer and more comprehensive understanding of sustainability leadership in supporting behavioural and organisational metamorphosis. Whilst this contribution is experimental, it is positioned in the methodology realm. It is anticipated that this contribution will influence the sustainability management research agenda and sustainability practice evolution.

8.4 Future Research Agenda

The IDT framework was developed to help change agents think holistically as they develop strategies for cultural shifts. Each core imperative focuses on elements that the authors' findings indicate are essential to sustainability management's successful execution. There are research opportunities to further test and develop each core imperative and to expand each for sustainability management's critical thinking process. Researchers can also use the framework as inspiration or as a steppingstone to the next steps in finding gaps in strategic frameworks for this evolving industry and social science fields. Other research might expand the framework into an educational instrument and test the effects of the framework as a tool to help practitioners become more critical and creative thinkers in the sustainability and change management fields.

8.4.1 Sustainability management

The findings reveal that action research is beneficial to sustainability management and would be a powerful tool for sustainability practitioners. It is believed that it would be beneficial to be taught to practitioners and students in the field. Through practice and implementation as part of the case studies, the author considers that all sustainability managers are action research professionals. They need to be able to observe, be analysts, and influence others not under their direct management umbrella. They need to influence others to do the work and follow the necessary path, as they impact members at all levels. Action research processes help with the foundations of these needs. Teaching design science and action research methodologies to sustainability professionals will help them develop their footings to be better able to lead initiatives in their field. Further research on this subject needs to be developed, clarified, tested, and verified.

8.4.2 Integral design thinking artefact

The IDT framework will need to be further tested and measured. This study focused on defining, designing, and developing the framework with some foundational tools. Further research can be explored and expanded on each core imperative's individual effect on sustainability management and its association with corporate culture. Further evaluation and testing can be developed on the IDT framework as a whole; it can also be assessed, expanded on, and utilised as a foundation for other researcher's work. The IDT framework's toolbox can be used as a teaching tool for students in the field; each creative thinking tool can be further researched, expanded on, or utilised as inspiration for gaps that still exist in this evolving industry.

8.4.3 Holistic Design Thinking Methodology

HDTM (see Figure 34) is an approach that is not fully developed. It brings together soft system thinking concepts of complex adaptive systems with design thinking methodologies and concepts. This multidisciplinary approach has a solid foundation from this research but has not been fully designed, analysed, and established. It has not been explored or developed into processes, and how it works with both system combinations or how it can be further applied on research, professional levels, or as an educational tool is not fully known. This presents an opportunity for others interested in this area of work to build on and develop this tool for sustainability professionals and change management agents with other industry focuses.

8.4.4 Research methodology

Design science research with action research and the HDTM cycle framework is limited, especially in the sustainability research field. Further studies on the methodology of sustainability management should be explored. The methodology process can be utilised for both research and professional practice. This three-phase process can be further developed in practice for practitioners initiating an organisational review process for further critical thinking and understanding of the practice methodology. This concept needs to be further designed and developed. The combinations of the three methodologies are exemplary of the current study. This multidisciplinary process requires further exploration and development, and it can be incorporated into educational classes to help bring DT into the research and business community. It is recommended that this research methodology framework be operationalised and investigated further, particularly in the sustainability and change management fields.

8.5 Limitations of the Research

The study adopted, *inter alia,* a case study method. Some have criticised case studies for their lack of scientific rigour and reliability and suggest that they do not address generalisability issues (Johnson, 1994). However, Gummesson (1991) and Hartley (1994) stated that there are strengths in the use of a case study methodology. Case studies give the author the ability to obtain a holistic view of a particular phenomenon or sequence of occurrences; they can capture emergent and immanent properties of life in organisations and reveal gaps and opportunities for change. For research findings that can be generalised, one must use multiple cases to form replications for validation and reliability of the research (Bell, 1999). Yin (2009) stated that replication produces a rich theoretical framework. He noted that analysing two cases is similar to cross-experiment design and the same as in experimental science. The empirical case will need modification if predictions are not as first conceived. This research study's exploratory nature might be additionally influenced by the sample size, which combined data from three sample organisations, one small scoping company, and two larger ones, combined with two sets of interviews at the initiation and end of the research process.

The study attempted to address generalisability concerns via a triangulation strategy embodied in the literature review, case studies, and leadership interviews. The research also overcomes the issue by selecting organisations from various disciplines and foundations as well as interviewees from multidisciplinary backgrounds to address the replication issue, demonstrating that the findings might be extrapolated, in indicative form, to other scenarios. In summary, this investigation has set the stage for the foundation of conceptual holistic change management strategic thinking frameworks for the field of sustainability management.

8.5.1 Implications of the research for policy

Although the thesis does not contribute specifically to government policy, it does provide a contribution to comprehension of the need to focus on behaviour change as a part of strategic planning for transformation for ESG management. For example, a behaviour change department has been established at Birmingham City Council in the UK, and this reflects an understanding at senior levels of the influence that behaviour change exerts on the effective implementation of change initiatives. The study highlights the concept of behaviour change and its importance in ESG transformations and provides impetus to US government bodies to further research and review the adoption of behaviour change practices.

The IDT holistic strategy framework and IDT visual tools can aid in the critical thinking process for the development of behaviour change, and for the development of policies and innovations required to move initiatives forward. The adoption of this way of thinking the framework provides can be a tool employed by government organisations for developing strategies for cultural shifts in the locality they influence.

8.5.2 Implications of the research for education

It can be noted from the study that none of the US-based sustainability leaders questioned by the author possessed any change management background or formal education in change management methodologies. Of course, the purposive sample was too small for a conclusion to be drawn that there are no sustainability leaders who possess this educational background, and it cannot be claimed that the sample is fully representative of the field. However, it is not too far-fetched to suggest that the current focus on innovation and design thinking methodologies should also be incorporated into sustainability management education, as the research shows that design thinking methodologies aid in the evolution of building agile, adaptive, and innovative organisations that are prepared for ESG adoption.

The IDT holistic strategy framework and IDT visual tools can aid in educating future leaders on how to change their thinking process and influence behavioural and cultural change in organisations. A tailored course of multiple classes can be created to aid the understanding of how to both build and break down systems with a combined understanding of human and organisational foci. Each class might focus on a core imperative, with a final capstone project to be developed by a team of students as a case study. Further development of the new paradigm of combining design thinking and systems thinking in the HDTM detailed above (a scheme that aids organisations in adapting to a new world economy) can also be explored and administered in many ways.

Finally, the curriculum can be built around the adapted paradigm of combining design science and action research for sustainability management research and practice. These research approaches/tools can be developed into a set of processes and activities that will aid in the understanding of data collection, artefact development, evaluations of required steps, and actions: this will help in the training and preparation of informed (potential) practitioners with command of the tools and insights to guide organisations in the achievement of successful change.

8.6 Closing Remarks and Reflections

This research's orientation started with identifying the real-life problem and researching it through the initial case study and literature analysis in Phase 1 of the methodology. After analysis and reflection on the gaps found in the literature review, exploratory interviews, and the initial case study, IDT artefact foundations were developed. This was to establish a model that could simultaneously improve organisational stability and capacity for organisational cultural transformation. The design procedure employed a high degree of creativity but in a regulated and guided way. The focus was on creating a feasible, practical resolution to the design problem that met or exceeded the brief's declared aims. The methodology was followed by further case studies and interviews to build on the framework's data and development. The findings have revealed a need for a holistic strategic framework that aids in the advancement of building agile, adaptive, and innovative organisations for sustainability/ESG adaption.

Key conclusions show that organisational culture change should be the focus of change agents when it comes to sustainability management. These stakeholders can utilise the IDT framework and toolbox to identify areas of focus and develop critical thinking strategies and processes that lead to organisational cultural shifts. The new paradigm HDTM, IDT framework, and associated solution tools can also be used as foundations for pedagogy in this field and can also relate to the social sciences. There is little evidence of holistic strategies that incorporate all the various elements of sustainability. The author hopes that the IDT strategy framework will help fill the existing gap in the lack of holistic strategy frameworks in sustainability management. IDT strategy will help tackle where culture needs to be addressed or redeveloped, or where a new paradigm of thinking needs to be established. Further discovery of challenges and recommendations that encompass the above statement for implementation are summarised below.

The findings demonstrate that many sustainability leaders implement initiatives in a single and isolated manner. This then results in failure to build a new culture of informed and challenged stakeholders who feel empowered to take on sustainability issues and actions themselves. Many organisations and sustainability leaders do not fully understand the conditions required for change management adoption when implemented. It has been revealed that there is a lack of consistent messaging in most organisations and a lack of communication between individuals, departments, and external partners, which hinders the ability to implement these initiatives properly. The absence of holistic strategies developed for sustainability management perpetuates a lack of trust within organisations, which leads to initiative failure. This study aspired to provide sustainability management leaders with a universal framework to assist in

holistic strategic thinking when addressing these challenges. This study revealed that DT aids businesses in strategy and innovation development. It showed that using design thinking methodology with a focus on communication, branding, community, empathy, and speaking the same language has helped guide and embed ESG initiatives at a faster rate, as it has helped develop behaviour change in the organisation to allow for a culture change process.

This study has shown that society, business, and government need to change behaviours in thinking, acting, and working, as well as in modifying their values in a new era of climate change. The findings in this research show the need to involve stakeholders at all levels and the necessity for them to take ownership of genuine behaviour change to occur. Those who attempt both top-down and bottom-up approaches observe a higher success rate, reduce stresses of implementation, and secure the behaviour change towards initiatives retention. There is a need for businesses and organisations to continue learning, enhance empathy, and shift focus from shareholder to stakeholder management. Change management strategies need to be implemented on a holistic, larger scale for universal acceptance within the organisation. The framework proposed in this study should be used as a foundational guide to help practitioners and those in the sustainability management field develop strategies for the faster adoption and implementation of sustainability in their organisations. This study was initiated to find ways to transform the sustainability market faster for the adoption of needed measures that are affecting climate change and the health of future generations. The IDT holistic strategy framework and associated tools are designed to help move organisations to become more sustainable in their practices at a faster rate for a more viable future.

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Appendices

Appendix A: Designerly and Design Thinking Reference table

DESIGNERLY THINKING

Stream	Reference
1-Creation of Artefacts	Simon, H. (1969) The Sciences of the Artificial. MIT Press.
1-Creation of Artefacts	Vogel, C. (2009) Notes on the Evolution of Design Thinking: A Work in Progress. Design Management Review, 20, 16–27.
1-Creation of Artefacts & 2-Reflexive Practice	Dorst, K. and Dijkhuis, J. (1995) Comparing Paradigms for Describing Design Activity. Design Studies, 16, 261–74.
1-Creation of Artefacts & 2-Reflexive Practice	Liu, Y, (1996). Is Designing One Search or Two? A Model of Design Thinking involving Symbolism and Connectionism. Design Issues, 17, 435–49.
1-Creation of Artefacts & 5-Creation of Meaning	Louridas, P. (1999) Design as Bricolage: Anthropology Meets Design Thinking. Design Studies, 20, 517–35.
2-Reflexive Practice	Rylander, A. (2009). Design Thinking as Knowledge Work: Epistemological Foundations and Practical Implications. Design Management Journal, 5, 7–19.
2-Reflexive Practice	Schön, D. (1988) Designing: Rules, Types and Words. Design Studies, 9, 181–90.
2-Reflexive Practice	Schön, D. & Wiggins, G. (1992) Kinds of Seeing and their Functions in Designing. Design Studies, 13, 135–56.
2-Reflexive Practice	Schön, D. (1984) The Reflective Practitioner: How Professionals Think In Action. Basic Books.
2-Reflexive Practice	Schön, D. (1986) The Design Studio: An Exploration of Its Traditions and Potentials. Intl Specialized Book Service Inc.
2-Reflexive Practice & 5-Creation of Meaning	Bousbaci, R. (2008) 'Models of Man' in Design Thinking: The 'Bounded Rationality' Episode. Design Issues, 24, 38–52.
3-Problem Solving Activity	Buchanan, R. (1992) Wicked Problems in Design Thinking. Design Issues, 8, 5–21.
3-Problem Solving Activity	Ho, C. (2001) Some Phenomena of Problem Decomposition Strategy for Design Thinking: Differences between Novices and Experts. Design Studies, 22, 27–45.
3-Problem Solving Activity	Owen, C. (2007) Design Thinking: Notes on its Nature and Use. Design Research Quarterly, 2, 16–27.
3-Problem Solving Activity	Oxman, R. (2004) Think-Maps: Teaching Design Thinking in Design Education. Design Studies, 25, 63–91.
3-Problem Solving Activity	Whyte, J., Ewenstein, B., Hales, M & Tidd, J. (2008) Visualizing Knowledge in Project-Based Work. Long Range Planning, 41, 74–92.

3-Problem Solving Activity	Book Ambrose, G. & Harris, P. (2010) Basics Design: Design Thinking. AVA Publishing.
3-Problem Solving Activity	Shamiyeh, M. (Ed.) (2010) Creating Desired Futures: Solving Complex Business Problems with Design Thinking. Birkhäuser Architecture.
3-Problem Solving Activity	Owen, C. (2005) Design Thinking. What It Is. Why It Is Different. Where It Has New Value. International Conference on Design Research and Education for the Future, the Gwangju Design Biennale.
3-Problem Solving Activity	Prof Jnl Junginger, S. (2007) Learning to Design: Giving Purpose to Heart, Hand and Mind. Journal of Business Strategy, 28, 59–65.
3-Problem Solving Activity	Report Owen, C. (2006) Design Thinking: Driving Innovation. The Business Process Management Institute, White Paper, September.
3-Problem Solving Activity & 4-Way of Reasoning	Dörner, D. (1999) Approaching Design Thinking Research. Design Studies, 20, 407–15.
3-Problem Solving Activity & 4-Way of Reasoning	Book Buchanan, R (Ed.) and Margolin, V. (Ed.) (1995) Discovering Design: Explorations in Design Studies. University of Chicago Press.
3-Problem Solving Activity & 5-Creation of Meaning	Wylant, B. (2008) Design Thinking and the Experience of Innovation. Design Issues, 24, 3–14.
4-Way of Reasoning	Carmel-Gilfilen, C. and Portillo, M. (2010). Developmental Trajectories in Design Thinking: An Examination of Criteria. Design Studies, 31, 74–91.
4-Way of Reasoning	Cross, N. (1990) The Nature and Nurture of Design Ability. Design Studies, 11, 127–40.
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4-Way of Reasoning	Gloppen, J. (2009) Perspectives on Design Leadership and Design Thinking and How They Relate to European Service Industries. Design Management Journal, 4, 33–47.
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4-Way of Reasoning	Cross, N. (Ed.) (1992) Research in Design Thinking. Delft Univ Press.
4-Way of Reasoning	Lawson, B. (2005) How Designers Think: The Design Process Demystified, 4th edn. Architectural Press.
4-Way of Reasoning	Rowe, P. (1991) Design Thinking. MIT Press.
4-Way of Reasoning	Thackara, J. (1997) Winners!: How Today's Successful Companies Innovate by Design. Gower Pub Co. Case
4-Way of Reasoning	Johansson, U. & Woodilla, J. (2009) Towards an Epistemelogical Merger of Design Thinking, Strategy and Innovation. 8th European Academy Of Design Conference
5-Creation of Meaning	Krippendorff, K. (2005) The Semantic Turn: A New Foundation for Design. CRC Press.
5-Creation of Meaning	Verganti, R. (2009) Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean. Harvard Business Press.
No Specific Category	Senturer, A. & Istek, C. (2000) Discourse as Representation of Design Thinking and Beyond: Considering the Tripod of Architecture – Media, Education, & Practice. Journal of Art & Design Education, 19, 72–85.
No Specific Category	LeMasson, P., Weil, B. and Hatchuel, A. (2005) Strategic Management of Innovation and Design. Cambridge University Press.
No Specific Category	Margolin, V. (Ed.) and Buchanan, R. (ed.) (1996) The Idea of Design. MIT Press.
No Specific Category	Wigum, K. (2009) Radical Design Thinking: Thoughts and Tools for Long Term Solutions. VDM Verlag.
No Specific Category of Designerly Thinking	Leong, B. & Clark, H. (2003) Culture-Based Knowledge Towards New Design Thinking and Practice – A Dialogue. Design Issues, 19, 48–58.
No Specific Category of Designerly Thinking	Papantonopoulos, S. (2004) How System Designers Think: A Study of Design Thinking in Human Factors Engineering. Ergonomics, 47,1528–48.

DESIGN THINKING	
Stream	**Reference**
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Appendix B: The Soft Systems Methodology Learning Cycles for Action

A basic summary of soft system methodology is outlined below (Checkland, 1999, p.A9; Checkland & Poulter, 2006, p.170):

- Think about a problem situation, not necessarily a problem.
- Find out about the problem thru:
  - Analysis:
    - One: Interviews.
    - Two: Social.
    - Three: Political.
  - Models.
  - Pictures.
- Think of some relevant systems of purposeful activity; name of worldviews they encapsulate.
- Build the models of these national systems:
  - Root Definitions.
  - PQR:
    - P: Maintain and develop a knowledge base in science and technology within the corporation.
    - Q: By defining and carrying out R&D in a sponsor/researcher relationship.
    - R: Contribute to maintaining good company performance viability.
  - CATWOE:
    - C: Senior management in the company.
    - A: Skilled professionals (as sponsors and researchers).
    - T: Carry out R&D via a sponsor/researcher relationship.
    - W: R&D, continuously carried out in a science-based business can contribute to company performance and viability.
    - O: Senior company management.
    - E: Company culture and norms: in summary define and carry out work, document and report it in explicit procedures, do both research-push, and market-pull, R&D, and sponsor, and researcher relationships.
  - 5Es
    - Efficacy: Did what you expect to achieve, actually was achieved?

- Effectiveness: Did the over action(s) actually address the problem? The statement? Even if it was inefficient?
- Ethically: Was the action completed in an ethical manner?
- Elegantly: Did the design of the action, elegantly achieve what transpired in the four other E's?

- Use the models to question the perceived real-world situation, structuring a debate about change. 'Action to improve' based on finding accommodations (versions of the situation which conflicting interest can live with).

- Inquiry in principle never-ending: best conducted with wide range of interested parties; give the process away to people in the situation.

- Seek accommodations which meet criteria, systemically desirable (based on these models) and culturally feasible (for these people in their situation). An accommodation is a version of the situation which different people (different worldwide views) can nevertheless live with (Checkland, 1999, p.A9; Checkland & Poulter, 2006, p.170).

Appendix C: Philosophical Assumptions of Reality, Knowledge and Value

It is essential to refer to the philosophical assumptions of research, reality, knowledge and value: epistemology, methodology, ontology and axiology. According to Oates (2006, p. 282) 'Different philosophical paradigms have different views about the nature of our world (ontology) and the ways we can acquire knowledge about it (epistemology)' (Oates, 2006, p.282). On the other hand, Crotty (1998, p.10) 'suggests that an interrelationship exists between the theoretical stance adapted by the researcher, the methodology and methods used, and the research views of epistemology', as illustrated in Figure x. Vaishnavi and Kuechler (2007) affirm that the design sciences benefit not only from epistemology, and ontology, the research gains further from axiology: 'the study of values' (Vaishnavi & Kuechler, 2007, p.16). The question is then asked, 'What value does an individual or group hold, and why?' (Vaishnavi & Kuechler, 2007, p.16).

Figure x: Epistemology, Theoretical Perspectives, Methodology & Research Methods Interpreted

(Source Adapted from Crotty, p.10, 1998; Interpreted by Gray, 2014, p.19)
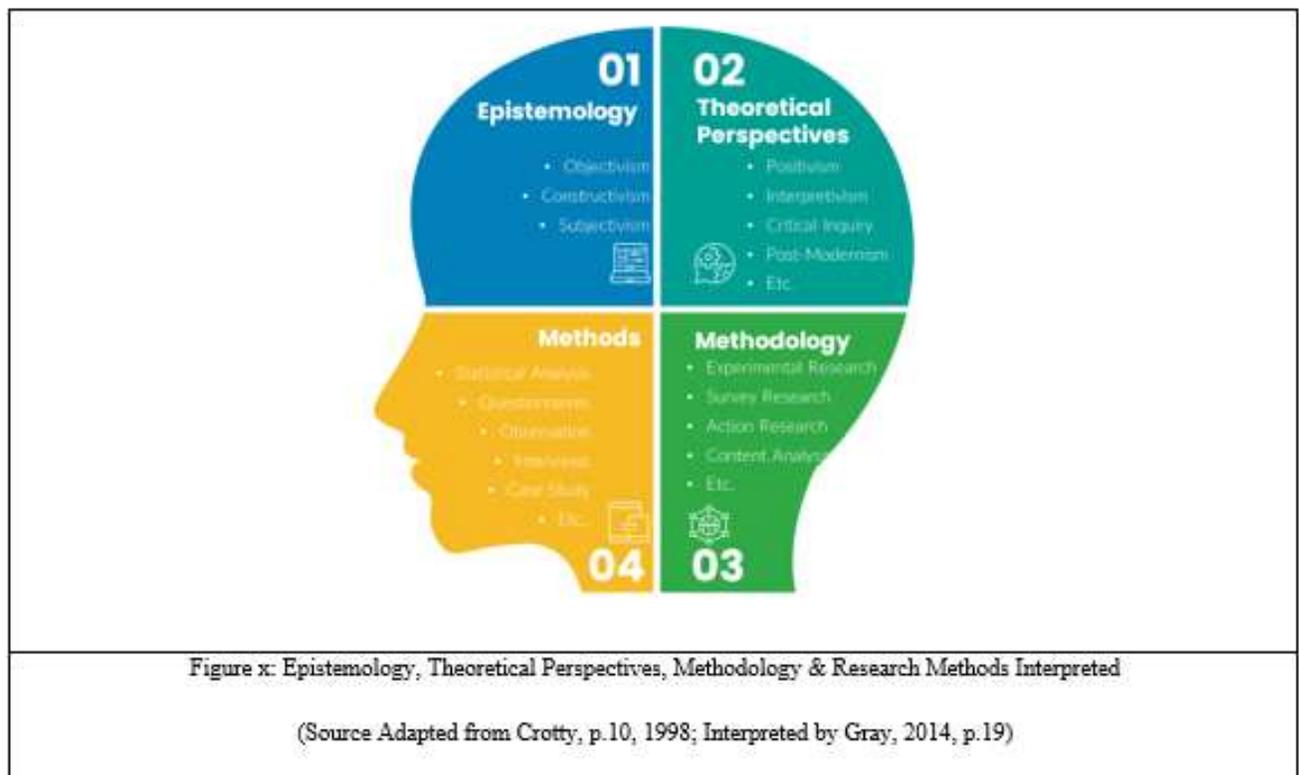
Research design methods are influenced by the actual methodology selected. The chosen methodology is influenced by the 'theoretical perspectives adopted by the researcher, and, in turn, by the researcher's epistemological stance' (Gray, 2014, p.19). Despite the immense discussions in the area of paradigms of research, it is understandable that the principal distinction in philosophical orientation of research in the social sciences has to do with the epistemological standpoint of the researcher. According to Crotty (1998, p. 10):

'Ontology is the study of being. It is concerned with 'what is', with the number of existences, with the structure of reality as such…it would sit alongside epistemology informing the theoretical perspective, for each theoretical perspective embodies a certain way of understanding 'What is' (ontology) as well as a certain way of understanding 'what it means to know' (epistemology).' (Crotty, 1998, p.10)

Easterby-Smith, Thorpe, and Jackson (2008) contend that having an epistemological perspective is important for two reasons. First, it can help to clarify research methodology issues. Secondly, knowledge of research philosophy will help the researcher determine which methodology will yield meaningful answers to the research questions. Many scholars may 'conduct research for an entire career without considering the philosophical implications of their passively received areas of interest and research methods' (Kuhn, 1996; In Vaishnavi & Kuechler, 2007, p.16).

Figure x defines this philosophical assumption of the methods used in identifying a design science research progression in order to establish the emergence of knowledge. Authors Vaishnavi and Kuechler (2007) assert that the research of Gregg, Kulkarni, and Vinze (2001) labels design science research as a 'socio-technologist/developmentalist approach' (Vaishnavi & Kuechler, 2007, p.17) tending toward a more interpretative positivist research methodology, as shown in Figure x. Through the rigor of the research, knowledge is embraced, and axiology occurs between the researcher and participant, as they 'share the value' of the research together (Vaishnavi & Kuechler, 2007, p.17).

Basic Belief	Positivity	Interpretive	Design
Ontology	A single reality, knowable, probabilistic	Multiple realities, social constructed.	Multiple, contextually situated alternative world-states. Socio-technologically enabled
Epistemology	Objective, dispassionate, Detached observer of truth	Subjective (i.e., Values and knowledge emerge from the researcher-participant interaction)	Knowing through making objectively constrained construction within a context
Methodology	Observation, quantitative, statistical	Participation, qualitative, Hermeneutical dialectical	Developmental Measure, artefactual impacts on the composite system
Axiology: What is of value?	Truth, Universal and beautiful, prediction	Understanding, situated and description	Control, creation, progress (i.e., improvement), understanding

Figure x: Research Perspective, interpreted from Philosophical Assumption of Three Research Perspectives
(Source: Vaishnavi & Kuechler, 2007, p.17)

The design science researcher can change the reality of an organisation by implementing an innovative Artefact. Through positivist ontology the complexity of an organisations 'socio-technical system' becomes a unit of measurement. Whereas the actual 'problem statement' is constantly being revisited throughout the research effort. Abductive reasoning occurs during the creation of an Artefact that is intended to solve the problem in what Vaishnavi and Kuechler (2007) consider a grounded reality, similar to the natural sciences belief. The researcher begins to understand the epistemological constraints while constructing the Artefact (Vaishnavi & Kuechler, 2007, p.18).

Appendix D: Sample Email Request for interview – Final Stage Leadership Interviews

Email was modified as needed for interviews that were face to face, to those that were in person. That information was known at first communication and approval of contact.

Dear xxxx,

Thank you for agreeing to talk to me about your work and xxxx efforts in the sustainability / ESG mark Attached is a brief introduction to my research for your review. I am currently striving to advance my work and further information is being gathered to (a) test and extend initial findings, and (b) support development of ideas and next steps. One method is via interviews with leaders in Environmental, So and/or Governance (ESG) change management positions with the aim of better understanding their organization's efforts to implement one or more of these initiatives. Conversations are expected to la around 30 to 40 minutes and will focus on the following topics:

- Organizational goals, methods, and processes with respect to ESG initiatives?
- What are the factors that are driving such initiatives?
- How is sustainability/ESG defined within the organization?
- Who is responsible for the management of such initiatives?

I would be grateful if you could let me know of your availability in the next two weeks in order that w might arrange a call.

Again, thank you for your time, willingness to share ideas and support of this work. I look forward to speaking with you.

Greenest Regards,

Maya Jaber

Appendix E: Sample Ph.D. Information shared with prospective interview candidates

PhD Research Information
Maya Jaber

BCU PhD – Strategy & Change Management
Birmingham, UK

Director of Studies
Dr. Green & Dr. Costa

Modeling Sustainable Futures: The Role of Design Thinking and Creative Innovation in Supporting Organizational Culture Change

Those involved in driving organizational Sustainability agendas confront a diverse set of obstacles to the implementation of change: these challenges are connected primarily with a set of environmental, social and governance (ESG) factors and priorities. Problems identified in my study so far indicate that most companies acknowledge the importance of a sustainability / ESG strategy to their overall competitiveness, yet conversely only a minority of managers' report that their organizations have developed a strategy and business case for ESG efforts. My research contends that there is need for a new and pragmatic framework for change management and suggests that in order to construct such a framework, further exploratory studies of the nature of change and how it is being managed are required. This study focuses on shedding light onto how holistic design thinking strategies could enhance the implantation of cultural shifts towards the sustainability agenda for organizations. In focusing on design thinking strategies in organizations from both top down and bottom up approach, an artefact was developed in the first stage of the research through literature review and initial case study work.

Currently, further study is being developed to see if the first stages of research are viable. This is being done by interviews of leaders in Environmental, Social and/or Governance change management positions and analysis of organization that are implementing one or more of these into their organization.

I will be engaging with more of these leaders and organizations to further my work and research. If you are interested in participating in this study or learn more, please contact email me mayajaber333@gmail.com or

call me @ 646-799-3663

Sustainability / ESG

Understanding the history and need for these initiatives and the movement that is pushing these economic trends.

Culture

Understanding and defining culture in organizations and investigating the elements that create it. How do we holistically align ESG, Sustainability & Corporate Social Responsibility factors into organizations?

Design

Understanding and defining innovation, design thinking, integrative design thinking, and design strategies. Exploring the role of these in creating cultures to support sustainability goals.

Mayajaber333@gmail.com

Skype: MayaJaber

PhD Research Information
Maya Jaber

Director of Studies - Dr. Green & Dr. Costa

Appendix F: Sampling of Leadership Interview Analysis – Transcription

Questions	1 — Jane Abernathy - Human Scale "Net Positive = Doing more good then Harm."	3 — Jonathan (Jp) Flaherty - Tishman Speyer	4 — Eugenia Gregorio - The Tower Company	5 — Meredith McDermott - NYC Department of Education	6 — Seema Wadhwa - Inova Health System "Purpose is the foundations People, Planet and Profit are built on."
1. Background and Personal Details	Manufacturing	Real Estate	Real Estate	Public Education	Healthcare
1a. What is your current role (prompt: how long have you been involved in sustainability projects)?	Chief Sustainability Officer - little gives power and allows for better engagement	Senior Director - Sustainability and Utilities	Vice President, Strategy & Sustainability	Director of Sustainability	Assistant Vice President Sustainability and Wellness
1a-1 how long have you been involved in sustainability projects?	Since 2012	Since 2007	Since 2003 - LEED & Energy star certifications	8 years	2008 - 2014 worked as a consultant - 2014- Present with current title- 12 years catalest [
1b. What brought you to this line of work? (prompt: personal interest or professional opportunity. What was your area of Study?)	Since 2012 - Industrial Designer in company - stepped up and took on certification for product	Was in Real-Estate, grew up in the industry - Was someone before him but they couldn't do anything as they did not understand the political environment of the company, was interested in sustainability so approached to lead it because of his ability and understanding of how to influence internally.	Engineering Construction Management - fell into the role, promoted after boss left - Started with where LEED projects / renovations / solar projects took on more responsibility as regulations and customers demanded more.	Biology and environmental education - love of nature	transitioned into it - was asked to do it.
1c. Who is responsible for Sustainability, CSR &/or ESG and at what level of the business do they operate? (prompt: how is it broken down? & how many people help to push it?)	She leads it - has 3 direct reports - * Works directly with the CEO *has to be super clear about the ask	He is responsible - had a team of 3 turned into 5 as other areas have been brought under his management	She is responsible, did it solo 2 years and then had 2 people report to her, had a communications / marketing prson but lost them and was not replaced.	She - started 4 years ago at current organization, environmental only, in building operations / facilities office. Has grown into 20 to 20 people - concentration on Zero waste / Energy analysis and reduction / Solar Projects. Behavior and policies for education not connected in NYC public schools - research project	I oversee our environmental sustainability in our wellness department on the sustainability front we have a team of three self and I am home you'll find all this information on our website at Green but we oversee I say we organize our efforts and the curious strategic planning and engagement so you know within her operation energy waterways Tatian green construction whole gamut of things and within those areas - VP, Director of Sustainability, Sustainability Manager & Sustainability program coordinator +
2. Sustainability in Context – chronology and nature of initiatives					
2a. For how long has the issue of sustainability been on the agenda at your organization?	Since 2012 - customers asking about Environmental issues and transparency - first certification of product to Level and then other 3rd party verifications for transparency	Since 2007	Since the 90's, family business, when ownership transferred hands and one of the younger so,s believed in social good/good decisions. Brought on green design and he is still the face of the company. Wasnts to be the first to do anything, have pride follow them as part of their family brand.	2007 - Plan NYC has pushed the creation of the role and furter regulations have developed need for growth of the department - only in 2016 was the office of sustainability actually created. Prior to that it was only initiatives of DSF.	Nova has started to adopt values of sustainability for 20 years, in Since 2000 started baselining. 2008 they hired consultants that was able to measure impact some on a monthly basis based learning everything from 2009 - present - adding wellness ot the agenda in 2015 to 2016 to full implementation 17. Diff
2b. Does the organization focus on Environmental, Social and Governance issues or just focus on one?	All together to achieve	Yes, from the start, we deal with international markets and international investors - we need to be transparent and show them what we do as they are asking for it.	Environmental - optimizing portfolio	Full Kit - some programs built off & layer in Policy / shuntship / not just facilities hybrid off	all, Define mission
2c. In what ways/how has sustainability been implemented into business systems in your organization?(prompt: what initiatives and programs have been implemented so far? is there more than one team working towards initiatives?)	* Tie to requirements *Give value, recognize their wins & their ownership *Develop allies internally & Externally	Management and opperations / running procdures - as we are in real-estate - it is about optimizing our portfolio investments	It has always been there is leadership - wants to save the world, so the leaderhsip from the top was there to support, that mindset built into the culture - didn't have to sell it but had to do a business case for all requests.	example - utility budget / efficiency programs / & projects. Business decisions of city DOE - Focus sustainable purcurment / impct feed back / influence. School food partnered with other school systems and helped change city policy of single use plastics	Sustainability reporting / developing business case
2d. At what levels has sustainability been implemented?(prompt: spectrum from discrete projects to coordinated and holistic programs?)	All levels as of 2018 - environmental messaging has gone into the mission statement, motto and all branding of the organization to include improving health / designing for humans, & environment	Holisticly - management, opperations & run procedures -	It has been implemented from the top down, hear of properties	top down and bottom up - NYC case study****	develop relationships to help implementation
2e. How does sustainability in your organization connect with other functional and business areas?(prompt: is sustainability used to trigger behavior change?)	It is connected to all parts of the organization, from design to manufacturing - from the materials we use to the reduction of waste and energy. We have also developed a green team that looks to engage in community	Has to be done and get all on board - x to raise y - not a national or believer all about investment	in 2014 has been added to mission statement.	process, communication & ploicies - top down ment to support better / gross roots ment to give them identualbale place	Placed base education, having them re,ize what they are doing, it is about first educating them, tthen connecting them to what matters
3. Drivers for Sustainability Projects					
3a. What factors are driving sustainability initiatives in your organization? (Prompt: Organizational Policy, Federal / State or City regulations, mission, other drivers?)	Owner value & interest, client asks, market driven, employee retention (top value in employees)	Investors are driving it, the CEO cares but not enough to change it if there were not being asked as well as government regulations	Leadership and comption, wanting to be the first in everything. Or if others are doing it, we need to as well.	City goals / policy / local laws - Climet Mobilisational act	Community - People & local plices for green initiatives
3b. Have the sustainability drivers changed over time? (Prompt: Why or Why not, and in what direction?)	Owner value & interest, client asks, market driven, employee retention (top value in employees)	Yes, investors asking for more transparency - organization exists by support of investors and ESG disclosures help raise funds as organzisation is international and raises funds from EU	Yes because of leadership ego - other business leaders doing it.	Drivers / needs of the stahloders / satisfy that - tools for school resources - Equity - making sure that all programs are available to all schools "Equity has to be given & embeded into sustainability - Sustainability is to linkage as opposed to a divider	Yes people are caring for self more and are aware of their enviroment, healthier places to be
4. Value of Sustainability: monitoring and communications					
4a. How is sustainability defined within your organization? (prompt: is there a difference in definitions that are used for inward and outward facing purposes? How are these communicated?)	Started with do less harm to evolving to Net Zero = Do more Good then Harm. Yes there are differences - internally, workshops / education / emails and newsletters / as well as greenteam events. Externally through reporting, social media and	through the eyes of our investors - no definition, just reporting to investors and to keep up with compton / black rock announcment (fear to only to good)	Added to mission and vision statements in 2014	Basic definition - Meeting future needs - integrating it into the mission of all programs - logo / brand connection	Sustainability is part of the mission statement
4b. How do you demonstrate the value of sustainability (for various stakeholder groups: government, commercial partners, leadership, employees)	It is communicated by leadership / It is now part of our mission	As we can not disclose anything because for our investors, Sustainability reporting is all we can communicate with	in person trainings / educating people / targeted communication marketing	Participation in strategic working groups	Sustainability report / press/ engagement
4c. In what ways do you market sustainability – what forms of communications/messages have the greatest impact?	Reporting / 3rd party varifications	it is only marketed externally and for investors, not marketed internally - 11 years working in it and not built into the culture	not done - only in brand recognition	DSF/ opperations / network of partners / agencies /	

Question					
4d. Does your organization have a defined or identifiable 'sustainability' brand?(prompt: if yes, how is this communicated and valued?)	Building it - only recently moved sustainability to the mission, motto and tied it to our brand	Yes, Externally we do everything to show we are sustainable through reporting, speaking events and 3rd party certifications	begin every year with goals and projects for that year / reporting, communication via annual report, external		Yes,communicated to Donors / county Officials / patients - through reportings
4e. In what ways do you evaluate the success of sustainability initiatives?(prompt: how do you assess the value of sustainability programs?)	No true measurement tool as of yet - through client & stakeholder feedback at the moment - need to find a way to better do this	From getting more funds for our investments, company internal culture is cut through, revolving door mentality, young people come for the name of the organization, get burned out and then leave.	begin every year with goals and projects for that year / reporting, wanting to be the first	impact on energy - investment / return tracking & trending	track everything - how many people attended or were a part of it.
5. Closing section:					
5a. Are there any hot issues that I'm missing here (especially in the context of your organization)?	Communicating the message of influence without greenwashing or false statements forwhere they truly to internal and explain stakeholders and teaching them how to be able to tell the story	Need to hit mide managers as champions - example green teams consist of a few top and a lot of bottom level employees but a few mid - need to traget midlevel key employessess for support - shaming people does not work	Not enough companies looking inward, most looking out, majority are not assesing the internal messaging or change only externally. Not being targeted into culture - "Should be what they breath" not investing the man power for it.		Organizational Change - how to manage it / Education in public schools - ESG needs to be incorporated to the materials that is being taught in public schools & highring structure is anticipated as you can not higher people with a diverse background to boring more innvation to the system.
5b. Is there anything that you've reading that might be useful to me (policy papers or academic work)?	Product Design & Sustainability	Wall street journal / Times / Bloomburg green / business week	none	Resource portal - Annual report -	Leading from any chair - book
5c. Do you have any friends, colleagues or contacts that you think I should approach re: a discussion?	Rachel Berman - Metro Shades & Rachel Rozman - HMPS / Mohawk	Jessica Long	Pulsp - Navel	Field Musium Chicago - Karter Obran	Lidia Lewis / Susan Walters

Appendix G: Sample Interview Ideas and Themes analysis from interviews

- Sustainability teams are generally small – need to be able to influence other leaders or team members to be on your side / be your champions

Jane Abernethy – Human Scale – Chief Sustainability Offices: moved into the position from a product designer at the company, voiced interest in subject and given a project to start - Some form of sustainability concepts existed but in 2012 - Jane was moved to a sustainability role – she build it (1 ½ years to develop foundations, done through engagement and feedback of leaders to final approval of CEO) – came up with a unified vision and message for what sustainability means to the organization – 2014- 2015 new goals set and revised moto – to "Net positive = Doing more good than harm" – a holistic vision was created with focus on specific attributes. 3 people under her department.

4 pillars – Water / Energy/ waste / climate

7 core areas of focus – Healthy materials / Water / wildlife protection / Energy / Climate / Resource depletion (includes waste / materials used in design and manufacturing)/ social responsibility – targets are set for each area of focus every year.

2018 – Changed the motto of the company to include sustainability on all messaging – Function / Simplicity / longevity / Beyond Sustainability

- Giving people Value, a path to have a win – their ownership.
- Title and where you sit in the organization gives power / communicates value / helps engagement.
- First tied ask to the requirements that have to be done (example policy, regulations, etc.) From there people will not say no as it is mandatory to give that info. Ask should be reasonable.
- Little wins need to be celebrated and acknowledged.
- It has been top down - owner and CEO buy in has helped but starting to also bring bottom up approach as I cannot be everywhere – this is being done with Sustainability ambassadors 31 of them.
- Communicate internally all aspects of goals and needs to achieve. Only communicate out what is achieved not wat is in the process of achievement.
- Does not have a way to measure or evaluate success – only through verbal and anecdotal information.
- Ways communicated is through Business to Business (sales people), events & customer engagement in showrooms to also teach sustainability, LinkedIn posts & Shares, Annual report, Speaker events
- Big challenge is communicating of success, not making the success to big to insure that the work continues but keeping engagement for all the remaining work to be done.
- Suggested book – Product Design & Sustainability : Strategies, Tools and Practice– Jane Penty, launched 2019
- Contacts Rachel Bermon – Metro Shades, Racheal Botman – HMPS – Jane to connect

Seema Wadhaw – Assistant VP Assistant VP sustainability and wellness – INOVA Health System

Supportive leadership – committed CEO, supportive visionary

Seema – started as a civil engineer – inspired by her sister to go into environmental services and got a month consulting job with INOVA – grew into 7 years – started 2008 and hired as staff in 2014.

- 2007 economy was successful, a lot of money going around. 2008 market crash, loss of money and jobs. 2008 People lost their jobs – the market crash propelled the market to find ways to save money. Environmental infinitives were sought out by companies for money savings.

Peter - VP sustainability Bazoto management (Bozoto – do not use name of company or individual – Multi Family owner / management company)

Sustainability initiative started around 2011 but hired in 2013 with no true foundations developed – company motto is for creating sanctuary for their -

- Pushes sustainability initiatives but if he leaves there are no true foundations imbedded into organizational process or culture that all efforts will be erased and new person will start from ground zero.
- A team of 2 that pushes these environmental aspects only
- Started from client request and regulations only – this is what is driving things – stream line process, 100% bench marking portfolio energy start energy water waste
- Siloed teams that it is hard to get messaging across
- A CSR person exists under marketing department
- He manages waste / energy / communication and PR – anything that is environmental – bees roofs
- Manages 3 party properties.
- Communication is from Earth month & news letter
- Top down only
- Large marketing team, only

Time Equities Change Committee Proposal

Purpose: to devise and implement company-wide initiatives that will improve efficiency, communication, collaboration, productivity, and increase employee health and happiness.

Change Committee projects may include:

1. **Creating centralized and standardized internal processes and systems**
   This will not only create efficiencies, but will also ensure all employees have equal and sufficient access to relevant information. It would also improve information flow and improve transparency.
   - The priority here is to logically and clearly organize company files on the server so that information is available as needed. A few examples of specific information that is to be gathered (in addition to the organizing of information that is already available on the server) are:
     - Creation of general "roadmap" for the server (ie, where everything is located).
     - Standardized information on each property: deal memo, business plan, property photos, closing statement. (to reference acquisition checklist as created by Phil Brody)
     - Standardized process of deal memos sent out to ALL TEI: 1-2 sentence description of acquisition, property address, type, and asset manager clearly stated in body of email.
     - Deal memos to be stored in centralized location on server, by year.

2. **Developing formal on-boarding process for all new employees**
   When new employees are given the tools to navigate a company, understand the different projects underway, and grasp how business units at all levels operate, their productivity can increase immensely. We would like to give all new employees these essential resources. The CC will do further research to see how other companies integrate new employees and what actions are taken to ensure they can reach their highest potential.
   - A document could be created that lists the names of all employees, gives their job titles and team members, provides a brief description of their responsibilities, and places them on a seating chart. (Note: Maya Camou has already begun creating a seating chart with all employee desk assignments, names, and phone extensions).
   - New employees can be given an overview of TEI, including review of all departments in the company (including department heads and department function), a general analysis of company portfolio, activity, and investment strategy, the server roadmap document, and software training as needed.

3. **Improving employee proficiency with Microsoft Outlook**
   No training currently exists for Microsoft Office software, nor is all of its functionality used to its fullest potential.
   - The IT staff could schedule regular software training sessions to educate employees on the many useful features available in Outlook to help systematize workflow, automate processes, etc.
   - The Outlook Address Book could be populated to include job titles and phone numbers.
   - Organization structure and functional area email groups could also be added to Outlook for improved communication.
   - This could also extend to other Microsoft programs, Argus, MRI, and PDF editors.

4. **Develop ways to create and enforce a positive company culture**
   Successful companies are marked by high levels of retention, cohesion, and happiness. More incentives can be developed that reward friendly and respectful behavior in the office. Conversely, processes to mitigate unhelpful, dismissive, and disrespectful behavior can also be considered.
   - By continuing the positive programs developed by Maya Camou, such as Lunch & Learn series, Global Citizen pledge, etc.
   - Continuation of employee lunch series hosted by Francis on a 3 or 4x/year basis. (This is already in the works per Phil Brody, Natalie Diaz, and Jennifer Ijichi).
   - Publicize FG open door policy and willingness to engage with employees of any department at any level as needed.
   - Articulate the purpose of acquisitions and project developers, and encourage attendance by anyone in the company.
   - Evaluate role of HR Director as leader of positive company culture.

5. Creating an intra-company mentoring program

   TEI can leverage the deep institutional knowledge and expertise held by many of its long-time employees by pairing them with newer employees. The program would be fully developed by the CC. One member of Change Committee could be appointed project manager and conduct market research to see how other inter-company mentor programs work. Issues to be resolved include the exact structure of the program, length of mentorship, number of cycles, etc.

   - Idea to be explored in conjunction with Phil Brody management consultant training/education.
   - Please see attached document from Maureen Nebenzahl, "How to Start a Mentoring Program". Practical takeaways from the article include:
     o Define the objective of the mentoring program: develop leaders and leverage deep institutional knowledge of long-time TEI employees with newer employees.
     o Timeline and structure of program to be decided on: perhaps mentors and mentees meet individually for 1 hour a month for 1 year.
     o How to pair mentors and mentees? Suggest matching by department and professional interests. Note: make sure mentees and mentors get along, and like each other, to make the most out of the relationship.
     o Communicate the program to ALL TEI. Program will NOT be mandatory.
     o The arc of the 1 year mentoring program can include 3 phases:
       ▪ Have a conversation about their expectations, confidentiality, and the boundaries of the relationship.
       ▪ Mentee outlines their professional goal, or knowledge they hope to gain from mentor. The mentor then helps the mentee work out a plan, with clear tasks, for achieving his or her goal.
       ▪ The mentor then supports the mentee in following his or her plan, as well as provides feedback and accountability.

6. Leveraging Executive Committee meetings and conferences

   The structure and agenda of these meetings could be redesigned to increase productivity and lead to more direct outcomes. One measure could be to clearly articulate the agenda and objectives at the outset. We propose employing a "design thinking "architecture (i.e. eliciting feedback from all participants beforehand about how the meeting can be productive or helpful to their respective departments). Once responses are collected, strategic design of structure and agenda of meetings can be developed.

   - Project manager from the CC can be appointed to oversee collection of feedback on ways to improve Executive Committee meetings.

7. Creating a standard method for stakeholder feedback

   This could take place in various departments and involve direct outreach to tenants and other partners. Surveys, phone calls, and other methods may be considered. An example of one successful tenant committee is the one at Travelers Towers, developed by Rick Recny and Matt Wallerstein. This committee meets regularly and serves as an effective liaison between the building's management and tenants.

   - Example posed by Maureen Nebenzahl – create system of feedback upon residential tenant turnover to understand areas that can be improved (ie building management, super, cleanliness of building, responsiveness of TEI staff with questions regarding lease issues or renewals, etc.)
   - Further discussions to take place with Rick Recny to identify areas of need, or potential added value, of commercial tenant feedback.

8. Troubleshooting distressed properties

   Meetings could be organized between the departments and employees involved in managing a given property to review its status and what could have been done differently. Articulating and keeping a record of both good and bad decisions that were made could lead to crucial lessons that can be applied in the future.

   - This is something that can be done on an ad-hoc basis in the case of something going seriously wrong or a very poor decision was made. Example: Avenue P projected operating expense discrepancy – FG worked with Chris Pulling on an exercise to create average data of various operating expenses based on real TEI average numbers from the properties we own and operate (i.e. elevator costs).

Participants:
Natalie Diaz
Max Platoff
Phil Brody
Rick Recny
Maya Camou
Maureen Nebenzahl
Sandy Sperling
Scott Schneidman
Josephine Cinquemani

The exact membership of the Change Committee is yet to be determined. It is important to assemble a diverse group in terms of functional areas as well as seniority. The number of Change Committee members will be capped to ensure productivity and focus.

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[i] Inspirational Model – Google's "20% time

One of Google's most famous management philosophies is something called "20% time." Founders Larry Page and Sergey Brin highlighted the idea in their 2004 IPO letter: "We encourage our employees, in addition to their regular projects, to spend 20% of their time working on what they think will most benefit Google," they wrote. "This empowers them to be more creative and innovative. Many of our significant advances have happened in this manner." Huge 20% products include the development Google News, Gmail, and even AdSense.

Suggestion from Dottie to ND:
Create working list process for deal memo > closing evolution of any given deal. All deal memos should have a company-wide follow up, even if the deal dies. The legal department is often kept up to date given their close involvement in any deal, but the accounting department (and the rest of the company) is likely uninformed. As soon as Bob/FG signs off on a deal memo, it will then go into the working list process, which will be followed up on for every open deal memo.

Appendix I: TEI's Communication Letter about joining the Paris Accord Commitment

TIME EQUITIES INC.

Date: June 6, 2017

Dear TEI community,

For more than 50 years, Time Equities Inc. (TEI) has aspired to uphold, foster and promote the highest possible ethical business standards. This has formed all of our business practices and now we are making sure it extends to our environmental footprints. We are proud to announce that TEI has signed an open letter to the world as signed by a coalition of states, local governments and leading organizations to uphold the Paris Climate Accord. As a nation, the U.S. has committed to reduce Greenhouse Gas (GHG) emissions by 26-28%. TEI has committed to do its part now, as well. This is in line with prior commitments made by TEI, such as signing our Global Citizen Pledge last year. Now, more than ever, our leadership and innovation is needed for the health and conservation of our future generations.

TEI has been working on many levels to ensure that our assets are healthy and run in an environmentally friendly manner. This year, we will try to align our portfolio-wide building policies with various U.S. and international green building standards. We have purchased clean energy (three states out of the 29 we are in, as well as one Canadian province, are 100% green) and we have reduced energy consumption in many of our buildings with further reductions to follow. We are working on a portfolio-wide clean energy purchase strategy to reduce our carbon footprint further, as well as a waste management contract that will allow us to monitor our national waste consumption and see how our assets can be zero waste facilities. We believe in transparency for our investors and are developing strategies to be able to report our Environmental, Social and Governance (ESG) performance efforts via GRESB, the Global Real Estate Sustainability Benchmark, for our portfolio.

These are examples of the initial foundations we are working on to position TEI as a leading organization in sustainability practices and a change-maker in transforming the market to move to a greater focus on conservation. We welcome you to join us and help us grow these foundations, as they become rooted in what we do and who we are as an organization.

Sincerely,

Francis Greenburger   **Robert Kantor**   **Maya Jaber Camou, MA, LEED AP**

Appendix J: My Research Story

The path that led me to this study was long in the making. I have my MA in Design Management from UCE in 2001 and since have been searching for a subject to investigate further at a Ph.D. level. Since graduation, I have worked in the design and architecture field in New York City (NYC). Over time, my work moved from a pure design emphasis to a more strategic, standards, and management approach, though always with design at the core of my practice. It was this path in my professional career that brought awareness to and triggered the interest to pursue this study. I saw that it was built and manufactured environments that are the major factors in climate change. To further influence my path, in 2007, New York City released PlaNYC, an aggressive Sustainability plan aimed at reducing the City's greenhouse gas emissions by 30% by 2017. In April 2011, NYC PlanNYC was revised to include more stringent requirements (PlaNYC 2030). Integral to this program was a method to reduce energy consumption in municipal and privately owned buildings. I wanted to see how I can help to advance the Sustainability agenda; this led me to wish to deepen my knowledge of the requirements for Sustainability-oriented culture change in connection with Design Thinking and innovation. According to Brown, Design Thinking promotes avenues where we inform ourselves about what is at stake. We make visible the cost of the choices we make; it involves a fundamental assessment of systems and processes we use to create new things and encourages individuals to move towards more sustainable behaviours (2009: 194). This perspective resonates with this research because I believe that embedding Design Thinking into strategic areas in the organisation will aid in the implementation of sustainable behaviour.

Due to my family and life commitments in NYC, I chose to undertake a Ph.D. in PT mode and have put my consultancy and other work on hold to follow this path. I chose BCU for its reputation and expertise in the design field of the faculty and, in particular, the knowledge of Dr. Green concerning creative, service, and public-sector innovation. After my acceptance to the program at BCU, I was recommended to a fellowship with the New York City Department of Education's Office of Sustainability to aid it in developing strategies for cultural shifts for its 1800 schools. Through this process, my first case study developed; this was the first phase to help me understand how to translate theory into practice and vice versa. Through this initial research, I was able to develop an original and experimental Artefact that would need to test further, evolved, and refine. I searched for the ability to continue in this approach. I found another organisation wanting to push Sustainability initiatives, a global real estate management and development firm which has agreed to be my second case study. I took on a position that gave me opportunities to test my Artefact rigorously and on all fronts, and to evaluate its potential value and availability to refinement, expansion, and development. At the same time of my

At the same time of my acceptance to the program at BCU, in September 2014 Mayor de Blasio committed New York City to reducing its greenhouse gas emissions by 80 percent over 2005 levels by 2050 stated in his vision One City, Built to Last: Transforming New York City's Buildings for a Low-Carbon Future. This initial plan is to retrofit public and private buildings to dramatically reduce the city's contributions to climate change, while spurring major cost savings and creating thousands of new jobs for New Yorkers and developing a green jobs market. This makes New York the largest city to commit to the 80 percent reduction by 2050. In 2015 the mayor again passed ONE New York plan that has pushed for even stricter Sustainability mandates for the city. One example is the mandate that all New York City Schools will be Zero Waste schools where they have to divert 90% of their waste stream from landfills; these types of initiatives is happening across the United States in cities and organisations.

This research began after years of professional experience, literature review and observations of need in the evolving Sustainability market. This chapter will introduce the creation of the designed Artefact and its evolution. Then it will be concluded with a discussion and interpretation section.

Appendix K: UK Leadership Interview Questions

Interview with Business Council for Sustainable Development- Pat Laughlin, CEO of MEBC (Midlands Environmental Business Company) and the UK Business Council for Sustainable Development (UK BCSD).

1. Background and Personal Details

What is your current role (and how long have you been involved in sustainability projects)?

What brought you to this line of work (prompt: personal interest or professional opportunity)?

2. Sustainability in Context – chronology and nature of initiatives

For how long has the issue of sustainability been on the agenda?

In what ways/how has sustainability been implemented into business systems in Birmingham / UK? (Prompt: what initiatives and programs have been implemented so far?)

At what levels has sustainability been implemented (prompt: spectrum from discrete projects to coordinated and holistic programs)?

How does sustainability in organizations connect with other policy areas (prompt: is sustainability used to trigger behavior change in the supply chain)?

3. Drivers for Sustainability Projects

What factors are driving sustainability initiatives in Birmingham (Prompt: European Policy, UK policy, local policy Birmingham's Green Commission Building a Green City Vision, other drivers?)

Have the sustainability drivers changed over time?

4. Value of Sustainability: monitoring and communications

How is sustainability defined within Birmingham? (Prompt: is there a difference in definitions that are used for inward and outward facing purposes?)

In what ways do you evaluate the success of sustainability initiatives (prompt: how do you assess the value of sustainability programs)?

How do you demonstrate the value of sustainability (for various stakeholder groups: government, commercial partners, council-tax payers)

In what ways do you market sustainability – what forms of communications/messages have the greatest impact?

Does Birmingham have a defined or identifiable 'sustainability' brand?

Appendix L: Time Equities Inc - Global Citizen Pledge

TAKE THE PLEDGE WITH TIME EQUITIES INC.

WE HEREBY PLEDGE TO LIVE AS GLOBAL CITIZENS THROUGHOUT ALL ASPECTS OF OUR PROFESSIONAL LIVES.

✓	**WE WILL** TAKE ACTIONS THAT POSITIVELY IMPACT OUR PROPERTIES AND THE COMMUNITIES IN WHICH OUR PROPERTIES ARE LOCATED; THE COUNTRY; AND THE REST OF THE WORLD
✓	**WE WILL** STRIVE TO UNDERSTAND THE IMPACT ALL DECISIONS WILL HAVE ON ALL FUTURE GENERATIONS
✓	**WE WILL** CONTINUOUSLY COLLABORATE AND INNOVATE AS WE EDUCATE OURSELVES ON SOCIAL AND ENVIRONMENTAL ISSUES
✓	**WE WILL** TAKE OPPORTUNITIES TO PASS THAT EDUCATION ON TO OUR PEERS AND COLLEAGUES, AND TO UTILIZE IT THROUGHOUT OUR PROFESSIONAL LIVES
✓	**WE WILL** BECOME WELL-INFORMED CONSUMERS, AND STRIVE TO UNDERSTAND THE SOCIAL AND ENVIRONMENTAL IMPACTS OF OUR EVERYDAY PURCHASES
✓	**WE WILL** STRIVE TO REDUCE THE ENVIRONMENTAL AND ECONOMIC HARMS ACCOSTED WITH EXCESSIVE ENERGY USE
✓	**WE WILL** STRIVE TO REDUCE THE AMOUNT OF WATER WE USE AND FIND WAYS TO PROTECT OUR WATER RESOURCES
✓	**WE WILL** STRIVE TO REDUCE THE AMOUNT OF WASTE OUR PROPERTIES PRODUCE

As Global Citizens, we understand that the only way to truly achieve lasting change is to realize that we are all connected, and must work in collaborative partnerships to ensure fairness and equality. For this reason, as TEI community partners, we will strive to reach a deeper understanding of issues that affect the global community and act as a compassionate advocate and innovator for change.

Time Equities, Inc. 55 Fifth Avenue, New York, NY 10003
T: 212.206.6000 / F: 212.727.0563 / www.timeequities.com / www.teigreen.com

TIME EQUITIES INC.
GREENGINEERS

Appendix M: Sustainability Leaders Interview Questions

Modeling Sustainable Futures: The Role of Design Thinking and Creative Innovation in Supporting Organizational Culture Change

Contact Name and organization:

1. Background and Personal Details
1a. What is your current role (prompt: how long have you been involved in sustainability projects)?
1b. What brought you to this line of work? (prompt: personal interest or professional opportunity, What was your area of Study?)
1c. Who is responsible for Sustainability, CSR &/or ESG and at what level of the business do they operate? (prompt: who is it broken down? & how many people help to push it?)

2. Sustainability in Context – chronology and nature of initiatives
2a. For how long has the issue of sustainability been on the agenda at your organization?
2b. Does the organization focus on Environmental, Social and Governance issues or just focus on one?
2c. In what ways/how has sustainability been implemented into business systems in your organization? (prompt: what initiatives and programs have been implemented so far? Is there more than one team working towards initiatives?)
2d. At what levels has sustainability been implemented?
(prompt: spectrum from discrete projects to coordinated and holistic programs?)
2e. How does sustainability in your organization connect with other functional and business areas?
(prompt: is sustainability used to trigger behavior change)?

3. Drivers for Sustainability Projects
3a. What factors are driving sustainability initiatives in your organization?
(Prompt: Organizational Policy, Federal / State or City regulations, mission, other drivers?)
3b. Have the sustainability drivers changed over time?
(Prompt: Why or Why not, and in what directions?)

4. Value of Sustainability: monitoring and communications
4a. How is sustainability defined within your organization?
(prompt: is there a difference in definitions that are used for inward and outward facing purposes? How are these communicated?)
4b. How do you demonstrate the value of sustainability (for various stakeholder groups: government, commercial partners, leadership, employees)
4c. In what ways do you market sustainability – what forms of communications/messages have the greatest impact?
4d. Does your organization have a defined or identifiable 'sustainability' brand?
(prompt: if yes, how is this communicated and valued?)
4e. In what ways do you evaluate the success of sustainability initiatives?
(prompt: how do you assess the value of sustainability programs?)

5. Closing section:
5a. Are there any hot issues that I'm missing here (especially in the context of your organization)?
5b. Is there anything that you're reading that might be useful to me (policy papers or academic work)?
5c. Do you have any friends, colleagues or contacts that you think I should approach re: a discussion?

Maya Jaber - PhD Candidate – Birmingham City University, UK
Director of Studies – Dr. Sandra Costa   Second Supervisor – Dr. Lawrence Green

Appendix N: NYC DOE Sustainable School Pledge

New York City
City Agencies and Unions
Sustainability Pledge

Whereas, the Government of New York City is committed to protecting public health and the natural environment in the city through numerous programs and initiatives; and

Whereas, the Mayor Bill de Blasio has designated advancing sustainability in the City of New York as a strategic priority and has established the goal of making New York City "the most sustainable, resilient city in the world".[1]

Whereas, the DOE Chancellor Carmen Fariña has designated advancing collaboration within New York City Urban schools "by unified effort to change the status quo and fix our schools… to create the best urban school district in the country."[2]

Whereas, City Agencies, Unions and the Government of New York City recognize the importance of promoting sustainability practices that optimize social, environmental, and economic benefits; and

Whereas, City Agencies and Unions are committed to creating a future that sustains a thriving natural resource system to support the human population now and for generations to come; and

Whereas, City Agencies and Unions in New York City are collectively committed to making **New York City's Public School System the Greenest School District in the US**:

[1] PlaNYC Progress Report 2014, Mayor's forward. http://www.nyc.gov/html/planyc2030/downloads/pdf/140422_PlaNYCP-Report_FINAL_Web.pdf

[2] Chancellor Carmen Fariña's Remarks on Strong Schools, Strong Communities, 1/22/2015 Department of Education website. http://schools.nyc.gov/Offices/mediarelations/NewsandSpeeches/2014-2015/Chancellor+Carmen+Fari%C3%B1as+Remarks+on+Strong+Schools+Strong+Communities.htm

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NOW, THEREFORE,

_____
DOE Chancellor Carmen Fariña

DOE DSF Office of Sustainability	Union – Local 891
NYC DSNY	Union – CSA
NYC DCAS DEM	Union – Local 32BJ
NYC SCA	Union – Local UFT
NYC Parks & Recreation	Union – Local 94
NYS DEC	Union – DC 37
DOE School Food	NYC Department of Buildings
DOE School Support	NYC DEP
DOE Space planning	Mayor's Office

Hereby joins the New York City Agencies and Unions Sustainability Pledge, and commits to actions and support to the development of sustainable schools as defined below.

The signatories of this pledge hereby agree to pursue and promote programs, policies and projects aimed at advancing environmental, economic and social equity in the City of New York.

The New York City Agencies and Unions will endeavor to assist local public schools in advancing new and maintaining existing programs aimed at environmental, social, and economic sustainability to meet the goals herein pledged. With the signatures above, this path takes a bold step together in leading New York City's continued efforts to become the most sustainable, resilient city in the world in committing to making New York City's Public School System the Greenest School District in the US.

CAUSP COMMITMENTS

The defined commitments below are the eight areas that represent the proposed "Sustainable Schools" Framework goals:

Building & Grounds	All schools –old and new – to manage and, where possible, design their buildings in ways that visibly demonstrate sustainable development to everyone uses the school. Through their grounds, all schools to bring pupils closer natural world, capture their imaginations in outdoor play and help them learn about sustainable living.
Energy & Water	All schools to be models of energy efficiency, renewable energy and water conservation, showcasing opportunities such as wind, solar and biomass energy, insulation, rainwater harvesting and grey water recycling to everyone who uses the school.
Travel & Traffic	All schools to be models of sustainable travel, where vehicles are used only when absolutely necessary and where there are exemplary facilities for healthier, less polluting or less dangerous modes of transportation.
Food & Drink	All schools to be model suppliers of healthy, local and sustainable food and drink, showing strong commitments to the environment, and social responsibility in their food and drink provision, and maximizing their use of local suppliers.
Purchasing & Waste	All schools to be models of waste minimization and sustainable procurement, using goods and services of high environmental and ethical standards from local sources where practicable, and increasing value for money by reducing, reusing, repairing and recycling as much as possible.
Inclusion & Participation	All schools to be models of social inclusion, enabling all pupils to participate fully in school life while instilling a long-lasting respect for human rights, freedoms, cultures and creative expression.
Local well-being	All schools to be models of corporate citizenship within their local areas, enriching their educational mission with activities that improve the environment and quality of life of local people.
Global Dimension	All schools to be models of global citizenship, enriching their educational mission with activities that improve the lives of people living in other parts of the world.
Other	☐

Appendix O: Design-Science Research Guidelines – IT

Table 1. Design-Science Research Guidelines

Guideline	Description
Guideline 1: Design as an Artifact	Design-science research must produce a viable artifact in the form of a construct, a model, a method, or an instantiation.
Guideline 2: Problem Relevance	The objective of design-science research is to develop technology-based solutions to important and relevant business problems.
Guideline 3: Design Evaluation	The utility, quality, and efficacy of a design artifact must be rigorously demonstrated via well-executed evaluation methods.
Guideline 4: Research Contributions	Effective design-science research must provide clear and verifiable contributions in the areas of the design artifact, design foundations, and/or design methodologies.
Guideline 5: Research Rigor	Design-science research relies upon the application of rigorous methods in both the construction and evaluation of the design artifact.
Guideline 6: Design as a Search Process	The search for an effective artifact requires utilizing available means to reach desired ends while satisfying laws in the problem environment.
Guideline 7: Communication of Research	Design-science research must be presented effectively both to technology-oriented as well as management-oriented audiences.

Copyright Assignment and Consent Form

Ref:

Interview(s) / information use with Maya Camou (Faculty of Art, Design & Media, UK) as regards the PhD research "*Modelling Sustainable Futures: the Role of Design Thinking and Creative Innovation in Supporting Organizational Cultural Change.*"

In respect of the content of the interview(s) conducted or information gathered by Maya Camou (Faculty of Art, Design & Media, UK) consisting of the perspectives of a contributor and constituting a PhD thesis, as defined by the Copyright, Designs and Patents Act 1988:

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- I hereby waive any moral rights, which I presently own in relation to this work on the understanding that the content will not be used in a derogatory manner and that the author of the contribution will be correctly identified and credited when published.

- I understand that no payment is due to me for this assignment and consent.

- In assigning my copyright, I agree to giving Maya Camou (Faculty of Art, Design & Media, UK) the right to use, make available and publish the content of the recorded interview, available to the public for the outcomes of this interview to be disseminated and published within material including:

(please tick)

PhD thesis	☐
Journal Articles/Reviews	☐
Publications	☐
Conference proceedings, papers and lectures	☐
Exhibitions and displays	☐
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Audio (radio, television)	☐

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- ---------------- agrees to the content being published in the above sources, however, wishes to remain anonymous. ☐

Print name:..

Signed:.. Date...............................

Appendix Q: Initial Questions Developed Case Study 1

| Questions	Follow up questions
How Certified Sustainable differs from Organic and Bio-dynamic certified wines? The other two are very well known in the industry so understanding these differences will be needed to see how to best introduce it and market it to the public and other professionals.	Do you know if any of that research has been done? If so can I get my hands on that information? If not, then I would like to have info on LISW certification process and any other information to put all the info together.
Is there documentation on how it is introduced to the local stores and sellers? If so can I have it?	Has it been looked into if these sellers understand your Certification? Do they know how to sell it? Was there training or information given for them on this process to explain to customers?
How is it sold and marketed on location?	Is there documented customer feedback to date on their reaction to the Certification? Has there been a study done on the repurchasing of the wine because of the Certification?
Are there other people in both organizations I can reach out to for information?	Bedell Cellars LISW
Grants were mentioned that are in the works and that there are some delays, what are they for?	Are you going after others now that can support this collaboration?

Appendix R: Case Study1 - Connections and questions for future strategy development

Non-Profit – LISW

- How do they develop community outreach and education for their sustainable brand?
- How do they sell their message and develop a following?
- How does collaboration with For-profit organizations help their
- How does this behavior benefit society, environment and

• This can relate to funding and volunteers to support their cause

For Profit – Bedell Cellars

- How do sustainable companies define sustainability in function and long term planning?
- How do they see it contribute to economic growth?
- How does it make them competitive?
- How do they market this message and this brand?
- How does this behavior benefit society, environment and economy?

• What is the motivation to do this – social / economical / political incentives / personal?

How do they help each other?

Community

- How do others perceive sustainability and sustainable brands?
- How to best deliver the message?
- How to differentiate sustainable brand for community understanding?
- How does this behavior benefit society, environment and economy?

• Understanding differences of Organic / Biodynamic / green
• What is the motivation to buy these products or services – social / economical / political incentives / personal?
• Is social media the new marketing tool / brand building
• How can connectivity / technology benefit building business

• What role does education play?

Appendix S: Case Study 2 –Questions, Answers and Analysis
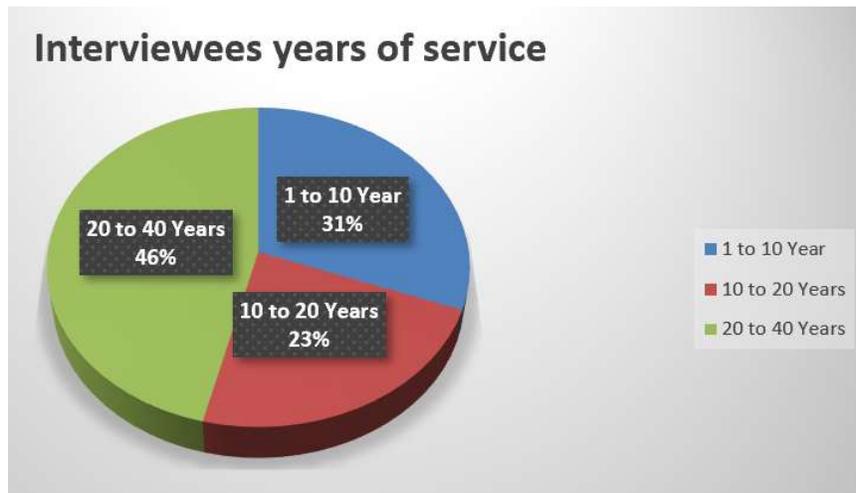
Case Study 2 participants and years of service (Source: Author)
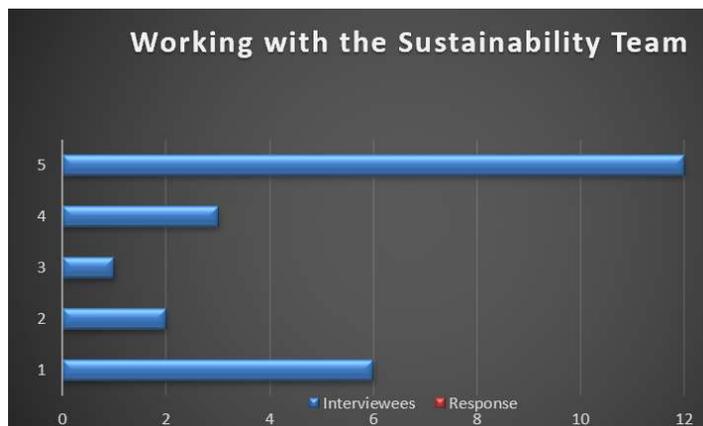
	Response
6	Don't know or Don't work with them
2	Worked with them but not on a constant basis
1	Work well with them
3	Work with them demand response only
12	Would like to work better with the department

Case Study 2 interview responses (Source: Author)

Case Study 2 sustainability leader survey, (Source: Author)

Appendix T: Case Study 3 –Questions, Answers and Analysis
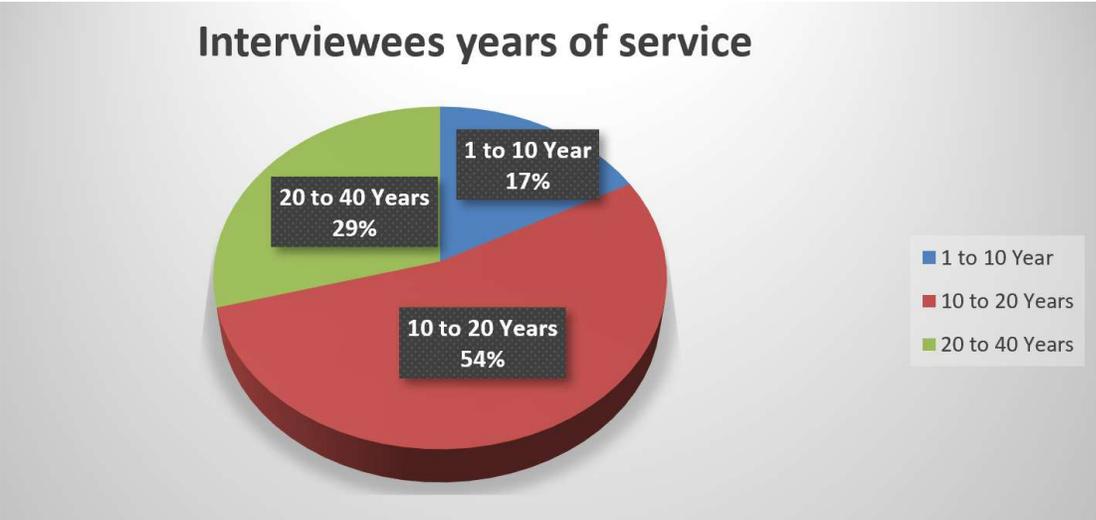
Case Study 3 interviewees years of service (Source: Author)

Working with the Sustainability Team
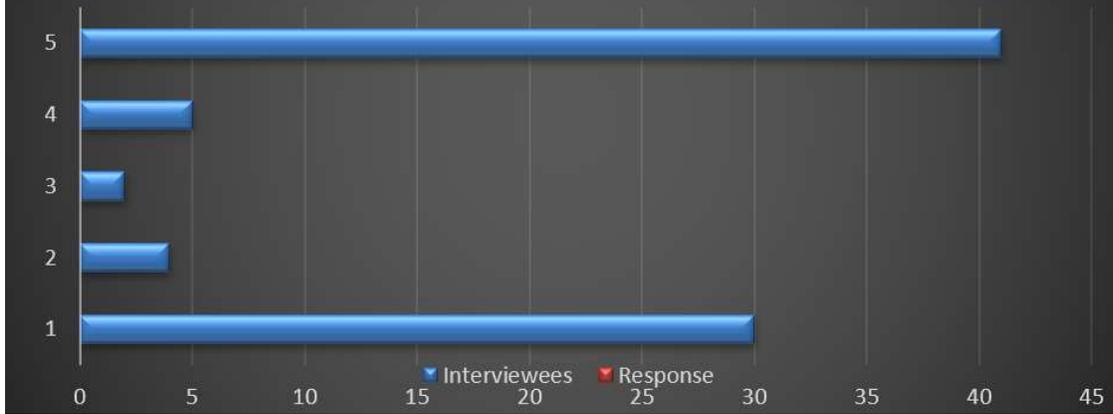
Interviewees		Response
	30	Don't know or Don't work with them
	4	Worked with them but not on a constant basis
	2	Work well with them
	5	Work with them but it was negative
	41	Would like to work better with the department

Time Equites interviewee results (Source: Author)