Gordon Institute of Business Science
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Implications Of Complexity Leadership On Organisational Adaptability In Dramatic Social Change Contexts

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ABSTRACT

Organisations are deeply entrenched in complex contextual discontinuities where they have to deal with both internal and external stimuli by implementing practices and behaviours that direct them towards adaptation. A web of the forces that encapsulate the operating environment includes dynamic economic uncertainty, deepening regulative frameworks, ever-shifting employee empowerment-based labor practices, and entrenched geopolitical disruptions compounded by debilitating ecological disturbances. As such, given such tension saturated complex contexts, organisations need to create the capabilities to adapt to converge with the emerging discontinuous contexts continuously. On the one hand, many firms struggle to establish this capability, leaving a trail of the multiple obsolescent organisations. On the other side, a few have been able to thrive and see opportunities where others are not looking.

The emerging contexts can be dramatic and complex; in many ways, sustaining confounding complex societal shifts. The context places massive implications on the type of leadership practices that firms have to recruit to deal with the pursuant complexity required to capacitate firms to adapt. More knowledge is thus needed to understand how leaders can play a role in influencing their firms to build the organisational adaptability capability. The study leans on the potent Complexity Science and is inspired by the Complexity Leadership Theory whose complexity practices could help leaders deal with environmental complexity. In an empirical formulation, the research delineates the first order Complexity Leadership Theory into Second-Order Constructs. It demonstrates that leaders can recruit the necessary complexity leadership principles and practices when moderated by Dramatic Social Change complexities to bring about their firms' needful convergence with obtaining complex contexts. This environmental convergence typifies Organisational Adaptability on a panoramic level of the organisation; internally, at the market and institutional levels, depending on the leader motives.

The study formulates recommendations for the boundary conditions under which each or a combination of the complexity leadership practices will bring about the appropriate level of adaptability, whether the contextual complexity is a consequence of persistent trends that are infrequent and large, or the complexities are frequent yet offer fleeting opportunities.

KEYWORDS

Complexity Leadership, Complexity Leadership Theory, Organisational Adaptability, Dramatic Social Change

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master Of Philosophy in Corporate Strategy at the Gordon Institute Of Business Science, University Of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Name & Surname Signature

LIST OF FIGURES

ABBREVIATIONS

CAS	Complex Adaptive Systems
CL	Complexity Leadership
CLT	Complexity Leadership Theory
DSC	Dramatic Social Change
ENALEAD	Enabling Leadership
ENTLEAD	Entrepreneurial Leadership
GIBS	Gordon Institute Of Business Science
OA	Organisational Adaptability
OPLEAD	Operational Leadership
SME	Small and Medium Enterprise
ZIMRA	Zimbabwe Revenue Authority
ZIMSTAT	Zimbabwe National Statistical Agency

1. Chapter 1: Introduction To Research Problem

1.1 Introduction

A quantitative approach is adopted in the study to explain the relationship between Complexity Leadership Theory and Organisational Adaptability within Dramatic Social Change Contexts. The leadership behaviours and practices that drive organisation adaptation provided the base for the conceptual framework. The study's findings inform leadership practitioners on leadership behaviours and techniques they may apply in leadership recruitment, development, and training in dealing with business and contextual complexities.

1.2 Purpose Of Study

The purpose of the research is to broaden our understanding of leadership for organisational adaptability by explaining the relationship between Complexity Leadership and Organisational Adaptability in a Dramatic Social Change context. The study responds to the call for organisations to develop modern-day leaders endowed with the mindsets, mentalities, and capabilities to manage and lead effectively through emerging complexity and ambiguity, especially within contexts characterised by the rapid and dramatic social pace change. These leadership qualities and traits are necessary for empowering leaders to catalyse and drive their organisations to concurrently execute, optimise and sustain firm operations for resiliency, growth and viability. These are fundamental tenets of organisational adaptability.

1.3 Background to the Research Problem

One of the critical challenges for management and leadership today is how to handle exogenous shocks, be it deepening regulative environments, economic policy risk, political risk, health risk or natural and weather-related risk phenomena. These sources of risk can be difficult to enumerate. It has long been suggested that sustaining competitive advantage requires the ability and capability to ever adapt at an accelerated rate. Thi risks place demands on organisations to embrace change, embrace new emerging challenges and capitalise on opportunities. Resultantly and more importantly, it implicates leaders in building firms' adaptive capability (Bailey, Reeves, Whitaker, & Hutchinson, 2019). Therefore, this study focused on how leaders can build adaptive organisations through appropriate leadership practices, where it also sought to contribute to the development of adaptive organisations.

The Global Human Capital Trends by Deloitte (2020) illustrates that most organisations predominantly promote leadership models and mindsets that are primarily traditional. This way, the leaders typically prize efficiency over adaptability (Reeves, Carlsson-Szlezak, Whitaker, & Abraham, 2020). However, these leadership models and mindsets are less likely to help leaders

deal with emerging and increasing contextual complexity and ambiguity, talent, and customer demographics as well as an increasingly regulative climate (Deloitte, 2020). Remarkably, the Deloitte (2020) report indicates that 81% of these global leaders (p.37) believe that a unique requirement for modern-day leadership is the ability to lead through more complexity and ambiguity. Yet, only 30% of these leaders submit that they have been implementing appropriately effective leadership development for these emerging challenges and opportunities.

A call has thus been made for organisational leaders to accentuate and deepen exploitation [to execute and optimise] and exploration [to sustain] activities of their firms through a commensurate combination of traditional leadership methods and the new leadership competencies (Reeves and Harnoss, 2017). Such actions have been argued to build firms' capability, enabling leaders to tackle emerging complexities and uncertainties, thereby accelerating and accentuating organisational adaptability. Similar market research studies conclude that although exploration seems much riskier that exploitation, leadership that spend more resources on exploration activities to adapt, than average industry players, have a much higher (29% more) likelihood of succeeding in the long run (Reeves, Levin, Harnoss, & Ueda, 2018). In a study of 22,000 firms in the past four decades, MIT Sloan School of Management (2020) evince that, 17% of firms that outperform sector averages maintain performance advantages. The outperformers achieve this by continually identifying new sources of competitive advantage [exploration and corporate entrepreneurship] as a result of business model reinvention, transformation and organisational adaptability. Therefore, these practitioner studies highlight the need for organisations and their leaders to develop purposeful and requisite leadership qualities and competencies to manage emerging dynamic, complex, uncertain and dramatic contexts. These leadership qualities are seen as being necessary for building organisational adaptability as an ongoing capability.

Thus, organisations' embeddedness in the ever complex, dynamic, and dramatic contexts suggests their outcomes are inherently unpredictable (Reeves, Levin, Fink, & Levina, 2020). Escalating global competition, rising geopolitical tensions and meteoric advances in digitisation, technology development and emerging healthcare pandemics have made operating businesses' contexts more dynamic, complex, uncertain, and dramatic (International Monetary Fund [IMF], 2020). Consequently, the companies themselves have become even more complex, wherein their performance is becoming much less predictable (Snihur and Tarzijan, 2018). The stark reality from studies evinces that firms' mortality rate has ever been escalating, wherein the 1970's, it averaged 5%, compared to the current return of approximately 32% (Reeves and Harnoss, 2015). Therefore, the challenge is posted on leaders to build leadership mindsets and mentalities that acknowledge and deal with the unavoidable paradoxes brought about by dramatic environmental complexities, ambiguities, dynamisms, and uncertainties. To enhance the

evolution of adaptable organisations; emphasis belies on approaches that respond to emerging and dramatically complex contexts. The next section details the definitions of the research problem.

1.4 Definition of Research Problem

The contemporary and dynamic knowledge-based economic landscape presents many business opportunities. Yet, it demands that these businesses' leaders develop efficacious leadership capabilities. In the absence of such, the threat to organisational adaptability and viability can be inimical (Rosenhead, Franco, Grint, & Friedland, 2019; Uhl-Bien and Arena, 2018). The research problem is to explain whether and to what extent Complexity Leadership (CL) influences Organanisational Adaptability (OA) in contexts punctuated by escalating challenges of environmental dynamism, ambiguity, unpredictability, and uncertainty. These contexts are associated with rapid societal changes (Smith, Livingstone, & Thomas, 2019), thus invariably precipitate complexities that induce phenomena which De la Sablonnière (2017) characteries as Dramatic Social Change (DSC).

Researchers have proposed that Complexity Leadership Theory (CLT) (Uhl-Bien and Arena, 2018) could offer a new and plausible perspective on promoting and enabling organisational adaptability in these contexts. By implementing such practices as enabling leadership and organisational emergence, leaders orchestrate their organisation adaptation (Uhl-Bien and Arena, 2017; Uhl-Bien and Arena 2018; Uhl-Bien, Marion, & McKelvey, 2007). Many of OA's current conceptualizations assume normalization and static contexts, rendering many of the assumptions problematic. Instead, even further and deeper complex engagements become mandatory both internally and externally (Tsoukas, 2017; Uhl-Bien and Arena, 2018). Such assumptions of planned management and leadership have arguably contributed to many successes. However, given emerging DSC and attendant paradoxical contexts (e.g., De la Sablonnière, 2017; Papachroni, Heracleous, & Paroutis, 2015;), the same assumptions have led to many failures. The premises have been viewed as suppressing consistent initiative-taking, discouraging diversity of thought, stifling innovation, and further retarding organisations' adaptive capacity (Dick, Faems, & Harley, 2017).

For many organisations, OA is a crucial challenge (Uhl-Bien and Arena, 2018). The OA phenomenon becomes more nuanced and consequential amongst those firms operating in DSC adduced resource-constrained contexts (Hiller, Piccolo, & Zaccaro, 2019; Oc, 2018). In these contexts, it is advanced that many of the leaders tend to seek directing organisations and their constituencies to inspire desired outcomes by controlling behaviours and processes (Zhang, Waldman, Han, & Li, 2015). However, the businesses are neither entirely predictable nor fully

controllable as dramatic complexity, and mercurial uncertainty characterise the present-day business landscape (Uhl-Bien and Arena, 2018). Therefore, given the contextual and paradoxical demands of concomitantly exploring and exploiting, the discourse and models such as top-down leadership may necessarily find usefulness within the immediate. However, such a posture becomes mostly ineffectual in the long term (Day et al., 2014; Linnenluecke, 2017).

The emerging CLT (Uhl-Bien and Arena, 2017, 2018) offers a promise in how leaders can enable OA by adopting and implementing a set of proposed heuristic interventions and practices. Extant research exhibits some amplified calls for Leadership Theory researchers to further CLT by adding a focus on understanding the intricacies of how OA, as an outcome, is influenced by CLT (e.g., Linnenluecke, 2017; Rosenhead et al., 2019; Tourish, 2019; Uhl-Bien and Arena, 2018 p.100).

Moreover, scholars hold that contexts invariably influence leadership behaviours, mentalities, and mindsets (Johns, 2017; Papachroni et al. 2015; Reiche, Bird, Mendenhall, & Osland 2017; Oc, 2018; Zaccaro, Green, Dubrow, & Kolze, 2018). Context holds the capacity to explain counterintuitive and anomalous research findings since relationships vary on contextual sensitivity (Johns, 2017). Yet, much of the Leadership scholarship reveals a dearth of systematic context consideration (Johns, 2017, p.578; Oc, 2018). The quintessence of contextual responses to DSC contextual response is expressed in the unprecedented need to concomitantly execute, optimise [exploitation] and sustain [exploration]. There are calls for Leadership researchers to conjunctively incorporate context in leadership studies (Johns, 2017, p.586-590; Oc, 2018, p.232; Tsoukas, 2017 p.26), thus accords the deepening of the central research problem.

1.5 Research Aim

The extant studies have indicated the research gaps and thus the need to conduct this research. Therefore, the research problem in, and the aim of this study, is to explain whether and to what extent Complexity Leadership Theory influences Organisational Adaptability is a Dramatic Social Change context. The next section outlines the research scope.

1.6 Research Scope

Uhl-Bien and Arena (2018) developed the CLT framework, imploring that future studies should further our understanding of how their heuristic CL practices could lead to OA as an outcome. Employing a quantitative method, the sample selection for this study explored the Small to Medium Enterprise (SME) firm sector in Zimbabwe to explain the nature of the relationship between CLT and OA.

1.7 Significance To Business

This study is significant and necessary in adding to the under-researched domain of CL practices that inspire and enable organisations to build OA at the appropriate levels or a combination of levels. These adaptation levels are dependent on the leadership motives, and the environmental convergence needed to address obtaining complexity and dramatic uncertainty (Sarta, Durand, & Vergne, 2020). CL practices' value manifests in the leadership training, leadership development, hiring, work designs, empowerment practices, motivation and remuneration practices that firms may adopt in dealing with internal and external organisational complexities.

Therefore, the study assesses which complexity leadership practices most predict organisational adaptation and what combinations lead to the appropriate levels of “internal, market or institutional” convergence (Sarta et al., 2020) with the operating context that provides the best opportunity for adaption. Additionally, by understanding the variable effect DSC contexts have on different firms and their ecosystems, the study provides insights to managers and leaders on which practices would best be practised for their respective firms' OA. The study intends to create a better understanding of the requisite CL practices that lead to OA.

1.8 Significance To Theory

Uhl-Bien and Arena (2018) developed the CLT, imploring that future studies should further our current understanding of how their heuristic CL practices could lead to OA as an outcome. Additionally, Sarta et al. (2020) illustrate that many studies on organisation adaptation have mostly considered it in multiple views. Some scholarship has considered OA in terms of why it happens. In contrast, other studies have focused on the internal and external factors that drive OA. In other related research, scholars have looked at OA from an outcomes perspective, as in what its outcomes are. Sarta et al. (2020) challenge future researchers to explore OA in survey-based studies, where they can measure it as an outcome. The authors suggest a multilevel analysis that includes the internal adaptation level firstly, the market adaptation level secondly, and the institutional level as the third level of analysis. This stratified approach may shed much light on the appropriate adaptation levels that firms may seek to achieve the necessary convergence with obtaining environments.

Rapid societal change environments manifest in dramatic social changes which are associated with “rapid pace of change”, “rapture of social and normative structures”, that De la Sablonnière (2017) theories as DSC. Tsoukas (2017) emphasises the need for theoretical complexity to account for organisational complexity by clarifying the relevance of conjunctive theorizing in management and organisation studies. Thus future researchers can embrace the complexity of complexity. Meanwhile, Johns (2017) and Tourish (2019) propose that the integration of context

in future research will intensify leadership research's richness. Therefore, following Johns (2017), Tourish (2019) and Tsoukas (2017), the study conjunctively integrates DSC as a moderating context in the relationship between CLT and OA, thereby contributing to extant knowledge and our current understanding of the OA phenomenon, CLT and how DSC interacts with these theoretical propositions.

1.9 Conclusion

The extant studies have indicated the research gaps and thus necessitating this study. Therefore, the research problem and the study's aim is to explain whether and to what extent CL influences OA in a DSC context. The following chapter reviews underpinning literature, reflecting on the pertinent theories, current scholarly discourse, and the research gaps that informed this research question.

2. Chapter 2: Theory and Literature Review

2.1 Introduction

This chapter covers the main characterisations, definitions, and themes that emerged to create the literature's scope and gaps, thereby informing the study's conceptual framework. The literature review further conducts abbreviated integrative literature that explores CL, OA, Context, and DSC, conjunctively integrated into the study. Emerging schools and themes from literature are tabled. The chapter culminates with a justification of the typology of CL anchoring this monograph.

The study's research questions were centred on the interaction between CL approaches and DSC contexts in influencing OA. The behaviour of systems over a period of time is the central concern for the field of Complexity Theory (Rosenhead et al., 2019). The research background has discussed the challenges faced by leaders and managers in bringing about OA in the face of emerging and challenging discontinuous contexts, more so when the contexts produce phenomena such as De la Sablonnière's (2017) DSC. Consequently, the research problem was framed as the need to explain whether, and to what extent CL influences OA in DSC contexts. How leaders guide their organisations to adapt within dramatic environmental dynamism, complexity and uncertainty through CL informed this research. Therefore, the literature review considered the OA, Complexity Leadership, and the Context lexicons. Table 1 provides a cadence of the literature review for easier referencing.

Table 1Literature review cadence

Item	Heading		Subheading
2.2	Organisational Adaptability		-
2.3	Complexity Theory Defined		-
2.4	Complexity Theory Conceptualisation and Leadership		-
		2.4.1	Complexity Leadership Theory
		2.4.2	Contextual Theory Of Leadership
		2.4.3	Leadership In Complex Adaptive Systems
		2.4.4	Emergence and Self-Organisation
		2.4.5	Storry Telling Through Strategic Leadership
2.5	Operationalisation Of Complexity Theory		-
2.6	Critical Analysis and Synthesis Of Complexity Leadership Literature		-
		2.6.1	Theme 1: From Cooperation to Collaboration
		2.6.2	Theme 2: Endogenous Entrepreneurship and Innovation
		2.6.3	Theme 3: Contextual Adaptation of Tools and Techniques
2.7	Context as a boundary for Complexity Leadership		-
2.8	Complexity Leadership, Organisational Adaptability and Dramatic Social Change Context		-
2.9	Moderation Of Complexity Leadership Theory By Dramatic Social Change Context		-
2.10	Conclusion On Literature Review		-

2.2 Organisational Adaptability

Scholars are equivocal about OA's need and importance, with the subject seen as ubiquitous in management research. While others have viewed and conceptualised it from the perspectives of survival (e.g., Hillmann and Guenther, 2020), change and performance, others have applied various nomenclatures such as congruence, alignment, strategic change and organisational fit (Sarta, Durand, & Vergne, 2020 p.43). Extant research has analysed the concept at an internal firm-level, industry level and institutional level. Noting Chakravarthy (1982), OA is considered a pervasive phenomenon in strategic management and organisational studies. Managers and leaders are predominantly viewed as possessing the requisite agency to assess and exploit emergent opportunities that may sustain their survival motives. This view, therefore, implies the clear need for leadership in enabling firms to develop adaptation capabilities.

OA has been observed in early scholarly work as the adaptation of decision-making rules that influences environmental learning, and feedback mechanisms that confer leaders and managers the ability to reconcile environmental misalignments (Cyert and March 1963; Lawrence and Lorsch, 1967). These views are still consistent with present-day notions about the need for a fit between internal structures (Donaldson, 1987; Levinthal, 2017), knowledge (Levinthal, 2020), capabilities and routines (Birkinshaw, Zimmermann, & Raisch, 2016; Schoemaker, Heaton, & Teece, 2018), and external sub environments (Greidanus and Liao, 2021). Other streams characterise OA by a core tension arising out of the execution and optimisation duality, commonly known today as ambidexterity (Jansen, Vera, & Crossan, 2009; O'Reilly and Tushman, 2008; Papachroni et al., 2015).

The seminal expose' by Doz and Kosonen (2010) defined OA as "strategic agility" in which a core business continuously adapts its strategic direction. This view is premised on Barney's (2001) resource-based view (RBV) and Behavioral Theory. While the RBV advanced perspectives of change and performance on OA due to enhanced resource positions (e.g., Vergne and Depeyre, 2016), the behavioural stream views it from the recognition of opportunities and appropriate exploitation (e.g., Salvato and Rerup, 2018). Both characterisations are implicit in the need for cognitive leadership capabilities at the core. Leaders have to position their firms more nimbly to capture new opportunities and technologies (e.g., Birkinshaw et al., 2016; Helfat and Martin, 2015; Teece, 2007). In conjunction, the scholarship so far discussed appears to emphasise that leaders and managers have the hyper-agentic capability to orchestrate their firms intentionally and relationally into adaptation, foregoing resistance and resulting in firm performance and change.

Other researchers have denoted OA as "the ability to remain flexible" when faced with new and emerging contexts (Weber and Tarba, 2014). Blass and Ferris (2007) characterised OA as an

imperative contingent necessity in changing behaviours to face contextual demands, further noting that it can neither be scripted nor be viewed as a coping mechanism. Teece, Peteraf, & Leih (2016) provided a more refined definition in which they use agility to refer to OA. By their view, agility is the effective and efficient redirection and redeployment of an organisation's resources that allow it to create and protect value at the instigation of internal and external environmental dynamics. This capability is necessary and desirable to manage both supply-side and demand-side uncertainties, inferring an implicit cognitive role of leadership. Teece et al. (2016) further suggest considering agility as a dynamic capability, and therefore adverse events and positive developments would require different types of adaptation capabilities. The Dynamic Capabilities view, a ubiquitous conceptualisation in strategic management parlance, has been defined as the governance framework for building and reconfiguring internal and external competencies that allow a firm to address changing demands and respond to the evolving contexts (Teece, 2007; Teece, Pisano, & Shuen, 1997).

These definitions give the impression that internal factors may enable or preclude dynamic adaptation, depending on the firm's conditioning to external factors (Sarta et al., 2020) as bounded by the rational actors' interpretation and decisions about the heterogeneity of the context (Gavetti and Levinthal, 2000). Ultimately, this scholarship stream's characterisation implies that agility, and therefore, organisational adaptability, can be viewed as context-sensitive. In this framing, Teece et al. (2016) thus posit that organisations can effectuate adaptability through generative sensing by preeminently positioning and generating growth options ahead of dominant market logic. Organisations can also effectuate adaptability through seizing by implanting entrepreneurial, open innovation and flexible processes, systems, and structures (p.22). In contrast, adaptability through transforming is effectuated through "lean startup" practices and processes (p.25). However, these views seem to imply that the contexts that emerge are determinate and managers and leaders have the cognitive ability to forecast their forms, magnitude, and impact, potentially neglecting the emergence indeterminate environmental complexity.

OA has also been viewed as a meso level process that crosses multiple boundary levels of individuals and organisational functions, business units and industry structures (Stopford and Baden-Fuller, 1994; Vergne and Depeyre, 2016). Firms are seen to shift from incumbent practices, searching alternative businesses in response to hostile and competitive pressures. In this view, OA is viewed as an outcome, legitimacy, or survival; through the organisational sociology and ecology lens (e.g., Hannan and Freeman, 1977). Here, firms are always in search of structural fit. Consequently, these perspectives infer that such processes would practically result in new partnerships, new interdependencies, new skills, new capabilities, and new

complexities, including even new forms of paradoxical tensions. Additionally, these views of OA's inherent context imply that its timing and economics vividly emphasise some managerial archetype and leadership capability.

When critically reviewed, it can be argued that streams of literature on OA have analysed it from the perspectives of either the motives for pursuing adaptation, the internal factors precluding or enabling it and external environmental factors that urge or hinder its attainment (Sarta et al., 2020). When viewed from the contingency perspective, the notion of conditional and relational alignment to external contexts is ascribed to performance (e.g., Cardinal, Turner, Fern & Burton, 2011; Durand and Jourdan, 2012). This stream's writings typically suggest that proxies for convergence with the external environment are survival and performance (e.g., Dobrev, Ozdemir, & Teo, 2006). Noteworthily, according to Sarta et al. (2020), this view appears to ignore the "multiplicity of selection pressures" accruing to the firm. Therefore, the argument is that attention must shift to the environmental forces that demand adaptation, in which case, some firms may adopt minimally while others bullishly pursue open opportunities. Thus, these arguments imply that different firms will seek different levels of adaptation, where each firm's outcomes depend not only on its own actions but also on others. Thus, such a context implicates leadership by squarely placing leaders at the core regarding their environmental cognition, activities, and the firm's actions.

Research by Hodgson, Herman and Dollimore (2017) and that of Sarta et al. (2020) has proffered that OA, from the CL perspective, could be considered a "wicked" phenomenon upon which imperfect environmental interpretation and knowledge is used to make critical decisions. Faced with a plethora of dynamic, complex, and interdependent issues, leaders have to effectively grapple with deeply saturated dramatic uncertainty in the innovation and knowledge economy (Uhl-Bien and Arena, 2018). Therefore, understanding the need for organisational convergence should be viewed from three environmental levels (Sarta et al., 2020). These levels are posited by Sarta et al. (2020) as follows.

Firstly, internal adaptation, characterised as the "degree to which organisations align their resources, competences, structures and goals" (Baumann, Eggers, & Stieglitz, 2019). The second level is the market adaptation, which depicts "the degree to which the organisation's value proposition addresses its main audience's demands". Thirdly, institutional transformation represents "the alignment between the firm and social norms within institutional environments, manifesting as conformity" (Jourdan, Durand, & Thornton, 2017). From these perspectives, OA is rendered as "intentional, relational, conditional and convergent" (Sarta et al., 2020). Thus Sarta et al. (2020) define OA as " The intentional decision making undertaken by organisational

members, leading to observable actions that aim to reduce the distance between an organisation and its economic, social and institutional environment" a typology that was adopted in this research.

Therefore, we can argue that OA is a multifaceted capability that involves learning processes, experience, concept development, planning, reflection, iteration, and convergence, all combined through a type of leadership that is abductive and enabling. This archetype of abductive leadership (e.g., Tourish, 2019), together with ENALEAD, an element of the Complexity Leadership Theory (e.g., Uhl-Bien and Arena, 2018), has been proclaimed to help overcome the core organisational and environmental paradoxical rigidities. Within the Complexity Leadership framework, leaders orchestrate processes, systems and behaviours that generate OA (Uhl-Bien and Arena, 2017, 2018). Therefore, the orchestration can be conceived to involve the abductive and adaptive leadership responses, resulting in the "intentional, relational, conditional and convergent" reconfiguration of resources and capabilities (e.g., Cepeda and Vera, 2007; Teece, 2018). This enabling leadership archetype is also considered as promoting the institutionalisation of absorptive capacity in such forms as new knowledge, learnings, and innovation (Darwish et al., 2020; Flatten, Adams, & Brettel, 2015; Teece et al., 2016, Zahra and George, 2002). The work of Marion et al. (2016) concluded that by adaptively processing complex environmental dynamism through complexity leadership, firms create the ability to obtain a sustainable, stable, productive capacity, fortifying their future.

Although it appears sufficiently in multiple strategic management and organisational studies, OA, nevertheless, appears scarcely in leadership research. Extant research has mainly focused on the individual, team, leader, and network adaptability (e.g., Chan, 2000; DeRue, 2011; Marion et al., 2016; Randal, Resick, & De Church, 2011; Turner, Swart, & Maylor, 2013; Yousaf and Majid, 2018). At the empirical level, Sarta et al. (2020) encourage researchers to study OA through survey-based measures. (p.61). In the Leadership stream, Uhl-Bien and Arena (2018) make a clarion call for Leadership researchers to study OA in integrative and conjunctive organisational research (p. 98). They also call for studies to regard OA as an outcome of other independent variables (p. 100). As such, this work recognizes the need for research on OA and seeks to establish and explain the nature of its relationship with Complexity Leadership to further our understanding of Complexity Leadership in DSC contexts. The next section discusses the Complexity Theory Of Leadership that could advance OA; ever so required in complex environments saturated with dramatically deep uncertainty.

2.3 Complexity Theory Defined

The scientific and mathematical fields have provided the anchor for the study of Complexity (Anderson,1999). Complexity Theory has been categorised into complex physical systems and complex adaptive systems (Anderson, 1999). Complex physical systems are comprised of fixed scientific elements that follow defined laws of cellular automata while complex adaptive systems are comprised of dynamic agents that can learn and adapt from their mutual interactions (Anderson, 1999). The resultant interaction of agents or objects within these systems creates the complexity phenomena, which according to Johnson (2009, p.1), could be abducted to conceptualise a company or organisation as an emergent phenomenon of people, processes, systems, beliefs, and routines interacting within a particular context. These complex adaptive systems are suggested to be self-organising, self-adjusting and self-governing (Uhl-Bien and Arena, 2017) in response to emergent contexts, a potent analogy to Physics and Biological Science.

The objects or agents that form the complex adaptive system can thus be viewed as possessing the propensity to interact unpredictably under certain conditions. Unpredictability is exhibited under different conditions (Anderson, 1999; Johnson, 2009). Therefore, this implies that some minute deviations from initial conditions result in gradual divergent reactions over time; leading to eventual dissimilar behaviours over that period, which has prompted the interest in the research of the predictability of the systems' behaviour (Rosenhead et al., 2019). Some systems constantly change regularly; others behave in unstable ways. Consistent with some physical science propositions, the unstable systems move further and further afar their initial conditions until over-riding constraints halt them (Anderson, 1999; Johnson, 2009). In-between the stable and unstable behaviours, a phenomenon defined as chaotic behaviour is exhibited (Osborn, Hunt, & Jauch, 2002). Chaotic behaviour characterises complex systems that have some degree of regularity yet unpredictable (Rosenhead et al., 2019).

Within the complex adaptive systems, some boundary conditions, defined as the edge of chaos, distinguish between zones of stability and zones of instability (Uhl-Bien et al., 2007). As regards the former, the system returns to its native conditions while in the latter, there is a relocation further afar the primal position, creating further divergence (Anderson, Meyer, Eisenhardt, Carley, & Pettigrew, 1999; Waldrop, 1993). At the edge of chaos, complex systems are conceptualised as acting with bounded instability (Uhl-Bien et al., 2007). This specific behaviour or phenomena of systems within a general structure has been referred to in Complexity Leadership parlance as unpredictability (Rosenhead et al., 2019). Therefore, complexity leadership theorists infer the

production of non-stochastic outcomes where mathematically, non-linear, and dynamic systems incorporate feedback loops to produce non-deterministic results (cf. Marion and Uhl-Bien, 2001).

A pattern of trajectories emerges from highly irregular output streams but have high formation (Anderson, 1999). In practice, these different trajectories emerge from trying other ideas within particular contexts (Uhl-Bien et al., 2007), a proposition through which complexity theorists explain the multiple properties observed in living organisms' ordered complexity. Thus, a new scientific paradigm in studying the social world grounds Complexity Leadership as a tool that can be applied to deal with a dramatic, complex, ambiguous, and an uncertain world where the theory is used as a complementary tool to established leadership concepts (Denis, Langley, & Sergi, 2012; Rosenhead et al., 2019). The interaction of the different parts of the organisation typifies complexity. Therefore, such interactions between components and within the parts concerned (which typically include pairs, groups, teams, and broader firm systems and inter-organizational systems) are applied to ground the studies from the Complexity Theory's perspective (Tourish, 2019). This has hence resulted in the different conceptualisations of Complexity Theory that are discussed next.

2.4 Complexity Theory Conceptualisation and Leadership

Many conceptualisations of Complexity Theory have discussed in past and present discourse. The following sections present the different scholarly characterisations observed from the extant literature.

2.4.1 Complexity Leadership Theory (CLT)

Uhl-Bien Marion & McKelvey (2007) categorised Complexity Leadership through the CLT. CLT has been conceptualised as a paradigm shift from "classical, reductionist and deterministic" science, driven by rapid 21st-century technological changes. Extant leadership practices and tools are considered inadequate and inappropriate in the emerging context that calls for rapid learning and adaptability by utilising Complex Adaptive Systems (CAS). In this regard, Uhl-Bien et al. (2007) posits that the dynamic interaction of administrative functions (adaptive leadership) and bureaucratic functions (administrative leadership) in the organisation require informal dynamics [which they subconstruct as enabling leadership] of CAS to enable organisational emergence. Current refinements advance that CLT consists of three subconstructs namely, Entrepreneurial Leadership (ENTLEAD), Operational Leadership (OPLEAD) and Enabling Leadership (ENALEAD), as core tenets of CLT (Uhl-Bien and Arena, 2017, 2018).

Whereas ENTLEAD influences local behaviours through informal interactive actions that lead to innovative outcomes (e.g., Reid et al., 2018), OPLEAD allows management to achieve control

and efficiency through formal structures and systems (Uhl-Bien and Arena, 2017). It is observed that the intentions and motivations inferred by these definitions create a paradox. ENALEAD dynamically interfaces these leadership priorities, fostering conditions needed for loosening administrative structures while simultaneously allowing the organisation to experiment and thrive, confirming the paradoxical phenomenon, as highlighted in the work of Rosenhead et al. (2019) and Tourish (2019).

ENALEAD is argued to overcome the problems of core rigidities by utilising the CAS, which enables the “adaptive space”, an interface that bridges the competing ambidextrous needs of exploitation and exploration (Papachroni et al., 2015; Uhl-Bien and Arena, 2017). As such, the adaptive space is posited to engage this tension by use of integration mechanisms that enable the emergence of congruent adaptive acknowledgement through innovation, absorptive capacity, and learning. These new learnings are then incorporated back into the firm’s operations by the reconfiguration of resources and capabilities (Cepeda and Vera, 2007; Teece, 2018, Zahra and George, 2002)

In and by this Complexity Leadership conceptualisation, organisations are called on to develop contextual awareness that supports organisational adaptation to create new forms of learning and innovation (Uhl-Bien and Arena, 2017; Oc,2018). CLT advances the formalization of ENALEAD to better deal with emerging contextual factors by offering heuristics that guide leaders' awareness of complexity in practice (cf. Uhl-Bien and Arena, 2017, p.17). Therefore, the CLT conceptualisation suggests that leaders can position their organisations for practices, behaviours, and systems that lead to OA by following a set of proposed heuristics.

2.4.2 Contextual Theory Of Leadership

A second conceptualisation advanced by other scholars is the Contextual Theory Of Leadership, posited by Osborn et al. (2002) to explain the importance of context on leadership studies. Osborn et al. (2002) argued about extant theories' inadequacy in dealing with contextual phenomena. The authors posited that leadership without context might be incomplete because the dependency of socially constructed human agency is embedded in context. They propose that mechanistic leadership prescriptions may not suffice in replacing human agency (p.797). This conceptualisation's four leadership contexts are offered: “stability, crisis, dynamic equilibrium and edge of chaos”.

This conceptualisation’s main thrust is developing contextual leadership intelligence (e.g., Kutz, 2008; Oc, 2018). Contextual Leadership Intelligence enables leaders to make contextually intelligent decisions (Johns, 2006, 2017) based on their cognition and qualification criteria of the four contexts proposed. Leadership effectiveness is largely attributable to contextual boundaries

in this view. When compared to the CLT, both these views can be considered as contextual theories especially in the proposition from CLT that ENALEAD is about leaders being able to read and interpret contexts, and then acting pertinently to enable adaptation.

2.4.3 Leadership in Complex Adaptive Systems

A third school advanced by researchers is the Leadership in Complex Adaptive Systems, initially proposed by Schneider and Somers (2006). This work focused on identifying mediating variables that could be valuable, instructive, and constructive for leadership research. In this conceptualisation, organisational identity and social movements are seen as variables that mediate emergent self-organisation and leadership within the complexity theory. Leadership emergence is observed as a dynamic process. Here, leadership individuals use appropriate organisational routines and methods to influence others' perceptions (Acton, Foti, Lord, & Gladfelter, 2019). Schneider and Somers (2006) integrated complexity theory, chaos theory, and dynamic systems concepts to postulate that adaptation could be tested through logical positivism.

Compared to CLT and Contextual Theory Of Leadership, this conceptualisation can be viewed as being similarly contextually central. The framing in this school emphasises the need for leaders to establish strong ties to external knowledge sources. The external sources of knowledge have been argued to help transfer intricate knowledge, a necessity in obtaining comprehensive external context discernment (Pitelis and Wagner, 2019). In this line of inquiry, the arguments are that leaders build and develop organisations with absorptive capacity, routines, and attention direction by discerning contexts, leading to OA (Peeters, Massini, & Lewin, 2014).

2.4.4 Emergence and Self Organisation

A fourth characterisation is the Emergence and Self-Organisation postulated by Plowman et al. (2007) as grounded in Marion and Uhl-Bien (2001) work. In this school, scholars advance the role of leaders as being that of enabling and influencing organisational outcomes because contexts highly limit their degree of control. These contexts are defined in terms of the interaction of individual cognitive styles and social networks (Carnabuci and Diószegi, 2015; Cullen-Lester, Maupin, & Carter, 2017; Gerpott, Lehmann-Willenbrock, Voelpel, & Van Vugt, 2019). Plowman et al. (2007) positioned Complexity Leadership in the processes that lead to emergence and self-organisation by arguing that patterns of relational interactions, behaviour and pursuant practices result from cycles of emergence. The arguments advanced with this line of inquiry are that when organisations are viewed from the complexity theory viewpoint, they are complex systems and therefore, can exhibit the core properties such as emergence and self-organisation. Implicit in this characterisation is the processual view, the communicative social endorsement of specific individuals by others as leaders through social construction (Tourish, 2019). Therefore, it follows

that in this framing, there must exist a clear distinction between what leadership is who is being led and who the leaders are.

Emergence has been defined as the dynamic phenomenon in which informal leadership responsibilities are conferred to team members via social interactions (Gerpott et al., 2019). Therefore, it emphasises the relational processes between agents (Fairhurst and Uhl-Bien, 2012). Three modes of behaviour ("disrupting existing patterns, encouraging novelty in processes and sense-making") are recommended for implementation by leaders to influence "emergence and self-organisation" (Plowman et al., 2007). Disrupting existing patterns involves creating and escalating conflict to destabilise rather than stabilise while encouraging novelty implores leaders to encourage decentralized innovation from their systems rather than innovating themselves (Plowman et al., 2007; Stacey, 2000).

Conflict is considered a rational manifestation of distinguished concerns instead of being a misunderstanding and that it has to be institutionalised communicatively (Tourish, 2019). Sense-making encourages leaders to interpret emerging contexts rather than directing events (Gerpott et al., 2019; Plowman et al., 2007) through contextual leadership intelligence (Oc, 2018). This theoretical framing advances that there are four productive stages of "disequilibrium, amplifying actions, recombination and stabilising feedback" (Plowman et al. p. 627) that result in emergence and self-organisation in OA. When leaders respond to external pressure by synthesizing networks using Complexity Leadership within their ecology's confines, informal leadership emergence occurs, aiding in brokerage, cohesion, and networked interactions (Perry-Smith and Mannucci, 2017).

When compared against the CLT, Contextual Leadership Theory and Leadership in Complex Adaptive Systems conceptualisations, we can observe that similarities exist in the typical emphasis on comprehending contexts and promoting novelty (innovation). While Schneider and Somers (2006) position the use of variables, the other characterisations alternatively position the use of models, heuristics, and frameworks. Plowman et al. (2007), as well as Uhl-Bien and Arena (2018), offer a shift from an integrative and analytical framing to an integrative and synthetic framing (Rosenhead et al., 2019). The researcher observes that the Emergence and Self-Organisation line of inquiry largely does not explain the relational dynamics and how the actual leadership emerges. Therefore, it is argued that the ontology of such a leadership perspective appears to place a greater emphasis on the more powerful leaders that unify seemingly relatively compliant followers into social groups than the actual processes. Therefore, this seems a divergent proposition to the CLT that emphasises cooperative ENALEAD, much less characterised by powerful leader-follower relationships.

2.4.5 Storytelling Through Strategic Leadership

The fifth characterisation explains that Complexity Leadership in Complex Adaptive Systems is achieved through dialogue and storytelling (Boal and Schultz, 2007). This school details leaders' instrumental role in engendering appropriate adaptation within complex and dynamic environments through emergence and self-organisation (c.f. Pitelis and Wagner, 2019). For example, scholars suggest that complexity theory can be used as an analogy in the study of leadership in the sense that it deals with practical management problems and issues that confront leaders such as “dynamic environments, dynamic competition and the need to build flexible and resilient organisations” (Hillmann and Guenther, 2020; Boal and Schultz, 2007 p.412). For Hillmann and Guenther (2020), leadership complexity generates novel and instructive metaphoric insights that would be well appreciated in enriching their worldviews in turbulent times. Thus, this school's propositions infer a concerted emphasis on historical, psychological, and cultural perspectives within leadership research by the leaders and practitioners who directly feel the importance of these issues.

Boal and Schultz (2007) observed the paradox of surprising yet innovative behaviours that emerged from agents who actually act without centralised control, thereby shifting the perceptions about what role leadership plays in Complex Adaptive Systems. They postulated that strategic leadership concerns the firm's coalescing through a series of decisions, actions, and processes over time. Strategic leadership, accordingly, plays a critical role in organisational adaptation in that it bridges the contextual past, present and future organisational forms (Boal and Schultz, 2007; Rosenhead et al., 2019).

In this outlook, the leader is viewed as an actor holding legitimate authority and significant power, whose primary responsibility is to define organisational success criteria (Tourish, 2019). This idea diverges from earlier discussed propositions about the importance of the strategic leaders. Here, the strategic leader is, instead, posited to occupy such an essential role in the adaptability of the firm by deliberately promoting knowledge, organisational identity (cf. Devereux, Melewar, Dinnie, & Lange, 2020) and vision through dialogue (Boal and Schultz, 2007 p.412).

In their postulation, Boal and Schultz (2007) contrast the typological OPLEAD and ENALEAD of Uhl-Bien and Arena (2017) with their own Supervisory Leadership and Strategic Leadership, respectively. These authors, however, did not clarify how their conception could be tested in empirically settings, nor did they offer future empirical research guidance. Consequently, the researcher argues here that this conceptualisation, while emphasising contextual awareness and the vividness of leadership complexities, it places more importance on the distinct processual framing of leadership.

2.5 Operationalisation Of Complexity Theory

The foregoing commentary has offered five schools of complexity theory of leadership. Table 2 outlines a summary of these dominant approaches and leadership assumptions in the Complexity Leadership corpus, that could lead to OA.

Table 2 Dominant approaches to Complexity Leadership and main propositions

Key Authors	Conceptualization / Dominant Approach	Propositions and How To Lead/ Implement
Uhl-Bien and Arena (2017), Uhl-Bien and Arena (2018), Uhl-Bien et al., (2007); Oc (2018)	Complexity Leadership Theory	Triad leadership forms:- operational leadership, entrepreneurial leadership and enabling leadership that dynamically integrate and are used to develop contextual awareness to promote behaviors that further organisational adaptability. Heuristics are offered to guide awareness of complex situations. Recommended for highly dynamic environments and knowledge and innovation based organisations in which leadership is distributed and interactive.
Osborn, Hunt, & Jauch (2002), Oc (2018)	Contextual Theory Of Leadership	Mechanistic prescriptions are not sufficient to replace human agency. Leaders should create awareness of the four states of "stability, crisis, dynamic equilibrium and edge of chaos" contexts in which decisions are made. Specific congruent behaviours are promoted in each of the contexts.
Acton, Foti, Lord, & Gladfelter, (2019), Schneider and Somers (2006),	Leadership In Complex Adaptive Systems	Identifying mediating variables that are valuable and constructive for leadership. Organisational identity and social movements are seen as variables that mediate emergent self-organisation and leadership. Leaders should discern moderating contexts and accordingly apply external knowledge
Plowman, et al. (2007), Stacey (2000) Fairhurst and Uhl-Bien (2012), Gerpott, Lehmann-Willenbrock, Voelpel, & Van	Emergence and Self-Organisation	The role of leaders is to enable and influence relational outcomes. The interaction of individual cognitive styles and social networks leads to self-emergence through phases of "disequilibrium, amplification, recombination and feedback". Three modes of behaviour ("disrupting existing patterns, encouraging novelty) and processes ("sense-making") that promote organisational adaptability are recommended. Patterns of behaviour emerge from distributed leadership's

Vugt (2019), Marion and Uhl-Bien (2001)		stewardship of purpose and identity of the complex adaptive system.
Boal and Schultz (2007), Hillmann and Guenther (2020), Pitelis and Wagner (2019)	Storytelling Through Strategic Leadership.	Leaders play a key role in engendering appropriate adaptation within complex environments. Strategic leaders' role within the complex adaptive systems and their role in organisational adaptation is to bridge past, present, and future organisational forms. Leadership complexity generates novel and instructive metaphoric insights that would be well appreciated in enriching leaders' worldviews in turbulent times.

In comparison to the CLT, Contextual Leadership Theory, Leadership in Complex Adaptive Systems and Emergence and Self Organisation conceptualisations, it is noted that similarities exist in the emphasis on comprehending and discerning contexts as well as promoting novelty (innovation). While Schneider and Somers (2006) posit the importance of using of variables, the other characterisations advance that instead, models, heuristics, and frameworks should be used. Plowman et al. (2007), as well as Uhl-Bien and Arena (2018), offer a shift from an integrative and analytical framing to an integrative and synthetic framing. Story Telling and Strategic Leadership diverges from the other theoretical propositions on the importance of the strategic leaders. In this school, the strategic leader is, instead, posited as hyper-agentic, playing a pre-eminent contribution to the firm's adaptability. The leader does by deliberately promoting knowledge, organisational identity (cf. Devereux, Melewar, Dinnie, & Lange, 2020), vision through dialogue (Boal and Schultz, 2007 p.412) and metaphoric insights (Hillmann and Guenther, 2020). The yellow highlighted row in Table 2 indicates the typology of Complexity Leadership chosen for this research work. The rationale and justification are discussed in detail in Section 2.10 further.

2.6 Critical Analysis and Synthesis Of Complexity Leadership Literature

This section provides a referent that critically synthesises the literature and discusses the main themes that emerged from the literature review.

2.6.1 Theme 1: From Cooperation to Collaboration

OA is viewed as occurring through the influence of informal and distributed leaders who respond to emerging complexity and contexts. Instead of direct control [cooperation], leaders facilitate and manage conflict [collaboration] within the complex adaptive space (Uhl-Bien and Arena, 2017, 2018). This framing appears to consider leadership as a property of the system, a combination of

processes, systems and structures that help the organisation to subsist in uncertainty, ambiguity, complexity, and dynamically dramatic contexts.

Consequently, this consistent theme in Complexity Leadership strongly infers the absence of human agency as the focus is on the systems and contexts. For instance, Uhl-Bien and Arena (2018) called for the disregard of reductionist approaches that portray leadership in simplistic terms of deterministic and linear cause-and-effect. Instead of determining OA, leaders are recommended to promote boundary-spanning collaborative conditions (e.g., Ahmadi, Khanagha, Berchicci, & Jansen, 2017; Salvato, Reuer, & Battigalli, 2017). Leaders are also expected to partake initiatives that advance organisational effectiveness through the constant interactions, activities, and adaptation of agents within and external to the system. This view is resounding in its consistency with the OA definition proposed by Sarta et al. (2020), where adaptation measures environment convergence whether relationally, conditionally, or intentionally. Therefore, by this theme, fostered collaborative and explorative conditions enable OA.

CLT is premised on the unknowability of the future; therefore, it refutes that leaders play the part of moulding their organisations' direction and future. Their role is proffered as that of facilitation. However, critics of this notion (e.g., Rosenhead et al., 2019; Tsoukas, 2017) argue that when faced with dramatic ambiguity, complexity and uncertainty, leaders tend to undergo potential information overloads, thus become intolerant of those contexts. Consequently, the critics contend that leaders tend to shift into ignoring dramatic uncertainty by dealing cooperatively with pressures posed by targets, imminent factors and organisational structures.

2.6.2 Theme 2: Endogenous Entrepreneurship and Innovation

Serendipity, fortuity, accident, and coincidence constitute a major framing in the CLT stream of research. The researchers encourage organisations to embrace disorder and instability. The adaptability of the organisation is attributed to the continuous emergence and trial of novel ideas. Therefore, leaders in these Complex Adaptive Systems should continuously provoke and instigate new and novel ideas (e.g., Ahmadi et al., 2017; Lingo, 2020; Uhl-Bien and Arena, 2017). CL scholars assert that organisations that double up on maintaining a common stagnant culture can find it hard to create learning and new knowledge (Rosenhead et al., 2019, Uhl-Bien and Arena, 2018). Therefore, long-cherished beliefs and assumptions may find their relevance within Complex Adaptive Systems very minimal.

It then becomes paramount that absorptive capacity, whose definition implies the ability assimilate new knowledge consistently, should be promoted by the leaders in the firm (Darwish et al., 2020; Flatten et al., 2015; Lingo, 2020; Teece et al., 2016; Uhl-Bien and Arena, 2017, 2018; Zahra and George, 2002). Such an emergent culture is eternised by leaders who practice both permissive

and abrasive styles (Rosenhead et al., 2019). Faced with contexts where organisations keep succumbing to the more innovative and learning firms, the success of attaining OA, is thus argued to depend much on how leaders manage the interactions between their people and the dramatically dynamic environments (Schneider, Wickert, & Marti, 2017). To this extent, small and consistent internally motivated changes supported by distributed leadership are accordingly encouraged. Schneider et al. (2017) conceptually distinguish between internal complexity and collaborative complexity. They propose that tackling a firm's environmental complexity should be fulfilled by deploying its own internally developed complexities. Alternatively, the firm may collaborate with external firms, thus deploying collaborative complexity. This concept is fortified further in Lingo (2020), who posits that co-action and co-creation are pertinent leadership processes that should come to the fore when dealing with complex networks.

When an organisation gyrates in equilibrium with its environment, it is reasoned, though, without particularity, that stable work patterns emerge that threaten its future existence when new contexts emerge (Schneider et al., 2017). As a consequence, traditional orthodoxies in mechanistic management are called in into question. Uhl-Bien Arena (2018), similar to Lingo (2020)'s creative brokering scholarship, proclaimed that ENTLEAD promotes endogenous entrepreneurship and innovation. Consequently, organisations that follow CLT heuristics prescriptions will produce relevant and contextually appropriate novel products, novel knowledge, novel skills, systems, and novel processes that sustain an organisation's future vitality and resilience (e.g., Lingo, 2020; Perry-Smith and Mannucci, 2017). In this way, therefore, OA is achieved when leaders follow these leadership heuristics prescriptions.

2.6.3 Theme 3: Contextual Adaptation of Tools and Techniques

Complexity Theory argues for the limited use of traditional analytical tools and techniques. These are claimed to get in the out-of-context trap, suggesting the need for continual refinement in execution efficiencies. Scholars (e.g., Tourish, 2019) have submitted that many leaders are intuitively aware that traditional approaches have inherent limitations and therefore tend to lean away from these conventional approaches. However, without appropriate contextual awareness of the continuum of assumptions that form the basis for the rules and procedures (the tools), they tend to misapply them (Tourish, 2019 p.51-52).

The principal unknowability of the future is central to CLT. Past assumptions, experiences and behaviours have to be applied in view of emerging contexts as they may not necessarily explain current and future behaviours (Johns, 2017; Oc, 2018). An organisation that expects to encounter unplanned occurrences creates leverage for absorbing new knowledge efficiently and effectively. Therefore, appropriately reading the contexts may elevate leaders to learn and relate to past and

present experiences (Argyris, 2002; Boal and Schultz, 2007; Hillmann and Guenther, 2020; Oc, 2018). Scholars stress that processes, behaviours and outcomes are inherently hard to predict. Therefore, extant tools and techniques are dismissed because the future of organisations does not fall in the hands of the leaders presently managing them, despite how much planning and control they may exercise.

Palermo, Power, & Ashby (2017) demonstrate in a four-year longitudinal study, the importance of dealing with situational complexity context, in how UK financial services firms dealt with the global financial crisis by fundamentally adapting their risk cultures. By applying institutional complexity theory, the scholars show how it was important for the firms to rebalance from extant dominant "logic of opportunity" prior to the crisis to a new dominant "logic of precaution" post the cataclysm. The contextual adaptation of tools and techniques in this view, by, for instance, decoupling means and ends for reconstruction, as exemplified in this study, therefore reflect on the levels of a firm's OA in contextually adapting tools, methods, and techniques.

2.7 Context as a boundary for Complexity Leadership

Context has been defined as "the backdrop against which events take place" and can be viewed as either real or perceived (Johns, 2006, 2017; Kutz, 2008). Such backgrounds could be geographic, gender, industrial sector or cluster, job responsibilities, beliefs, cultural, symbolic, organisational, futuristic, historical, ethical, or political (Kutz, 2008, p.67). Osborn et al. (2002) explained the importance of context on leadership by arguing that leadership without context is incomplete as the dependency of socially constructed human agency is embedded in context. Moreover, Kutz (2008) argued that paradigmatic theories and propositions such as CLT, while offering a key perspective for leadership in dramatically context-saturated firms, pose usability inadequacies for practitioners. Therefore, contextual reframing enriches Kutz's (2008) "tacit-based" knowledge and our understanding of the CL behaviours and proficiency. In this sense, contextual implications on CL, thus refine our CL for OA perceptions by incorporating a clearer understanding of spatial attributes conflated with hindsight, insight, and foresight (Kutz, 2008).

Today's organisation and its leaders face uncertainty-saturated dynamic and dramatic environments characterised by profound contradiction, interrelatedness, logically but apparently irrationally localised milieu (De la Sablonnière, 2017; Lewis, 2000, p. 760, Lewis and Smith, 2014; Papachroni et al. (2015). Emerging "rapid societal changes" are complex yet multifaced qualitative transformations that arise within a society resulting in the alteration of an obtaining societal state (Smith et al., 2019, p.33). Arguably, the rapid societal changes invariably have a far-reaching impact on businesses' adaptability and implications for leadership. Recent such rapid societal changes caused by complex and dynamic contexts have been emerging due to Covid-19's

dramatic ecological and societal ramifications, transforming the way businesses operate, forms of working, the places of work and regulative environments (cf. Bailey and Breslin, 2021). Conceptually, we can rationalise Smith et al.'s (2019) arguments to mean that such abrupt and nonlinear (as opposed to incremental, linear, and controlled) changes lead to dramatic changes in the fabric of firms, industries, clusters, sectors, nations and the global economy, a societal contextual phenomenon.

One such context is De la Sablonnière's (2017) "DSC" (DSC), who explicitly qualifies it as a "profound societal transformation". Accordingly, DSC is associated with disequilibration of social, normative, and cultural structures. This rapture is ascribed to the inability of the societal structures to create immediate adaptive capacity. Nonetheless, following Linnenluecke (2017), firms still have to be resilient and persevere in such emerging contexts to adapt and thrive. De la Sablonnière (2017) characterises DSC employing four key elements. The first is "rapid pace of change" in which DSC happens quickly, which encourages firms to break swiftly with their past if they have to survive. The second is the "rapture in social structure" in which a collective society has to negotiate its way through social emergent structures. Thirdly, the "rapture of normative structures" where micro-processes defining norms and habits are collectively shifted to achieve emergent common goals and adaptability. Lastly, De la Sablonnière (2017) conceives that "threat to cultural identity" results when changes cause identity confusion and identity crisis that challenges and jeopardises an extant cultural identity. Therefore, we can reason that a DSC context, by its complex nature, indeterminate and multifaced characteristics, poses conspicuous leadership implications.

Faced with such contextual quandary as Covid-19 adduced DSC, firms and their leaders are encouraged to acknowledge and embrace the dynamic interaction of these constituent emergent environmental elements [boundaries] so as to develop distinct contextual awareness that leads to better leadership effectiveness (Blass and Ferris, 2007). Therefore, this imperative leadership effectiveness could be attributable to OA (cf. Blass and Ferris, 2007; Doz and Kosonen, 2010; Rosenhead et al., 2019; Teece et al., 2016; Weber and Tarba, 2014; Uhl-Bien and Arena, 2018).

Context in leadership is a broadly developing stream of research that pays much focus on context by arguing that prevailing conditions and environments alter leaders' performance expectations (e.g., Hiller et al., 2019, Johns, 2017; Oc, 2018). Building on the seminal treatise of Johns (2006) and subsequent contributions by Johns (2017), Oc (2018) developed an integrative framework to provide a more refined link between context and leadership. In this framework, the "omnibus" context characterised by place, people and time leads to a discrete context made up of "task, social, physical and temporal" attributes. In turn, these attributes influence the leadership and

follower processes, leading to “effectiveness, cognition, attitude, and behaviour”. This conceptualisation impresses that contextual factors may have explanatory and moderating effects on leadership.

Furthermore, research by Hiller et al., (2019) delineated the omnibus contexts into “ omnibus macro, omnibus meso and omnibus micro” subcontracts to characterise contexts into measurable constructs. “Omnibus macro” contexts are marked by the geopolitical factors such as weather, geography, natural phenomena, history, economic performance, legislation, regulation trade policies and cultural issues that shape leadership selection, leadership behaviour and leadership performance. Additionally, “omnibus meso” contexts were used to denote the industry level attributes such as returns, rivalry, structure, dynamism, regulations, magnanimity, maturity, and complexity. Lastly, the Oc (2018) framework posits that the “omnibus micro” context designates business level attributes that include business models, ownership, governance, financial clout, profitability, supply, and demand-side economics. It can therefore be argued that by this typology, DSC can be characterised as an omnibus macro context whose effects transcend omnibus meso and omnibus micro contexts.

Since the arguments advanced in the literature suggest that leader choices and behaviours are exaggerated and constrained by contexts, it is, therefore, plausible to infer that context could explain the variability in leader actions' latitude. For instance, in a study of apparel founders, Powell and Baker (2014) demonstrated how, when faced with objectively similar contexts, the leaders distinctively and differentially interpreted the contexts as either threats, opportunities or challenges, based on their different identities and personalities. Therefore, we can argue that DSC contexts vary in how they moderate leaders’ choice and behaviours and thus, vary how organisations could adapt (see, Hiller et al., 2019; Jacquart and Antonakis, 2015; Stoker, Garretsen, & Soudis, 2019). Similarly, Stoker et al.’s (2019) study of about 20000 managers across 36 countries demonstrates how leaders recruit directive leadership styles after a crisis. Jurisdictions with higher degrees of power distance we found to have a higher prevalence of Directive Leadership. Therefore this implies that context may not only moderate leadership, but it also shapes behaviours and practices to the extent that it becomes even conceivable to infer causality from exogeneity of context (Stoker et al., 2019, p.199).

Contextual Leadership scholars have urged researchers to treat context and its factors as moderators in studies on antecedents such as leadership behaviours, processes and leadership outcomes (Hiller et al., 2019, p.7-8; Oc, 2018, p.219). Literature calls for substantial amounts of studies to further our extant knowledge on how the “inescapable” context impacts leadership (Oc, 2018, p.230), as it is mainly excluded in leadership studies (Tsoukas, 2017). To redress this

phenomenon, Tsoukas (2017) contends that for the practically oriented organisational leadership field, conjunctive and integrative research that includes context could help explicate and simplify the many ambiguous, broad, complex, and diverse perspectives on leadership. Consequently, the agony of many practitioners about what contextually right things to do could be lessened. The literature review has suggested an agreed and consistent position from the Contextual Leadership scholarship that context matters in leadership in the final analysis. Scholarship concurs that context is deeply embedded in leadership. Specifically, meta-theories such as CLT could better be brought into practice and research by the contextual framing of tacit knowledge to understand better the leadership behaviours and proficiencies that may influence OA. To this end, the researcher avows that the incorporation of context as per the theoretical propositions could elucidate how CL influences OA in DSC contexts.

2.8 Complexity Leadership, Organisational Adaptability and Dramatic Social Change Context

The emerging CLT research corpus proffers an alternative to leadership in complex, uncertain, unpredictable, dynamic, and dramatic contexts. In this worldview, businesses and organisations are categorised as nested Complex Adaptive Systems (CAS's) in which a repertoire of contexts, events and behaviours dynamically, nonlinearly, and indeterminately interact and cascade to reorient an entire system such as a business (Uhl-Bien and Arena, 2017). The interactions between lower-level systems (e.g., employees) and higher-level systems (e.g., business units, teams, companies, sectors, national economies, and society at large), conflate to establish the compelling need for adaptable organisations (De la Sablonnière 2017; Teece et al., 2016; Uhl-Bien and Arena, 2017).

However, these interactions, as literature has suggested, happen in deeply uncertainty-saturated, dynamic, complex, and dramatic contexts that inherently influence the nature [type and rate of introduction] of CLT sub-constructs [Operational, Entrepreneurial and Enabling Leadership] and the nature [size, level, and pace] of OA. When imbibed in such contexts as DSC, company leaders grapple with the demands to simultaneously explore and exploit (Papachroni et al., 2015), requiring a particular leadership archetype. CL parlance acknowledges business complexity as inherent in the form of contextual dynamism (Jansen et al., 2009; Johns, 2017). Therefore, the contextual unpredictability requires leaders who can enact processes, systems, proficiencies, and behaviours that result in the imperative OA (Blass and Ferris, 2007; Uhl-Bien and Arena, 2018). As the system's agents (employees, business units and external players) respond to the new contexts, leaders become contextually aware of emergent structures (Osborn et al.,2002), environmental triggers and pressures. The contextual awareness is achieved through feedback

processes and collaboration. Resultantly, organisations are driven into to hard-to-predict adaptable states by the ongoing cycle of emergence and convergence (Sarta et al., 2020; Uhl-Bien and Arena, 2017; 2018). Therefore, this means that new forms of strategic agility, competitive advantage, resilience, and survival will emerge to drive OA.

It has posited that context plays a moderating role on leadership behaviours, mentalities and mindsets that lead to various leadership outcomes like OA (e.g., Johns, 2017; Papachroni et al. 2015; Reiche et al., 2017; Oc, 2018; Zaccaro et al., 2018). This, thus implies that different firms by their nature (e.g., size, age, location, industry, spatial attributes) could variably adapt (see Johns, 2017; Zaccaro et al., 2018) to contexts such as DSC. Therefore, it is argued that the vividness of CLT could be enhanced by the conjunctive integration of DSC context that can thickly describe the ambiguities, aporias and contradictory nature of OA. Thus, this standpoint invariably intimates a need to create the necessary leadership capabilities consistent with the emerging DSC contexts to accelerate OA attainment. Consequently, on this account, it is argued that DSC sets boundary conditions and moderates the relationship between CLT and OA.

2.9 Moderation Of Complexity Leadership Theory By Dramatic Social Change Context

Moderation has long been viewed as the notion that the quantum of effects ascribed to an antecedent on the firm outcomes is factorially contingent (e.g., Schoonhoven, 1981). Andersson, Cuervo-Cazurra, & Nielsen (2020) aver that it has evolved to take central importance in both businesses as well as social science theory, symbolizing sophistication and maturity of a subject of inquiry (Froese, Peltokorpi, Varma, & Hitotsuyanagi-Hansel, 2019). Moreover, moderation has been applied in testing new theoretical insights where arguments are clearly advanced on the need to include the moderator variable in providing a condescending exposition of the subject phenomenon (Andersson et al., 2020). Following these propositions, for instance, Diesel and Scheepers (2019) demonstrated the moderation of CL by environmental dynamism in achieving organisational ambidexterity. Hauff, Richter, & Tressin (2015) provide and illustrate by identifying and filling a research gap through their study that confirmed the moderating effect of national culture on job characteristics' impact on job satisfaction.

Moderation can expose pertinent boundary conditions for an association relationship (Aguinis et al., 2017; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). Moderation is said to occur when an independent construct’s effects on the dependent (criterion) construct variably depends on the level of an influencing independent variable whose influence is to alter the “strength and direction of the relationship” (Hair et al., 2014). The two most acclaimed moderation justification

components are why the subject relationship varies and in what direction the moderation happens (Holland, Shore, & Cortina, 2017). Cohen et al. (2003) proposed three categories of moderation effects. Firstly, enhancing (synergistic) interactions accrue when the moderating construct strengthens an antecedent construct's benefits on the outcome construct. Secondly, buffering (compensating) interactions appear when the moderator weakens an antecedent construct's deleterious effects on the criterion construct. In the third scenario, the antagonistic (interference) interactions, the antecedent construct's benefits on the outcome construct are dampened by the moderating construct. By these views, CLT can be viewed as the antecedent construct, OA being considered as the outcome construct while DSC, as the context, can be taken as the moderator construct.

Smith et al. (2019) have made calls for researchers to empirically capture, study and analyse phenomena of qualitative transformations (such as DSC) that are rapid and discontinuous (p. 34). Moreover, similar to Oc (2018), Tsoukas (2017) tenders that organisations' complexities render any conclusions or phenomena as necessarily transitory and contingent. In this view, scholars are urged to honour and draw out complexity in leadership research rather than solve or simplify complexity. This will, in turn, inspire leaders to discern their work environs in more ambiguous and complex terms (e.g., Hillmann and Guenther, 2020; Tsoukas, 2017; Uhl-Bien and Arena, 2018). To this end, the researcher advances the conjunctive and integrative consideration of CLT, DSC and OA in this work. Thus, the research problem that informs this research is establishing and explaining CL's influence on OA under a DSC Context moderation.

2.10 Conclusion On Literature Review

The CL research compilation has revealed recurring themes that express CL theories' paradigmatic view, its consequences, and a potent analogy to physical and biological science. One consistent commonality in the literature streams is the polyarchic view of leadership where many are led by many. A key emphasis in the scholarship is the transition of the scholarly work's dominant logic; from integrative and analytical propositions to integrative and synthetic "organicism" approaches (see Rosenhead et al., 2019, Tsoukas, 2017). Organisations are viewed from the natural lens as having an organic basis; or a part or whole thereof. It appears as though scholars have moved between paradigms to explicate emerging complex organisational realities. While the paradigms have made different assumptions, there seems to exist a considerable paradigm boundary fuzziness (cf. Shepherd and Suddaby, 2017, p.7). Nonetheless, the conceptualisations appear complementary and reveal multiple resemblances in their contextual consideration, distributed leadership, relational importance, network building and innovative behaviours propositions.

Although the multiple conceptualisations of CL look to have gained traction in mainstream contemporary management and leadership discourse, there is yet to be a unified definition of CL. The field appears to be considerably fragmented, especially, with a remarkable and noteworthy dearth of cohesive empirical findings, highlighting the need for further research that contributes to a more cogent definition and understanding. Given this aporia, the lack of a coherent account of how these multiple viewpoints could be applied in the studies on CL presents challenges on which or what combination of typologies is adopted in empirical research. Consequently, the researcher was left to identify and argue for a more nuanced conceptualisation to ground the hypothesis building.

The literature study identified Uhl-Bien and Arena (2017, 2018) persistence in their approach to CLT development. The scholars have updated and added their initial propositions (e.g., Uhl-Bien, et al., 2007). The corpus illustrates that Uhl-Bien et al. (2007) commands most citations on CL searches (Rosenhead et al., 2019). Moreover, Uhl-Bien and Arena (2017, 2018) have primarily explained a more nuanced view of how OA arises through the dynamic interaction of ENTLEAD and OPLEAD in the “adaptive space” which is enlisted through ENALEAD. By these lines, this study accordingly adopted the typology advanced by Uhl-Bien and Arena (2017, 2018), arguing that it holds more promise for some further understanding of perspectives and insights on CLT and OA.

Contextual Leadership theorists offer concurrence on the importance of context in moderating leadership behaviours and proficiencies (e.g., Johns, 2006, 2017, Kutz, 2008), setting boundary conditions for an association relationship (Aguinis et al., 2017). In particular, Hiller et al. (2019), following Oc (2018), consummated the omnibus framework that offers measurability of contextual subconstructs. A more refined view of the “omnibus context” (Hiller et al., 2019; Oc, 2018) typology is the DSC by De la Sablonnière (2017), which in this study is adduced to Covid-19, following Smith et al.’s (2019) review of Rapid Societal Change. Therefore, this research adopts the DSC Context moderation in an integrative framework with CLT to better understand the nature of the relationship between CLT and OA.

Finally, OA has been posited as an imperative contingent necessity (Blass and Ferris, 2007) as well as a necessary Dynamic Capability (Teece et al., 2016). More eminently, though, the field with its multiple conceptualisations in mainstream contemporary strategic management and organisational theory discourse still lacks a unified definition. The numerous studies in the stream have used various nomenclatures to either imply its motives, causes, and performance outcomes. However, Sarta et al. (2020) seem to offer a much more integrated and universally applicable conceptualisation, by characterising OA as the convergence between a firm and its sub

environments classified as internal, market and institutional. Thus, this conceptualisation suggests that OA can be viewed as being all of intentional, relational, conditioned, and convergent (Sarta et al., 2020). The theoretical views of OA's inherent contextual dependency imply that its timing and economics vividly emphasise some managerial archetype and leadership capability. Therefore, this work viewed CLT as that type of leadership required to achieve OA as an outcome within DSC Contexts. With these arguments postulated, it then follows that some research questions and hypotheses necessarily arise; these are administered in Chapter 3 that follows next.

3. Chapter 3: Research Questions and Hypotheses

3.1 Introduction

The central research problem was framed as the need to explain whether, and to what extent CL influences OA in a DSC context. Thus, the central research questions related to CL's role (as in, what is done by complexity leaders, why and how do they do it) that results in OA. Importantly, the questions were motivated by the nature of CL's influence on OA and the nature of this relationship within a DSC context. The deeply complex DSC context was described and inferred from the literature review to demand the that leaders engender practices and behaviours that propel their organisations to attain contextual convergence relationally, conditionally, and intentionally. In particular, the gaps identified in the literature in conjunction with the research problem motivate the research questions. By adopting the CLT typology posited by (Uhl-Bien and Arena, 2017; 2018) wherein CLT is sub-constructed into OPLEAD, ENTLEAD and ENALEAD, research questions that follow arose thus:

1) What is the role of CL on OA in a DSC context?

1.1 What is the role of OPLEAD on OA in a DSC context?

1.2 What is the role of ENTLEAD on OA in a DSC context?

1.3 What is the role of ENALEAD on OA in a DSC context?

This Research Question 1 delves deeper into understanding how and to what extent the practices, processes, behaviours and structures enacted and promoted by CLT approaches influence OA. Based on the proposition arguments that context enriches our understanding of leadership, a second Research Question 2 arises in DSC's role.

2. What is the role of a DSC context on the relationship between CLT and OA?

2.1 What is the role of a DSC context on the relationship between OPLEAD and OA?

2.2 What is the role of a DSC context on the relationship between ENTLEAD and OA?

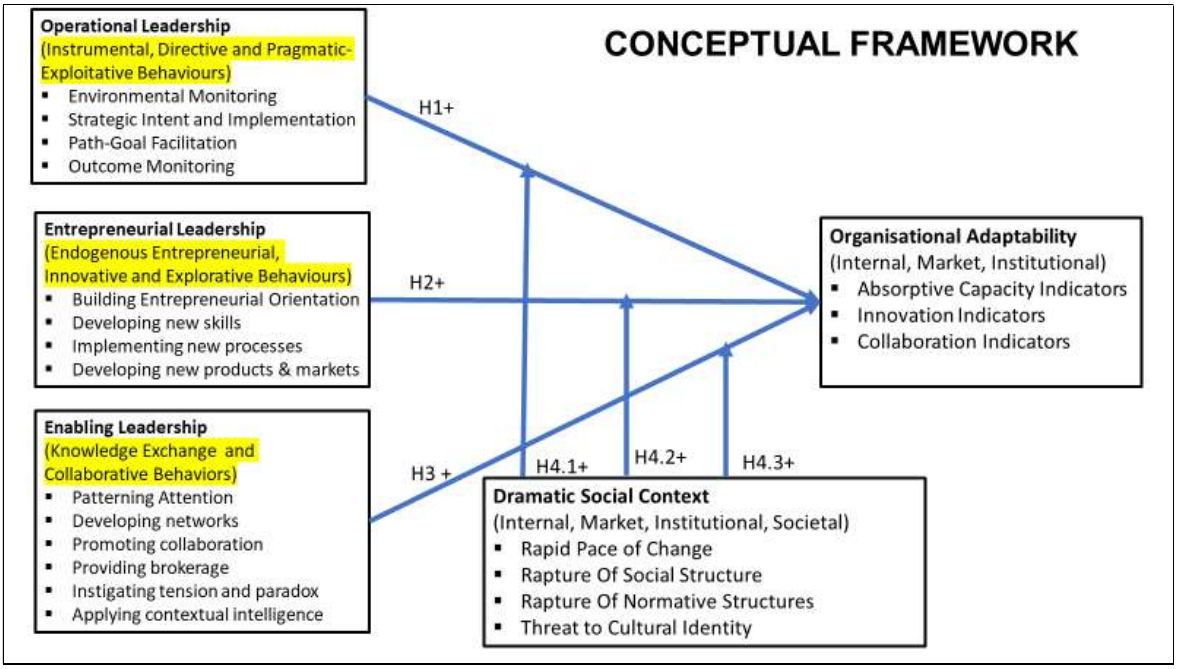
2.3 What is the role of a DSC context on the relationship between ENALEAD and OA?

Research Question 2 contextualises the nature of CLT and OA's relationship, to inform how the way leaders discern context influences their practices and behaviours may consequently affect the relationship between CLT and OA.

3.2 Conceptual Framework and Hypothesis Development

Figure 1 below illustrates the proposed conceptual relationships derived from the research questions and the gaps in the literature review.

Figure 1 Conceptual Framework



3.3 Hypothesis 1

The extant literature submits that leaders deal with multiple possibilities and multiple contingencies (Oc, 2018; Osborn et al., 2002; Tourish, 2019). Given the ever-present indeterminacy, unpredictability, and uncertainty, entitative leaders must act to construct tools and implement new techniques as contexts emerge. As a result, such practices are attributed to the OPLEAD typology of Uhl-Bien and Arena (2018). These scholars posit that OPLEAD involves such leadership in and through "formal systems, structures and processes" that require continued refinement of their use and application within the dominant organisational logic. The refinement morphs through the accommodation and reintegration of novelty in the core adaptive order of business operations through sponsoring, execution, and alignment (Uhl-Bien and Arena, 2017). In this sense, therefore, it is hypothesised that OPLEAD is positively related to OA.

H_0: There is no relationship between OPLEAD and OA

H_1: There is a positive relationship between OPLEAD and OA.

3.4 Hypothesis 2

Through the deliberate promotion of fortuity, accident and coincidence, leaders are presented with subjective reality tests. Therefore, they can best confirm the plausibility of ideas and recommendations from actual experience and practice (Rosenhead et al., 2019). Informal networks within CLT perspectives in organisations have been conceptualised as the basis for absorbing and exchanging large amounts of information flow, thereby promoting higher novelty and ingenuity (Marion et al., 2016; Perry-Smith and Mannucci, 2017; Uhl-Bien and Arena, 2018). This suggests that these networks form layers of distributed and shared leadership roles (c.f. Pitelis and Wagner, 2019; Zhu, Liao, Yam, & Johnson, 2018); increase the absorptive capacity surface area of the firm. As a result, this capability improves the firm's ability to discern, absorb and capitalise and seek convergence emerging and unpredictable contextual demands. By experiencing specific circumstances, leaders are encouraged to acclimatise their leadership practices by way of inculcating and applying dynamic capabilities (Teece, Pisano, & Shuen, 1997). Uhl-Bien and Arena (2018) assert that these practices are consistent with ENTLEAD, similarly underpinned by Lingo (2020) in co-creation and co-action processes. Therefore, it is advanced here that ENTLEAD promotes activities that encourage endogenous entrepreneurship and innovation; thus, ENTLEAD is positively related to OA in DSC contexts.

H_0: There is no relationship between ENTLEAD and OA.

H_1: There is a positive relationship between ENTLEAD and OA.

3.5 Hypothesis 3.

CLT proclaims that a brokerage and collaborative posture is a critical necessity in OA. In this sense, by sanctioning conflicting and providing facilitation, collaboration ensues across, within and externally to the organisation leading to OA. Uhl-Bien and Arena (2017, 2018) posit that this type of facilitation is consistent with ENALEAD. Leaders are encouraged to establish networks and broker between agents in the Complex Adaptive System. Therefore, it is posited that moving from cooperation to collaboration by using ENALEAD (Uhl-Bien and Arena, 2018) behaviours and practices leads to OA in DSC contexts.

H_0: There is no relationship between ENALEAD and OA

H_1: There is a positive relationship between ENALEAD and OA.

3.6 Moderation By Dramatic Social Change

Given from literature, that DSC is associated with a rapid pace of change and rapture of normative structures, it would be reasonable to expect a variability of leaders' behaviours and their firms'

responses in such circumstances as they seek to convergence with the emergent context (Sarta et al., 2020). Different ENTLEAD and ENTLEAD and ENALEAD levels could thus emerge as leaders monitor the environment, monitor performance, seek alternative growth options, and develop new products and services. The DSC context may demand the leaders to deepen their skills in patterning their attention to new sources of information, develop deeper and broader networks, promote collaboration beyond the firm and provide brokerage to catalyse their firms to seek convergence with these contexts. Therefore, it is persuasive and convincing to argue that an increase in DSC would intensify CLT practices and, consequently, positively enhance OA's link. Therefore, in this vein, it is posited that increases in DSC levels positively enhance CL and OA's relationship, leading to the following propositions.

3.7 Hypothesis 4

DSC context positively moderates the relationship between CLT and OA through enhancing effects. Specifically, the below hypotheses are posited.

3.7.1 Hypothesis 4.1

H_0: There is no positive enhancing moderating effect of a DSC context on the relationship between OPLEAD and OA

H_1: There is a positive enhancing moderating effect of a DSC context on OPLEAD and OA's relationship.

3.7.2 Hypothesis 4.2

H_0: There is no positive enhancing moderating effect of a DSC context on the association between ENTLEAD and OA

H_1: There is a positive enhancing moderating effect of a DSC context on ENTLEAD and OA's connection.

3.7.3 Hypothesis 4.3

H_0: There is no positive enhancing moderating effect of a DSC context on the association between ENALEAD and OA

H_1: There is a positive enhancing moderating effect of a DSC context on ENALEAD and OA's association.

3.8 Conclusion

This Chapter has set out the conceptual framework and argued that CLT is positively related to OA. It was further posited that DSC has an enhancing moderating effect on the association

between CLT and OA. On this basis, the synthesis of literature and the critical review that culminated in the proposed relationship between CL and OA requires a methodology for testing the propositions and assumptions. That is the next chapter's subject, where a series of methodological considerations are elaborated to set the stage for testing the conceptualised relationships.

4. Chapter 4: Research Methodology

4.1 Introduction

This chapter provides a description and elaboration of the methodology developed for this research, as was needed in dispensing the necessary answers to the research questions. The study aimed to establish and explain the nature of the relationship between CL and organisational adaptability under DSC contexts. The study's research problem was to establish and explain whether and to what extent CL influences OA in DSC contexts. Research Question 1 and Research Question 2 were stated thus:

1) What is the role of CLT on OA in a DSC context?

2) What is the role of a DSC context on the relationship between CLT and OA?

The conceptual framework developed, in particular, pursued the identification of how organisations can apply CLT to enable OA in DSC contexts (DSCs). The study's design was such that it would empirically provide evidence on the nature of the association between the first-order construct CLT, as represented by its delineated second-order subconstructs of ENTLEAD, OPLEAD and ENALEAD, and OA. From literature, the relationship was hypothesised to be moderated by the first-order construct, DSC through its second-order sub-constructs. Therefore, what follows now provides the detailed definitions and elucidation of the research approach. Aspects discussed include the research philosophy, research design, methods and classification, measurement framework, data collection, data management, and the adopted analytical techniques. Instrument attributes such as reliability and validity as well as ethical considerations conclude this methodology section.

4.2 Philosophical Underpinnings

4.2.1 Ontological Underpinnings

A researcher's metatheoretical stance (such as positivism, post-modernism, and critical realism) characterises their beliefs about reality (ontology), obtaining the necessary knowledge (epistemology) and causation or origination of that knowledge (etiology). This meta-theoretical stance determines what research methodology is employed (Creswell and Creswell, 2018; Sousa, 2010), by distinguishing the views between natural science and social science (Sousa, 2010). While the world is viewed as closed and deductive in positivism; open, inductive, and socially discursive in post-modernism; critical realism focusses on the necessary, contextual, and contingent structures and their power that create the social world (Sayer, 1992; Sousa, 2010). Critical realism's vista is that of complexity, interrelatedness, open systems, emergence, and causal multiplicity from both natural science and social science (Fleetwood, 2005; Smith,

2006; Sousa, 2010). This vista suggests the need to be critical of the study objects, where events and relationships are necessary, contextual, and contingent. The literature review demonstrated that CLT emphasises complexity, interrelatedness, emergence, open systems, and the contextual dependence of leadership. From this perspective, CLT propositions were thus viewed as congruent with Critical Realism (CR) vista. Therefore, this research adopted the CR philosophy; whose key assumptions are described further, with arguments that sustain its underpinning.

CR views a multiplicity of institutional logics being concomitantly at play, wherein social structures produce generative mechanisms whose action manifest in nondeterministic empirical outcomes (Wynn and Williams, 2012). Emergent properties characterise generative systems, revealing systems' pre-existence together with their autonomy. In this view, human actors are seen to necessarily reproduce and transform these systems instead of creating them form nothing (Archer and Archer, 1995). Therefore, this argument advances a stratified understanding of social reality, suggesting that the world is not straightforwardly and effortlessly reducible to human perceptions and experiences. Thus, the ontology calls for some abductive reasoning through revision and interpretation, transitive dimensioning, and establishing the causal efficacy of independent reality (Sayer, 2004). These views resonate well with Tsoukas (2017) 's observations, a critique of CLT, who argues that researchers of CL need to apply abductive reasoning of CLT.

The stratified CR ontology specifies three domains, namely: real, actual, and empirical (Archer and Archer, 1995; Sayer, 1992; Sayer, 2004). The real domain consists of entities and their structures of reality; defined as (Sayer, 1992, p.92), as well as their causal powers that are endemic to them with these structures being viewed as independently existential. The "actual domain" is a subset of the real, consisting of events; defined as "specific happenings" (Sayer, 1992, p. 93). These events are reasoned to occur due to causal powers emanating from the enactment of the structures and entities, regardless of their observability or otherwise by humans. Additionally, the empirical domain is characterised as a subset of the actual, consisting of certain events that social actors can experience by way of perception or physical experience (Archer and Archer, 1995; Sayer, 1992; Sayer, 2004), which was a key factor in choosing the study's research strategy.

This stratified ontology is of some significant contrast to positivism and postmodernism (interpretivism) ontological assumptions. Positivism ontological assumptions posit a flat ontology. In this ontology, reality is reduced to the human conjunction of cause and effect with little consideration for the potential linking mechanics [such as context] (Archer and Archer,

1995). On the other hand, typical postmodernism (interpretivism) holds for the construction of reality by individuals or society (Walsham, 1995). Therefore, reality can only be understood by analysing actors' actions and meanings. This view implies that "reality may not exist independently of human knowledge" (Wynn and Williams, 2012). However, CR's assertion of the existence of general elements' (structures and mechanisms) independent reality suggests that the social actors' knowledge of these general elements is limited since the social actors face difficulties in directly accessing this knowledge through the stratified levels. By this view, extant knowledge and experiences in a given contextual setting are thus used to inferentially analyse the reality of the world through its structures and mechanisms, as well as the accepted outcomes of these interactions (Downward, Finch, & Ramsay, 2002; Mingers and Rosenhead, 2004).

Since CR assumes an open world, it argues that social systems can be viewed as permeable and fluid and hence, the systems can be dynamic and variable [a key tenet of CLT]. Therefore this view shifts the focus of reality into identifying the tendencies of mechanisms to act within a specific temporal and spatial contextual environment (Sayer, 1992). This particular notion was appropriately commensurate with this researcher's views in two critical ways. Firstly, the notion aligned well with the hypothesised moderating effect of DSC on CLT and OA's connection as in what tendencies in OA would arise from CLT practices under DSC. Secondly, the notion was well considered in view of the need for determinate predictive power (predictive tendencies) of the conceptual model as is necessary in business and management practice (e.g., Hair, Matthews, Matthews, & Sarstedt, 2017, p.120). Moreover, Teece et al. (2016, p. 32) posit that abductive reasoning and imaginative reasoning should kick in quickly when uncertainty is deep and saturated as could be argued in the case of the DSC context.

In closing, CR ontological philosophy's choice was premised on the notion that CR holds that reality is composed of multiple structures, bearing consistency with CLT propositions. The researcher viewed CR structures similarly to the CLT subconstructs of ENTLEAD, OPLEAD, ENALEAD and DSC. The organisations in which these structures (CLT and DSC) engage were also considered an integral part of the multiple structures. Each of these structures was believed to possess different emergent characteristics, power, and tendencies. These divergent structures accorded the researcher's adjudgment of the possible multiple dissimilar means of knowledge development about them (cf. Sayer, 1992), thus requiring divergent, disparate, or even combined perspectives and methods.

4.2.2 Epistemological Underpinnings

The notion of what constitutes acceptable truth forms the epistemological assumptions. This is achieved by specifying the source of knowledge, the characteristics of knowledge, and assessing the truth claims (Collier, 1994). These assumptions are used in determining the acquisition and development of knowledge claims, the evaluation of truth, the validation of claims and measurement against extant knowledge (Wynn and Williams, 2012). The previous section recorded that CR assumes descriptions of reality due to analysing observed experiences as interpreted by participants and other data types and forms. These data can be moderated, mediated, explained, predicted, and observed through one's own sensory and conceptual interpretations (Collier, 1994; Sayer, 1992).

Scholars have argued that CR's most fundamental desire is to explain and predict those mechanisms that give rise to events (Wynn and Williams, 2012, p. 793). To this end, the researcher's interest, therefore, resides in the emergent factors that are presumed as causation for a given outcome, which is a divergent view to positivism that requires controlling or determining specific conditions that affect the enactment of some given mechanisms to anticipate an outcome correctly. Extant literature proposes that CR epistemology's best probable contribution is the "emergent and context-specific causal explanations of social phenomena that explicates the specific mechanisms that generate them" (Wynn and Williams, 2012, p.795).

Therefore, a fundamental methodological implication is the principle of retroduction, a core and endemic feature of the CR ontology that is extracted from the emergence assumption and explanatory epistemology (Sayer, 1992). Retroduction focuses on identifying a structure's explanatory and predictive powers and the structure's tendencies that interact to generate explicated events. This epistemology is, therefore, philosophically inferential so as to meet the CR explanatory goal. This goal is achieved by identifying and verifying the existence of mechanisms theorised to generate a phenomenon of study (Wynn and Williams, 2012). In this study, these theorised mechanisms were CLT and DCS, and the phenomenon was OA.

Empirical corroboration is the second key principle in the epistemological assumptions, where it ensures that the proposed mechanisms (in this case, CLT and DSC) exhibit causal power. The mechanisms are further required to show better explanatory and predictive power than alternative explanations (Sayer, 1992; Wynn and Williams, 2012). This implies that with empirical corroboration, independence of reality, stratification of ontology, unobservability of mechanisms as well as the multiplicity of explanations underpin epistemological views (Wynn

and Williams, 2012). In this context, CLT and its causal mechanisms as it interacts with DSC, which has its own mechanisms and causal powers, were theorised to generate various levels of OA in different and variegated firm structures, at the internal level, market level and institutional levels. The existence of the proposed relationship between CLT second order constructs (OPLEAD, ENTLEAD and ENALEAD) and OA, as moderated by DSC, was therefore epistemologically considered contextual, necessary, and contingent.

CR holds that structures (in this study, firms) can bring change, so can they be changed, because of their varying structures, powers and stratification within an industry, a cluster, or spatial settings (e.g., Sayer, 2004; Sousa, 2010). Thus, such a view justified the researcher's stratified, relational, and causal interrelated configuration view of the organisation (cf. Sousa, 2010). Consequently, leaders' actions (as in ENALEAD, OPLEAD and ENTLEAD actions) in their interaction with contextual boundaries influences (as in DSC), were viewed in the study to cause changes in the organisation. Thus, due to emergence, permeability and the open system view, causes and influences were seen to cause subsequent changes within the firm, an industry, cluster, or spatial location. Therefore, this view justified the researcher's CR abductive reasoning of the relationship between CLT subconstructs, DSC and OA (cf. Teece et al., 2016, p. 32; Tsoukas, 2017).

The work sought to establish the nature of the connection between the burgeoning theories, CLT and DSC, whose empirical research is still scarce. Therefore, this epistemological assumption was especially relevant to this study in the sense that CR scholarship argues that positivism (deductive) and post-modernism (inductive) ontologies may not necessarily render new knowledge. The basis of the arguments is that CR views their ontological and epistemological underpinnings to necessarily rely on past events (e.g., Teece, et al., 2016; Tsoukas, 2017). Given the preceding apologia, this study adopted CR explanatory and predictive epistemology. The etiological assumptions considered OA as resulting from multiple interactions [directly and indirectly], of the CLT subconstructs and the DSC subconstructs acting as contextual boundaries. Therefore, the study considered the explanatory and predictive nature of the relationship between CLT and DSC.

4.3 Research Design and Method

4.3.1 Research Design

The literature review identified gaps such as the paucity of empirical studies in the hypothesised relationship between CLT, DSC and OA. The epistemological and etiological considerations further clarified the need for explanatory and predictive motives of the

conceptual model. This implied the need for quantification and explication of the proposed causal relationships.

Research design serves to explicate the logic that bridges data collection processes and any pursuant conclusions derived from the research questions (Creswell and Creswell, 2018). Arising from the CR stratified ontology, explanatory and predictive epistemology, and the causal etiological assumptions, this study adopted the quantitative method. A quantitative method is a scientific approach whose focus is to collect fresh and (or) extant data linked to the research problem, from an interest population, then to analyse the respondents' view of the phenomena of study (Hair, Babin, Money, & Samouel, 2003). Considering a quantitative design, longitudinal (multiple periods) and cross-sectional (single point in time) approaches constitute the two primary data collection methodologies (Rindfleisch, Malter, Ganesan, & Moorman, 2008).

Rindfleisch et al. (2008) argue that, while longitudinal surveys reduce validity threats due to the measurement method (commonly known as common method variance, (CMV)) and etiological conclusions about the causal connection (commonly known as causal inference (CI)), a cross-sectional approach may be more appropriate under certain circumstances to deal with these threats. Specifically, the work of Rindfleisch et al. (2008) highlights the aptness of a cross-sectional approach for research that involves examining concrete constructs (such as CLT and DSC). The scholars further argue that cross-sectional methods are most suitable on constructs that are oriented internally (composite or endogenous or formative), which are firmly entrenched in theory (such as CLT and DSC). Conversely, it is suggested in the literature (e.g., Rindfleisch et al., 2008) that the longitudinal approach is most applicable where the time-based aspects of the events are clear, with a low likelihood of intervening events (such as Covid-19 adduced DSC) adversely impacting the outcome of the study. Furthermore, considerations of veracity, acceptability, understandability, cost efficiency and reliability of results also inform the chosen method's choice (Creswell and Creswell, 2018).

According to the classification preferred by Battisti and Deakins (2017), constructs of interest can be viewed as either being externally oriented (exogenous or reflective) or being internally oriented (endogenous or formative). Endogenous constructs are composed of their subconstructs, in the absence of which, their meanings would change, whereas exogenous constructs obtain their meaning as an implication of, or inference from their subconstructs in the absence of which, their meaning may not necessarily change. The literature review concluded that the CLT construct is composed of ENTLEAD, ENALEAD and OPLEAD, therefore the researcher reasoned that CLT is an endogenous construct. Similarly, literature

also revealed that DSC, being made up of “rapid pace of change”, “rapture of social structure”, “rapture of normative structures” and “threat to cultural identity”, could be classified as a composite or endogenous construct. Therefore, this study argued that CLT and DSC were both consistent with endogenous (composite or formative) construct characterisation and were thus classified as composite constructs.

Consequently, researcher advanced that CLT subconstructs, together with OA would be viewed as ongoing (emergent and open systems) and non-ephemeral phenomena (as in contextually dependent and ongoing), in response to the theory-entrenched DSC construct (see Battisti and Deakins, 2017; Rindfleisch et al., 2008). Therefore, based on these views, and following Battisti and Deakins (2017) and leaning on Rindfleisch et al. (2008), the researcher considered a more appropriate cross-sectional approach. Furthermore, the etiological view was made due to the risk of more long-term, intervening external structures, powers, and contingencies (such as social, economic, political, and technological) that could skew the research outcomes (e.g., Rindfleisch et al., 2008). This choice was even more critical should a longitudinal study have been done in the absence of the contextually based DSC ascribed to Covid-19.

4.3.2 Mitigating Common Method Bias

Common method bias (CMB) is described as a phenomenon arising from induced common variation of indicators the emanates systemically from the use of measurement method and not necessarily a result of cause-and-effect relationships in a model (Kock, 2015; Kock and Lynn, 2012; Podsakoff et al., 2013). These biases may result from the questionnaire's flow structure that might incline a certain general direction of answers (Podsakoff et al., 2013). It may also result from the social desirability that is implicit in social contexts where respondents may prefer a certain outcome, thus shaping a particular common variation (Podsakoff et al., 2013). The leading causes have been attributed to the context of measurement and item characterisation. Other reasons are attributed to predictor variable data as well as criterion variable data being acquired from the same set of respondents (Kock, 2015; Podsakoff et al., 2013, Rindfleisch et al., 2008). To mitigate such biases and data validation threats associated with cross-sectional research and remedying them, the researcher conducted the following procedures prior and post data collection.

a) *Ex Ante* Procedures

As an *ex-ante* procedure (before data collection), the researcher adopted the use of secondary data (Rindfleisch et al., 2008)., that included the studied firms’ three-year financial statements and industry associations data to validate the outcome (criterion) variable, OA. This approach was consistent with the explanatory epistemological assumptions and the principles of

retroduction and corroboration (see Wynn and Williams, 2012). The use of multiple opinions during questionnaire validation before final data collection through experts and colleagues further accorded the study the ability to negate CMB's risk.

b) *Post-Hoc* Procedures

Once data was collected, the researcher conducted Kock'(2015) full multicollinearity test (see, also, Kock and Lynn, 2012). The full multicollinearity test comprehensively validates the vertical collinearity, that is between predictor and predictor; as well as lateral collinearity, that is predictor and criterion. This test was chosen as the most appropriate test because the PLS-SEM analytical approach was preferred to the confirmatory factor analysis. PLS-SEM is discussed in detail in Section 4.11. According to Kock (2015, p.5) and Kock and Lynn (2012), the common factor method is not the most effective process at identifying CMV in that it uses common factors instead of total variance explained. Following Kock and Lynn (2012), the researcher utilised processes such as indicator removal or substitution, reassignment of indicators, and hierarchical analysis whose results are discussed further in the construct procedures under research instrument in Section 4.5 as well as and Chapter 5, data analysis reporting.

Additionally, the Henseler, Ringle, & Sarstedt's (2015) "heterotrait-monotrait (HTMT) ratio of correlations" with bootstrapping at 5000 resamples (Henseler et al., 2015), set at the limit of under 0.85-0.9, was examined, the appropriateness of the results is illustrated in Chapter 5. In this procedure, the Variance Inflation Factor (VIF) (see Henseler et al., 2015), was set at a contamination-free range of greater than 0.2 and less than 5 to assess pathological multicollinearity. Furthermore, *post-hoc* robustness procedures included confirmatory tetrad analysis (CTA-PLS) (Gudergan, Ringle, Wende, & Will, 2008; Hair et al., 2019). These procedures were carried out to validate the distinctiveness of the theoretical model's formative and reflective measures, discussed further in this chapter. Simple Slope Analysis (SSA) (see Aguinis, Edwards, & Bradley, 2017) was applied to empirically substantiate the moderating measurement model. Further procedures included the Ramsey's (1969) error test, the endogeneity and heterogeneity tests (see Bascle, 2008; Park and Gupta, 2012). The robustness tests were in line with epistemological propositions of knowledge generation, evaluation of truth, the validation of claims and measurement against extant knowledge (Wynn and Williams, 2012). The test's results laid out in Chapter 5.

4.4 Research Strategy

Creswell and Creswell (2018) recommend that practical aspects such as the extent of resource availability should be jointly considered with the research problem and research questions to inform the research strategy. It is argued that such considerations improve the worthiness of business and scholarly research. When viewed in conjunction with the CR ontological and epistemological considerations prior discussed, this study opted for the cross-sectional survey-based study. The additional practical advantages accrue when resource constraints are a significant concern (Creswell and Creswell, 2018). Creswell and Creswell (2018) implore the acceptance of survey strategies amongst business researchers. The note their acceptability, understandability, cost-efficacy and results reliability. Moreover, Van Zyl and Pellissier (2017) recommend using surveys, noting that they are a good fit in an explanatory approach.

Therefore, the researcher adopted the survey method in which self-administered electronic surveys were deployed to collect quantitative data over a period of 6 weeks using the Qualtrics Online Survey Platform. Some disadvantages, such as posing inappropriate questions and rigidity of design, have been noted to arise in survey strategy (Creswell and Creswell, 2018). However, many advantages, such as high representativeness, lower relative costs, and convenient data gathering. Further benefits such as reduced observer subjectivity, and stochastic significance outweigh these disadvantages and motivate this strategy (Creswell and Creswell, 2018).

The self-administered electronic survey instrument allowed the respondents to provide their perceptions about the constructs, CLT DSC and OA, hypothesised in the conceptual framework. This was consistent with the earlier discussed epistemological assumptions in that the respondents provided their observed experiences as they interpreted them. These data were viewed as moderated, mediated, explained, predicted, and observed through one's own sensory and conceptual interpretations (Collier, 1994; Sayer, 1992). Based on this research strategy, a discussion of the data collection instrument is detailed in the next section.

4.5 Research Instrument and Construct Scales

The measurement of variables in a study is specified through operational definitions arising from literature (Creswell and Creswell, 2018) using a questionnaire. According to Creswell and Creswell (2018), the data to be collected determines the questionnaire design. Depending on their context, theoretical propositions and maturity of the research area, researchers may either adopt questions that have been used in prior questionnaires or alternatively adapt those that have been used in other questionnaires or originate and establish their own questions from their theoretical understanding. In this study, consonant with the CR ontological goal of abductive reasoning and explanation as well as the epistemological assumption of

retroduction, all the three recommended approaches were applied as literature review had already suggested a paucity of research on the relationships hypothesised in the conceptual framework.

The study's questionnaire items were structured uniformly using the 5-point Likert-type scale (Cohen, Cohen, West and Aiken, 2003). The Likert scale is defined as a response scale that uses a rating such as (e.g., from [1] strongly disagree to [5] strongly agree) (Creswell and Creswell, 2018). Based on the CR abductive explanatory underpinnings, strength and assertion were considered more important than social emotion prediction (Creswell and Creswell, 2018). This principle was applied in the questionnaire design to extract sufficient explanatory evidence from respondents. As adopted from Chapter 3, the conceptual model's constructs were specified as per Table 3 below.

Table 3 Construct Classification

Construct	Construct Type
Entrepreneurial Leadership	Independent Variable
Entrepreneurial Leadership	Independent Variable
Enabling Leadership	Independent Variable
Dramatic Social Change	Independent Variable (Moderator)
Organisational Adaptability	Dependent Variable (Criterion)

Section 1:- Biographical and Demographic Information

This part sought to gather demographic data about the organisation and respondent's particulars to allow for inferences and interpretation of the data gathered contexts. Scholars argue that participant consent fulfils part of ethical practices in data collection (Creswell and Creswell, 2018). Respondents were, therefore introduced to the context of the study. This included the study's duration, motives of the research and contact information in case respondents wished to raise questions and comments, then needed to consent for further participation.

Section 2:-Operational Leadership

This part of the questionnaire requested data about OPLEAD practices in the firm that constitute contextual adaptation of tools and techniques, exploitative and cooperative behaviours such as developing new formal systems, implementing formal processes, maintaining formal structures, and integrating new concepts ideas. The questions were

categorised under themes of Environmental Monitoring, Strategic Intent and Implementation, Path-Goal Facilitation and Outcome Monitoring as adopted from the scale developed by Antonakis and House (2014) in their research on Instrumental Leadership. Antonakis and House (2014) advocate that leaders who only focus on *quid-pro-quo* and motivational behaviours risk the fatalities of overstating leadership outcomes. The authors suggest that Instrumental Leadership considerations of carrot and stick methods, as is the case in the day-to-day firm operations, are necessary in transforming organisations.

This section had a total of 19 items/questions of which 14 were all adopted from the Antonakis and House (2014) scale which returned reliability of α = 0.86 on Environmental Monitoring, (α = 0.84) on Strategy Formulation, (α = 0.77) Path-Goal Facilitation and (α = 0.86) on Outcome Monitoring. With no standard scales available to measure CLT, the researcher collated similarly defined leadership practices and inferred five items from the theoretical propositions of Uhl-Bien and Arena (2017, 2018). The following is an extract of some of the items used (bracket indicates item number under construct label)..

a) Our leaders develop specific policies to support our firm vision and purpose. (OpLead_5)
b) In our firm, leaders clarify the path to my goal attainment (OpLead_11)
c) In our company, our leaders quickly disseminate and communicate information to all units or departments (OpLead_15)

Section 3:-Entrepreneurial Leadership

Here, the researcher sought for information about ENTLEAD practices in the firm that promote innovation and explorative behaviours such as co-creation, co-action, acquiring new knowledge, developing new skills, implementing new processes, and developing new products and markets. These questions were categorised under themes of building entrepreneurial orientation, developing new skills, implementing new products, and developing new products and business models. This section had a total of 23 items/ questions. 20 of the 23 items in this section were adopted from the entrepreneurial audit instrument developed by Ireland, Kuratko, & Morris (2006a, 2006b) in proffering a health audit for corporate entrepreneurship. This instrument measures leadership activities that promote entrepreneurship orientation, development of key relevant skills and development of new products and markets. Three items were adopted from Khalili's (2017) work, whose scale was measured creative and innovative leadership. Below is an extract of items (bracket indicates item number under construct label).

a) Our management regularly searches for new products, services and clients in new markets. (EntrLead_14)
b) Our management motivates the employees to use new information sources within our industry (EntrLead_18)

c) Our management and employees successfully link existing knowledge with new insights and methods. (EntrLead_19)

Section 4:-Enabling Leadership

Information solicited responses about ENALEAD that promotes new knowledge and collaborative exchanges composed of establishing semi structures, enabling temporary decentralization, promoting collaboration, providing brokerage, instigating tension and paradox, and applying contextual intelligence. The categories of questions were patterning attention, developing networks, promoting collaboration, providing brokerage, instigating tension, and providing brokerage. There was a total of 21 items in this section.

The researcher adopted 12 items on patterning attention and developing networks from the scales developed by Osborn and Marion (2009) whose work on contextual leadership defined the leadership roles under CL. In their work, the authors argued that when leaders pattern subordinates' attention on what can be considered important information, employees will discern critical duties and emerge as leaders themselves. The scholars also argued that developing networks is crucial for ENALEAD as it enables leaders to connect members with appropriate information sources across organisational boundaries, encouraging collaboration and adaptive leadership. Items under promoting collaboration, providing brokerage, and instigating tension were developed as follows:- Five were adopted from the Kutz's (2008) meta-competencies in contextual leadership framework while the researcher inferred four from theoretical propositions by Uhl-Bien and Arena (2017, 2018). The list below outlines some of the items from the scale, all of which were inferred (bracket indicates item number under construct label).

a) Our leaders promote debate among employees about what creates value for our customers. (EnabLead_22)
b) Our leaders provide all the information we need to make value-added decisions. (EnabLead_23)

Section 5:- Organisational Adaptability

Responses in this section aimed to obtain the levels of perceived OA in the firm by the respondents as reflected in absorptive capacity, innovation indicators and collaboration indicators. This section was composed of 14 items. Five items on Innovation Indicators were adopted from the scale developed by Jansen, Vera, & Crossan (2009), (α = 0.86). This scale measures the breath in the use of current knowledge to pursue innovations for emerging market customers. The researcher further acquired five items from Flatten, Engelen, Zahra, & Brettel's (2011) instrument, whose validated multidimensional absorptive capacity instrument

returned (α = 0.79-0.91). The authors argued that while many authors considered absorptive capacity outcomes such as knowledge sharing, innovation capability and organisational learning, as unidimensional constructs, ordinarily reflected in R&D, in-fact, the phenomenon is multidimensional and thus, then extant methods, would solicit veracity doubts about claims in literature. The researcher argued that OA could be reflected through absorptive capacity in the way knowledge is accumulated and subsequently used to allow adaptation.

Finally, four items were appropriated from the scale developed in Roberts, Van Wyk, & Dhanpat (2017). These scholars implored the importance of collaboration in a hyperconnected and complex business context by validating a 31-item measurement scale (α = 0.85-0.95) for this business imperative. It was posited that effective collaboration engenders more significant product and process innovation, increased service efficacy and broader multi-party participation. Thus it OA may reflect on a firm's adaptability. Thus, the researcher argued that OA could be reflected in the level that a firm collaborates within and externally and therefore, reflective measures from the scale in Roberts et al. (2017) were appropriate. Some of the items against which respondents were asked to reflect on are the levels of (bracket indicates item number under construct label):

a) Market scanning, collaboration with customers and marketing channels (OrgAdap_5)
b) Customer intimacy and competitor focus (OrgAdap_6)
c) Number and quality of product innovations (OrgAdap_10)

Section 6:-Dramatic Social Change

Responses sought in this section related to the contextual responses from participants. The respondents we asked to indicate how the moderating context, Covid-19 adduced DSC, was perceived to impact the individuals, their firms, the market, and relevant institutions in their day-to-day operations. The items used in this measurement amounted to nine. Notwithstanding the scarcity of empirical studies on the developing DSC theory, the researcher sourced fou validated items from DSC's author, De la Sablonnière (2017). The balance of five was inferred from the literature. De la Sablonnière (2017) reckons that DSC is associated with the rapid pace of change within and external to the firm's domain. This rapid pace of change instigates the rapture of normative structures a rapture of social structures which leads to a threat in cultural identity. This study abductively reasoned that Covid-19 adduced a phenomenon akin to DSC. Therefore, the researcher solicited responses on respondents' perception and experiences, relating to how the context impacted the rate of change in their firms and industries. Some of the items asked participants to rate DSC's impact, adduced by COvid-19 as below (bracket indicates item number under construct label).

a) In our Industry, demand conditions for products and services are erratic and frequent (ModDSC_5)
b) In our department, the level of technological changes has become dramatic (ModDSC_8)
c) There has been a dramatic impact on the way and methods our teams use to communicate, operate and introduce new ideas in our company (ModDSC_9)

Section 7:-Personal Particulars

The data gathered in this section related to personal particulars such as ethnicity and age, to allow further demographic considerations that would be useful in the final analysis and contextual abduction of responses. Annexure A is attached for further detailed reference of the questionnaire. The next section discusses the population to which the instrument was distributed.

4.6 Population

Several studies have assessed the effects of a disaster or extreme context-induced phenomena such as the global financial crisis (e.g., De Rond, Rouleau, & Hällgren, 2018; Hannah, Uhl-Bien, Avolio, & Cavarretta, 2009). Some scholars have looked at such context's impact on business outcomes and the adaptability of micro, small and medium enterprises (e.g., Bamiatzi and Kirchmaier, 2014; Battisti and Deakins, 2017; Cowling, Liu, Ledger, & Zhang, 2015; Smallbone, Kitching, Deakins, & Battisti, 2012; Williams and Vorley, 2014). However, extant literature suggests that minimal studies have considered DSC's impact induced by unplanned and scarcely controllable natural phenomena such as COVID-19. Especially, literature is limited in studies on small to medium firms (e.g., Battisti and Deakins, 2017; Dahles and Susilowati, 2015; Neef, Panyakotkaew, & Elstner, 2015). Therefore, this study disposed to cover this observed population study gap in the academic literature by specifically Zimbabwe's SME sector.

SMEs have been viewed to play key sectoral roles in employment, innovation fostering, production and trade of goods, services provision, and the generation of tax revenues (Battisti and Deakins, 2017). Although there are multiple and arguably arbitrary classifications and definitions of SME's across the world, the Organisation for Economic Co-operation and Development [OECD] (2017) estimates that these firms constitute 90% of the global firm population in which a cumulative employed workforce amounts to 50-60% for high-income countries. A similar share is also observed in transition economies. SME's play key roles in local economies, fostering job opportunities in multiple supply chains. They also increase inclusivity within geographies, absorbing low skill labour and special interest groups such as

ethnic communities, women and marginalized communities, thus narrowing the income inequality gaps (OECD, 2017). Moreover, SME's foster innovation exploits largely neglected commercial opportunities by large firms by way of novel management processes, production methods and sustainability practices (OECD, 2020).

A dichotomy of standardization and universality is used to define the SME as it relates to sector specialization and relativity (market size, market location industry type and industry position) (European Commission [EC], 2020; Lee-Ross and Lashley, 2009). While this appears an eminent consideration, SME's qualitative characteristics somewhat distinguish them from larger corporates, yet the dimensional classification seems to be predominantly quantitative (e.g., Pobobsky, 1992). The definitions from literature appear to have a common thread in that three primary classifications are argued, thus: definitions by national laws (Leite and Ferreira, 2011), definitions by international institutions (European Commission, 2020; The World Bank [WB], 2020) and definitions by industry associations (Curran and Blackburn, 2001). All of them in some way seem to consider the number of employees (Curran and Blackburn, 2001), annual turnover (Gibson and van der Vaart, 2008), annual balance sheet and total assets (Stokes and Wilson, 2010). Based on these arguments, a more nuanced classification by the EC (2020) tables that SME's can quantitatively be characterised by the number of employees not exceeding 300, total assets ≤ € 43 Million and annual turnover ≤ € 50 Million. Therefore, the researcher applied these criteria in classifying the SME population for this study.

Statistics show that there is over 18,500 formal sector SMEs in Zimbabwe, being located within various towns and cities (Zimbabwe National Statistical Agency [ZIMSTAT], n.d). In Zimbabwe, SMEs contribute about 60% of the GDP, employing 5.9 million, equating to approximately 75% of the composite employed workforce in the economy (ZIMSTAT, n.d). The SMEs also contribute 70% of Zimbabwe Revenue Authority's registered taxpayers (Zimbabwe Revenue Authority [ZIMRA], n.d), implying that their potential transformation and contribution to economic progress is implicit in leadership. Therefore, the potential role of SME's could never be underplayed. From these preceding perspectives, the SMEs were consequently considered a vital economic sector to ground the study. They can primarily provide a seedbed for economic growth, innovation and employment pillars in transition economies and developing markets such as Zimbabwe.

Notwithstanding, when compared to the more established corporates and conglomerates, SME's are characterised by relatively limited disposal of resource slack (e.g., reduced access to institutional, financial, credit and human) to deal with the vulnerabilities exposed by DSC contexts induced by phenomena such as COVID-19 (cf. Smallbone et al., 2012). This sector

also faces challenges such as deeper supply chain dependencies, lags in adopting technology and limited access to global markets and knowledge networks (Fouejieu, Ndoye, & Sydorenko, 2020). Moreover, it has been shown that even outside the impacts of phenomena like DSC, 8% of SMEs in Zimbabwe survive to maturity over a five-year incubation period (Chundu, Pindiriri, & Kaseke, 2020). This implies the need for determinate CL capabilities that could catalyse this sector to adapt and thrive in emerging dynamic and dramatic complex contexts over time and therefore, constitutes an important population to study.

Member institutions and databases such as Small Enterprise Development Corporation (SEDCO), SMME Association Of Zimbabwe (SMEAZ), Zimbabwe Trade Association (ZIMTRADE), Confederation Of Zimbabwe Industries (CZI), Computer Suppliers Association Of Zimbabwe (CSAZ), Retailers and Wholesalers Association Of Zimbabwe, Zimbabwe Agricultural Society (ZAS), Mining Chamber (MC) and Zimbabwe SME Fund (a CEO Initiative Membership Forum) constituted the population of respondents to the self-administered survey-based questionnaire research instrument.

The study obtained quantitative data from business owners, executives, senior professionals, and managers within the Zimbabwean SME sector. The business owners, executives and managers were considered the unit of observation. Business owners and managers have been characterised as the primary organisational strategic and operational decision-makers (Battisti and Deakins, 2017; Zahra, Sapienza, & Davidsson, 2006). In this capacity, the business owners and managers were viewed by the researcher as playing a fundamental responsibility in implementing CLT micro-foundations (e.g., Ince and Hahn, 2018; Pentland, Feldman, Becker, & Liu, 2012).

4.7 Sampling

A sample is defined as a subset of a population's universe from which observation units are surveyed to generate knowledge about this population (Creswell and Creswell, 2018). Sample size and nonresponse bias occupy a fundamental consideration in quantitative survey designs (Hair, Babin, Money, & Samouel, 2003; Howell, 2016). The importance of studying smaller groups is well documented (e.g., Holton and Burnett, 1997, p. 71). Smaller groups are viewed as being relatively economically viable and less prohibitively expensive to study (p. 71).

When sampling, researchers may adopt probability sampling or nonprobability sampling (Creswell and Creswell, 2018). Probability sampling allows for the luxury of a random selection of all known units in the population and pursuant statistical inferences while nonprobability

sampling, which denotes the absence of probability sampling, conveniently or purposefully selects an available sample from which to collect initial data (Howell, 2016). Th convenient selection, however, implies that nonprobability sampling has a weakness of potentially limiting variability. Additionally, nonprobability sampling's chief drawback is the non-representativeness of the population (Howell, 2016). However, it is considered useful when the researcher has limited financial resources, labour force and time (Creswell and Creswell, 2018), which were the main factors motivating its choice in this study.

This study's chosen philosophy was CR, whose fundamental goal is to answer the research problem by acceptable and plausible means. This view implies a statistical framing that considered variability in the OA of firms in the face of DSC context. The researcher could not access the whole population for several reasons. For example, some organisations were not incorporated in various membership groups. Many other firms did not appear in the relevant company repository databases. However, the researcher considered that answers to the research questions could still be obtained from the available population. Therefore, in this context, the researcher adopted the nonprobability sampling that could still maximise the statistical inferences as derived from the epistemological assumptions (see Hair and Sarstedt, 2021).

A researcher may choose among purposive, convenience, network, and quota sampling techniques in nonprobability sampling (Hair et al., 2003; Howell, 2016). Purposive sampling, which is known otherwise as judgmental sampling, follows the researcher's judgement in looking for "representative" or "divergent" case sample. The researcher selects the available units based on criteria such as opportunity, haphazardness, or even unrestricted sampling in some contexts under convenience sampling. When one implements network sampling, they apply convenience sampling where early units are seeded to sequentially snowball within network ties. In quota sampling, convenience samples are improved by socio-demographic quotas to reflect the population (Hair et al., 2003; Howell, 2016).

Scholars have put forward arguments that the choice of either of these methods is contextually dependent. For example, when the researcher chooses subjects based on accessibility and proximity, convenience sampling becomes appropriate, while purposive sampling is subject of the researcher selecting suitable participants to confirm or affirm a preconceived notion (Hair et al., 2003). Therefore, it becomes imperious that the researcher considers sound judgment in the manner in which data that dispenses meaning and a better understanding of the theoretical frameworks is obtained. Consequently, guided by research questions, conceptual

framework, the abductive CR philosophy as well as the retroduction assumptions, the researcher adopted purposive sampling for this study. The fundamental motivation was to select subjects that possessed sought after qualities, that could respond to CLT and DSC questionnaire and were willing to participate.

4.7.1 Sampling Procedure

The sampling was done in three stages. The first stage was to identify databases of SME's in Zimbabwe through the membership organisations described earlier. This process was concluded by selecting firms of interest from the list based on the nature of business. This stage produced a sample of 88 companies from across Zimbabwe (with a total employee base of 2,640) which the researcher advised the intention to conduct the study. The second stage involved creating abductively argued stratifications of the firms represented by industry segments. This was followed by seeking ethical clearance and authority to conduct the study within the selected and agreeable firms, whose company representatives had to sign the ethical clearance forms and provide consent letters for the researcher to obtain ethical clearance from the Ethics Committee at the GIBS. Noting that variability may exist between different firms in certain spatial settings, industries, and clusters, implies potential variances across the strata. Therefore, leaning on the CR stratified ontology, the disproportionate pseudo stratification (see Hair et al., 2003) was considered plausible and necessary to obtain firms' reasonable representation from across various industry segments and contexts. This sampling process returned 28 firms representing 19 different industry segments that accented to their firms' study. This ethical clearance is are exhibited in Appendix 2.

The final stage of sampling involved the researcher submitting the ethical clearance to the consenting firms. Thus, this process obtained a database of managerial level members of staff within the organisation whom the organisation's leaders adjudged to have requisite cognitive levels to understand the phenomena and constructs of the study, to which the survey was administered. This final sampling process returned 24 firms (with a cumulative 495 respondents), representing 19 different industry categories, in which the study was then conducted. Table 4 depicts the sample framework for the study.

Table 4 Sample framework

Operational unit	Population	Sample size	Aggregate Percentage of population	Sampling method

Total	2640	495	18.75%	Purposive and Disproportionate stratification

The sampling frame illustrates that the final sample was N=495, representing 18.75% of the target population. It is noted here that this sample only included units that were in ownership, leadership, and management level positions. The researcher had targeted a return of 150 responses. However, following Hair et al. (2019) who posit that a sample size n=50 may be considered sufficient for study using PLS-SEM, the researcher contended that the sample size attained was adequate for further analysis using the PLS-SEM analytical approach. PLS-SEM is, discussed in detail in Section 4.11. Furthermore, considering that the manager-per-employee ratio varies within different stratified industries, the researcher reasoned that this sample size n=495 was sufficient for the study's purposes.

4.8 Unit Of Analysis

Creswell and Creswell (2018) define the unit-of-analysis as the level at which study participants are selected, implying the population's members and elements. As concluded from the literature review, scholars in the CL domain implore researchers to consider multi-level analysis in leadership studies (e.g., Hiller et al., 2019; Oc, 2018; Rosenhead et al., 2019; Tsoukas, 2017, Uhl-Bien and Arena, 2018). In response, this study, therefore, considered a multi-level analytical approach. At the micro-level, the first unit of analysis was the business owners, business executives, and business managers working in the SMEs in Zimbabwe, as this related to the CLT practices and DSC conceptions. The second unit of analysis at the meso level was the SMEs organisations in which these business owners and managers worked as it related to OA. With the population and sample defined, it was necessary to define a framework to measure responses to the questionnaire from the units-of-analysis, which is the next section's subject.

4.9 Measurement Framework

This section discusses the measurement framework and specification considerations on the constructs developed in the conceptual framework that would allow an appropriate data analytical mechanism to dispense answers to the research questions.

4.9.1 Outline of this study’s approach

A construct has been characterised by Edwards and Bagozzi (2000, p.156-157) to mean “a conceptual terminology that describes some phenomenon of theoretical interest” in which the phenomenon may be directly observable or indirectly observable (commonly referred to as a latent variable). Edwards and Bagozzi (2000, p. 156) explicate indicators or items (measures)

as “observed scores assembled through self-report, observation, interview, as well as other ways and forms”. These indicators, items or measures are thus used to measure constructs which in turn, and in the presence of some unexplained measurement errors, measure the actual phenomenon of interest (Diamantopoulos and Winklhofer, 2001). Therefore, the measurement models obtain their characteristics from the interrelations between variables and their observable indicators germane to the apprehension of the phenomenon of interest (Bollen and Lennox, 1991).

According to Diamantopoulos and Winklhofer (2001), combined with Edwards and Bagozzi (2000), reflective and formative conceptual approaches and models are used to represent latent constructs. Reflective measurements are forward-looking, exogenous, and hypothetical and therefore are considered more appropriate when the model’s focus is to empirically verify *a priori* theoretical variables (Bollen and Lennox, 1991; Diamantopoulos and Siguaw, 2006; Wilcox et al., 2008). Conversely, formative measurements are backwards-looking, endogenous, and based on actual actions and therefore are warranted when the model’s focus is identifying some theoretical model and its variables that could best fit the empirical observations (Bollen and Lennox, 1991; Diamantopoulos and Siguaw, 2006; Wilcox et al., 2008).

Multiple authors have combined to posit the factors that can be applied to test for the usage of formative or reflective measures namely: causal directionalities of the constructs with their indicators, as suggested from the conceptual thesis, “indicator interchangeability, multidimensionality or indicator covariation; as well as the nomological net of indicators” (e.g., Coltman, Devinney, Midgley, & Venaik, 2008; Jarvis, MacKenzie, & Podsakoff, 2003, p.2003; Wilcox, Howell, & Breivik, 2008). Thus, these considerations and typologies were applied to decide on the measures adopted for each variable in this study. The questionnaire and the theoretical assumptions from Uhl-Bien and Arena (2017, 2018) and De la Sablonnière (2017) were used to create the construct specification framework. An illustration of the specification decision complex is presented in Table 5

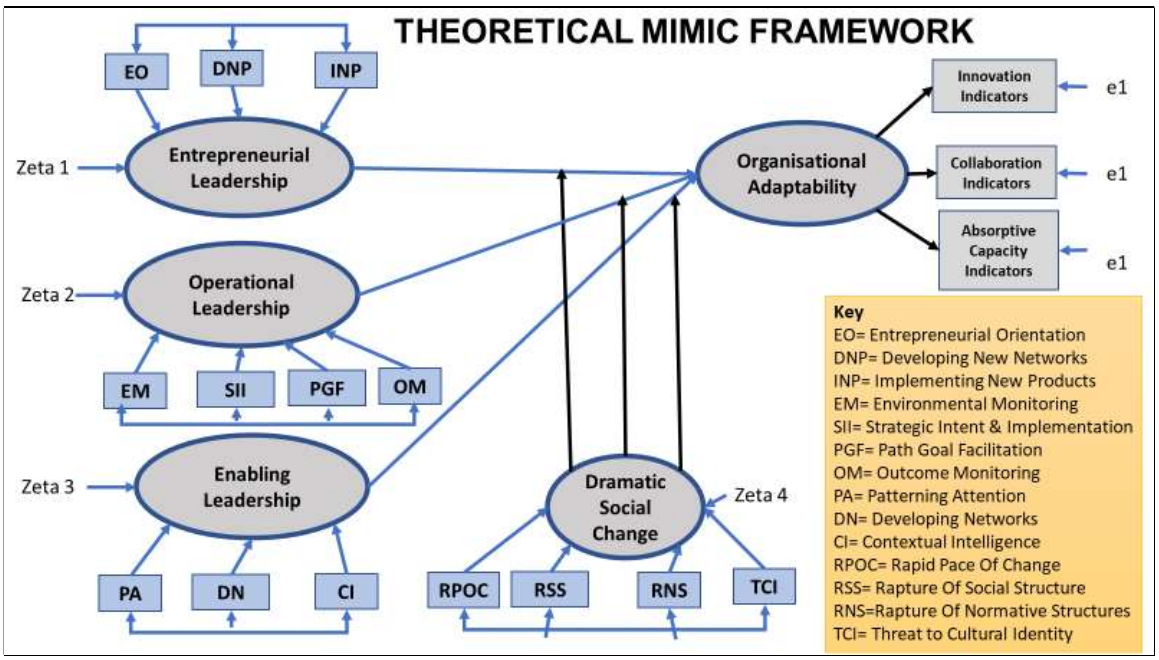
Table 5 Decision matrix on the type of measures for each variable

Construct/Variable	Conceptual Causal Directionality	Indicator Interchangeability, Theoretical Basis	Decision
Operational Leadership	Action items: Acquiring new knowledge, Developing new skills, Implementing new processes, Developing new products & markets, -therefore, actual action-based, backward oriented	Identifying Theoretical Fit, Non-interchangeable, composite	Formative Measures
Entrepreneurial Leadership	Developing formal systems, Implementing formal processes, Maintaining formal structures, Integrating new concepts, ideas, -therefore, actual action based, backward oriented	Identifying Theoretical Fit, Non-interchangeable, composite	Formative Measures
Enabling leadership	Establishing semi-structures, Enabling temporary decentralization, Promoting collaboration, Providing brokerage, Instigating tension and paradox, Applying contextual intelligence, -therefore, actual action based, backward oriented	Identifying Theoretical Fit, Non-interchangeable, composite	Formative Measures
Dramatic Social Change (DSC)	Rapid pace of change, rapture of social structures, rapture of normative structures, threat to cultural identity -therefore, actual action based, backward oriented	Identifying Theoretical Fit, Non-interchangeable, composite	Formative Measures
Organisational Adaptability	Innovation indicators, Collaboration indicators, Absorptive capacity indicators, therefore forward oriented and hypothetical	Verifying *a priori* theoretical variable, Interchangeable	Reflective Measures

Source:- Author

The table shows that four of the five constructs (variables), OPLEAD, ENTLEAD, ENALEAD and DSC, have their observed indicators in column 2 (conceptual causal directionality) showing actual actions, and thus were posited to use formative measures while the outcome (criterion) variable, OA, had future intentions/reflections that could not be observed immediately, therefore could only be hypothesised, implying the use of reflective measures. Thus, the hybrid framework constructed was the “multiple indicators of multiple measures” (MIMIC) Model (see Diamantopoulos and Winklhofer, 2001). The simultaneous inclusion of reflective indicators and formative indicators in the MIMIC model overcomes identification problems (Posey, Roberts, Lowry, & Bennett, 2015). Figure 2 illustrates the theoretical framework.

Figure 2 Theoretical Measurement Framework



Source: Author

Validation for the formative measures included the use of "multidimensional testing, indicator specification, content specification, external validity and indicator multicollinearity" espoused by Diamantopoulos and Winklhofer (2001, p. 271-274). For the OA's reflective measures, the "classical test theory" assumptions (Jarvis et al., 2003) were required. Thus, internal consistency, discriminant validity, convergent validity and indicator loadings were subject of assessment in the validation of the measures. These measures were warranted since reflective measures are viewed as prone to measurement errors such as Type 1 and Type 2, (Diamantopoulos and Siguaw, 2006, p.266; MacKenzie, Podsakoff, & Jarvis, 2005).

4.10 Data Collection And Analysis

4.10.1 Survey Questionnaire Pre-testing

Firstly, the questionnaire was screened by the researcher and the researcher's supervisor to validate the design, flow, and the capturing of the nuances of the theoretical aspersions. The screening process also sought alignment with the research questions. The GIBS ethics committee also assessed the questionnaire for compliance with ethical standards. The ethical clearance is attached in Appendix 2. Once approved, the questionnaire was transcribed on to Qualtrics Survey Software with minor compliance edits. Secondly, the survey questionnaire was further interrogated for inconsistencies, grammatical errors usability and legibility through a pilot study with 11 participants drawn from the researcher's MPhil class (six participants), the

researcher's workmates (3 participants) the researcher's supervisor and one of the researchers' lecturers. This process returned nine feedback responses that were incorporated into the final version. Three questions on ENTLEAD were re-worded, and two questions under DSC were disregarded completely.

4.10.2 Survey Data Collection

A single sample self-administered cross-sectional study was used to gather data from 24 organisations over a period of six weeks (01 October 2020 to 14 November 2020). In-between this time, some scheduled reminders were sent only to outstanding respondents every seven days. The online survey was utilised as the data collection tool, as this method offers efficient data collection from a broader sample population (Creswell and Creswell, 2018). The survey was distributed via a web link hosted on Qualtrics Online Survey Software as well as a QR code option, with an estimated completion time of 15-20 minutes. The 495 targets were obtained from email databases provided by the 24 consenting firms as obtained through the ethical clearance process.

Of the 132 targets that started the survey, 130 did so through the weblink invite in the direct email and two used QR code option. Of these, 128 completed the survey by proceeding past the screening phase. Of these, 126 returned usable data and this return rate could be viewed as considerable sample cohort apathy. The two responses that returned unusable responses had missing information in more than 15% of the fields, which would have warranted further data curation procedures suggested by Kock (2018). However, the researcher considered that since Ringle et al (2012) as well as Hair et al. (2017, p.118) articulate that the PLS-SEM analytical method, to be discussed in the following Section 4.11, could work with a minimum sample size of 50, there was no need for further data curation or imputation. Thus, the study's final sample was accepted at n=126, a response rate of 26.67%, which according to Fricker (2008) is acceptable considering that the average response rate for online surveys is 15-30%.

4.11 Analytical Approach

The study applied Structural Equation Modelling (SEM) using SmartPLS and SPSS software to analyse the data as these tools afford both descriptive and inferential approaches. Strasheim (2014) advances that the SEM approach is the best for multi-variate statistical analysis involving multiple variables such as the model illustrated in Section 4.9.1. SEM's advantages over other regression analysis tools are the ability to accommodate measurement errors and multiple relationships, a useful capability when moderating variables are involved in the model (Strasheim, 2014; Zikmund, Babin, Carr, & Griffin, 2010).

SEM has been characterised as “a context-based multivariate statistical technique that has the ability to simultaneously estimate linear, correlational and causal relationships” within and between multiple latent constructs within a complex multiple equation system to benefit further understandings of perceptions and behaviours that can contribute to theory development and testing (Babin and Svensson, 2012; Bagozzi and Yi, 2012). According to Hair, Ringle, & Sarstedt (2011, p. 140), between the two available types; covariance-based SEM (CB-SEM) builds on theoretical common factor variance (co-variance) while partial least squares (PLS) SEM (PLS-SEM) develops and maximises unexplained total variances. The key philosophical distinction lies in consideration of normality of distribution in data. Whereas CB-SEM is more suitable for normally distributed variables in theory testing and confirmation, PLS-SEM finds greater suitability even in non-normal distribution data and thus suits theory development, explanation, and prediction (Hair et al., 2019), a pertinent motive of this study.

Hair, Matthews, Matthews, & Sarstedt (2017) argued that PLS-SEM analytical technique enables the specification of explanatory and theory-based models when developing, evaluating, and confirming theory as it explains total variance instead of the common variance seen in CB-SEM. Moreover, it is argued that PLS-SEM offers greater prediction, works with both normal and non-normal data, as commonly encountered in social science, offers advanced analytics, even of unobserved heterogeneity, and works with smaller sample sizes, therefore it offers greater statistical power (Hair et al., 2017). More prominently, PLS-SEM has been highly regarded in estimating complex models as it does not impose stringent distributional assumptions on the data (Hair, Fisher, Sarstedt, & Ringle, 2019). The eminent advantage in the use of PLS-SEM arises from the capability to incorporate measurement error in the observed variable unlike ordinary least squares regression, particularly when the model contains interaction (moderator and mediator) terms (Aguinis, Edwards, & Bradley; 2017); such as DSC in this study’s model.

The developed hypothesis in Chapter 3 proposed that the nascent theory, DSC, moderates CLT and OA's relationship. The literature review in Chapter 2 also concluded that CLT is a burgeoning and nascent theory and that OA as an outcome is a relatively unstudied concept. According to the Colquitt and Zapata-Phelan (2007) classification, the implication of the proposed conceptual framework is to contribute to theory development, theory testing, and theory prediction. Furthermore, the PLS-SEM technique is recommended as being more optimal in estimating composite-based models with formative measures while at the same instance allowing common factor effect-indicator model approximation (e.g., Hair et al., 2018; Hair, Sarstedt, & Ringle, 2019). It follows that the PLS-SEM’s MIMIC handling capability lends it more accuracy in capturing a conceptual variable than CB-SEM. More critically, the relevance

of explanation and prediction in social science and business management is derived from actual decision-making outcomes, as earlier emphasised in the philosophical assumptions.

The proposed theoretical model in Figure 4.2 shows formative measures on all the independent variables (CLT subconstructs and DSC subconstructs). PLS-SEM makes the most of the magnitude of variance arising from the compositely specified constructs in the theoretical model, according to Evermann and Tate (2016). This is important in that PLS-SEM has the effect of minimizing the twin issues of bias and error variance (Evermann and Tate, 2016), although this may accrue at the expense of occasional sacrifices on theoretical accuracy (Shmueli, 2010, p. 293). By these arguments together, therefore, PLS-SEM was chosen as the more suitable analytical technique. Table 6 provides a mapping of each hypothesis and the assessment technique that was applied to it. It also shows the rationale and motivation for choosing the analytical technique.

Table 6 Hypothesis and Analytical Technique Mapping For Constructs

Hypothesis	Analytical Technique	Rationale
Hypothesis 1	PLS-SEM (Multiple Regression)	To test bidirectional effects, explain the relationship between Operational Leadership (OpLead) & Organisational Adaptability (OrgAdap), Formative Measures for OpLead and Reflective Measures for OrgAdap
Hypothesis 2	PLS-SEM (Multiple Regression)	To test bidirectional effects, explain relationship between Entrepreneurial Leadership (EntreLead & OrgAdap, Formative Measures for EntreLead and Reflective Measures for OrgAdap
Hypothesis 3	PLS-SEM (Multiple Regression)	To test bidirectional effect, explain relationship between Enabling Leadership (EnableLead & OrgAdap, Formative Measures for EnableLead and Reflective Measures for OrgAdap
Hypothesis 4.1	PLS-SEM (Multiple Regression)	To test impact and explain impact of DSC (ModDsc) on the relationship between OpLead & OrgAdap, Formative Measures on ModDsc
Hypothesis 4.2	PLS-SEM (Multiple Regression)	To test impact and explain impact of ModDsc on the relationship between EntreLead & OrgAdap, Formative Measures on ModDsc
Hypothesis 4.3	PLS-SEM (Multiple Regression)	To test impact and explain impact of ModDsc on the relationship between EnableLead & OrgAdap, Formative Measures on ModDsc

Source: Author

4.11.1 Descriptive Statistics

The study utilised SPSS software to analyse data for descriptive statistics relating to the normality of data, means and demographic counts of frequency and percentages on the categorical data. This allowed the researcher to meaningfully describe the data and establish an appropriate context for interpretation of the subsequent analysis.

4.11.2 Test For Normality

Shapiro and Wilk's (1965) test of central tendency was conducted with significance at $p < 0.05$ to allow for the data distribution assumptions to be confirmed.

4.11.3 Testing the Measurement Models (Reflective Measures and Formative Measures)

The study utilized SmartPLS 3.0 and some SPSS as necessary in assessing the outer measurement model while the inner construct model was assessed using the SmartPLS 3.0. The researcher argued that CLT and DSC as formative constructs, as developed and described in the theoretical model and model specification presented in Figure 2. The theoretical model also considered and specified OA as a reflective construct in the MIMIC model. Therefore, the constructs were assessed accordingly (reflectively and formatively as necessary) by applying the recommendations and approaches advanced by Hair et al. (2019). The researcher conducted the assessment in three stages. The first stage examined the outer measurement model (the outer model). Once the measurement model satisfied the required criteria, the second stage assessed the structural model (the inner model). The final step involved running relevant robustness checks to confirm the support for results' stability (e.g., Hair et al., 2017a). The researcher notes that a key distinction that is important to note is that reflective measures imply common factors. In contrast, formative measures indicate total variance as explained by Hair et al. (2019). Therefore, assessments had to be congruently consistent per each specification type defined in Figure 2.

4.12 Testing Reflective Measures

These tests were carried out on the criterion variable, OA, which was reflectively specified in the theoretical model in Figure 2.

a) Indicator Loadings

Hair et al. (2019, p.8) recommend indicator loadings above 0.701 suggesting this as an indication of the construct explaining more than 50% of the indicators' variance thus implying that the construct exhibits acceptable item reliability. However, the authors also recommend that contextual aspects have to be considered when deciding on indicator retention (p.10-11), as there is no consensus on what can be regarded as "high or low" factor loading. Newly developed items are generally recommended to exceed 0.5 if they do not have significance but their corresponding loadings are higher than 0.5. The significance implies empirical support. Therefore, since this study had incorporated new items and that the theories are still being developed, it was plausible to consider loadings set at the threshold of 0.5. The Indicator Loadings were tested accordingly,

for each construct and resultantly, one indicator (OrgAdap_15 = 0.084) which had nonsignificant loadings at less than the threshold of 0.50 was dropped from the final analysis.

b) Testing For Internal Reliability and Consistency

When researchers use scales to measure a phenomenon of interest, the questions should all measure that same thing that is being sought to the extent all the measures should be correlated (Cronbach, 1951). This provides a measure of the reliability of the instrument if it were to be used in another setting (Creswell and Creswell, 2018). The Cronbach's Alpha coefficients are suitable where Likert questions are present in the data collection instrument (Hair et al., 2010). The technique is even more practical when accounting for consistency in cases where data reduction techniques, such as principal component analysis are applied (Hair et al., 2010).

Additionally, Jöreskog's (1971)'s composite reliability method considers weighted indicators and has been suggested to offer more satisfactory reliability. Moreover, Dijkstra and Henseler (2015) recommend the Rho_A, which as an approximate exact measurement for construct reliability. All these three tests were conducted on all the constructs, and the tests confirmed the reliability of the instruments that measured CLT Constructs, DSC, and OA as per Table 7. Hair et al. (2019) suggests that values ranging from 0.6 to 0.7 fall withing acceptable limits in exploratory studies, while those ranging from 0.7 to 0.9 are considered satisfactory.

Table 7 Reliability values for all constructs

	Cronbach's Alpha	rho_A	Composite Reliability
EnableLead	0.954	0.957	0.958
Entrelead	0.907	0.923	0.923
Modsc	0.779	0.834	0.839
Oplead	0.909	0.914	0.923
OrgAdap	0.928	0.936	0.937

The output shows that the composite reliability values attained for all the constructs measured at higher than 0.7 and Rho_A greater than the 0.7 thresholds; therefore the reliability was satisfactory, the measurement instrument for all the constructs had internal consistency.

c) Testing For Convergent Validity

Based on the same arguments discussed above, convergent validity tests were conducted for OA. Convergent validity characterises the convergence of a construct to explain the variance of the factors defining it. The metric used is the average variance extracted (AVE), which should be

greater than 0.5 (Hair et al., 2019, p.9). The attained favourable results are presented in Chapter 5.

d) Testing For Discriminant Validity

Discriminant validity characterises the empirical distinctness of a construct from other constructs within a specified model in measuring the phenomenon of interest within that structural model (Hair et al., 2019). Earlier research used Fornell and Larcker's (1981) traditional shared AVE square differences method. However recent scholarship (e.g., Henseler et al., 2015; Voorhees, Brady, Calantone, & Ramirez, 2016) shows that when there are slight differences in indicator loadings on a construct, the method does not return the most optimal results. As such, recent studies recommend Henseler et al.'s (2015) "heterotrait-monotrait (HTMT) ratio of correlations". This procedure uses bootstrapping, which always depends on the study context (Henseler et al., 2015). Values that are higher than 0.85-0.9 imply the presence of discriminant validity (Henseler et al., 2015). Thus, this method was applied in the study, testing if the HTMT values significantly differed from 1.0 at 95% confidence interval. The test is agnostic of the construct specification (see Henseler et al., 2015), therefore was carried out on all the constructs, and the favourable results are presented in Chapter 5.

4.13 Testing Formative Measures

Following Hair et al. (2019) as well as Hair et al.(2017a), the researcher assessed the formative measurement model in respect of the following subheading, noting the following. The threshold for relevance is measured through the t-test, being $t > 1.96$, and the significance threshold is measured through the p-value, being $p < 0.05$ (Hair et al., 2019; Hair et al., 2017a). The assessments were conducted on OPLEAD, ENTLEAD, ENALEAD and DSC, which were formatively specified as presented in Figure 2.

a) Convergent Validity

The redundancy analysis procedure Chin (1998) was used. Cheah, Sarstedt, Ringle, , Ramayah, & Ting (2018) and Hair et al. (2017) suggest that the correlation of the formatively measured construct with the single item construct measuring the same concept should be 0.7 or higher. This procedure resulted in a total of six items (3 x OPLEAD, 1 x ENTLEAD, 1 x ENALEAD and 1 x DSC) being expunged from the final analysis after failing to meet the 0.7 thresholds.

b) Indicator Multicollinearity

Variance Inflation Factor (VIF), a measure of the correlation of one independent variable with a group of other variables, is often used to measure multicollinearity of formative indicators (Hair et al., 2019). Values of 5 or above and below 0.2 imply critical multicollinearity problems among the

indicators (Hair et al., 2019). The test did not detect any problematic multicollinearity issues as presented and discussed in Chapter 5.

c) Indicator Weights and Statistical Significance

Since PLS-SEM's methodological approach is nonparametric, bootstrapping is used to determine statistical significance (Chin, 1998). Hair et al. (2017a) recommended the use of "Bootstrap Corrected and Accelerated Confidence Intervals (BCa)" to test significance. This method considers that weights result from the total number of indicators, therefore, does not prescribe the removal of indicators based on their weights, but rather on statistical significance. The reasoning is that formative indicators make the construct; therefore, to fully capture the construct's entire domain, the researcher should maximise indicator retention (Hair et al., 2019, p.10). Thus, indicator loadings are not set at the threshold of 0.5, 06 or 0.7 as is the case with reflective indicators discussed in Section 4.11.4(a). A significant weight indicator on the formative construct suggests empirical support and thus its retention in the model.

Furthermore, the indicator weights' relevance should be examined within the standardised values between -1 and +1 (Hair et al., 2019, p.11) indicating weak negative or strong positive on a continuum. This assessment returned three items under ENTLEAD (EntrLead_6, EntrLead_10, EntreLead_11) and two items under the moderator DSC (ModDsc_4, ModDsc_6) that did not meet the criteria for relevance and significance within the measurement model and were thus expunged from the final analysis.

4.14 Assessing the Structural Model (Inner Model)

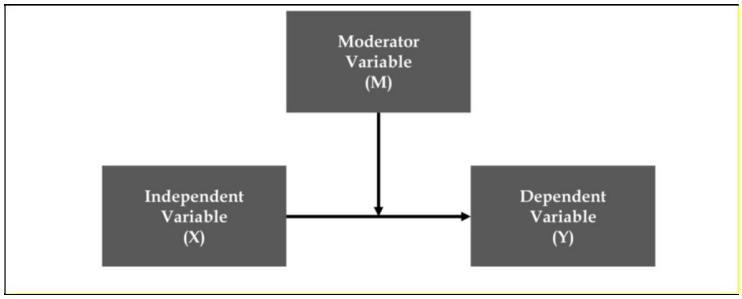
The typical assessment convention for PLS-SEM involves assessing construct multicollinearity, coefficient of determination R^2, (the model's explanatory power); redundancy measure Q^2 (the model's predictive power) and the statistical significance (p-value) as well as relevance (t-value) of the structural model's path coefficients (Hair et al., 2019). The assessed path coefficients measure the model's direct effects and indirect effects resulting from moderating effects (Hair et al., 2019, p.11). The detailed results of this assessment are presented Chapter 5.

4.15 Moderation Analysis

The pertinent contextual conditions and margins for an association relationship can be exposed by the application of moderation analysis (Aguinis et al., 2017; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). Moderation is said to occur when an independent construct's effects on the dependent (criterion) construct variably depend on the level of an influencing independent variable that alters the relationship's strength and direction (Hair et al., 2014).

Figure 3 depicts M's theoretical moderation effect on the connection between X (Criterion Variable) and Y (Outcome Variable).

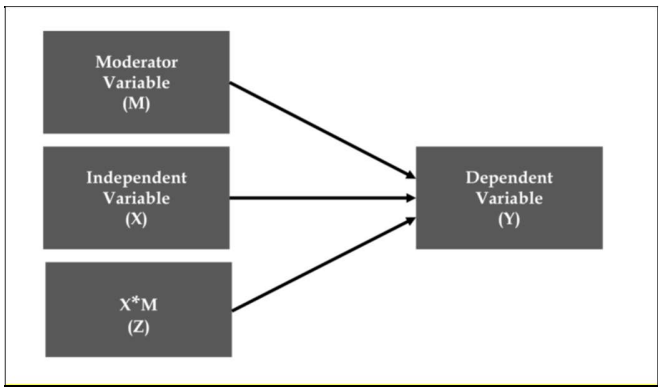
Figure 3 Conceptual representation of moderation effects



Source: Adopted from Aguinis et al. (2017).

However, statistically, the moderation can be visualized as illustrated in Figure 4, where interaction effects are represented by the term X*M (Z).

Figure 4 Statistical representation of moderation effects



Source: Adopted from Aguinis et al. (2017)

Henseler and Chin (2010), as well as Henseler and Fassott (2010), evaluated different techniques that could be used in PLS-SEM moderation analysis thus:- Product-Indicator, Two-Stage and Orthogonalising. They recommended that the best approach to establish statistical power and predictive power for formative indicators is the two-stage analysis. For example, Becker, Ringle, & Sarstedt (2018) show in their simulation study how this approach outperforms all other approaches on parameter recovery and statistical power. Further treatises by Hair (2020), Hair et al. (2017) as well as Hair et al. (2019) has concretised frameworks and procedures that researchers may adopt in PLS-SEM analytical approaches which has been increasingly beneficial in the definition of multifarious behavioural based research. Critically, Aguinis et al. (2017) proved that when an interaction occurs, the output

exhibits a range of effects depending on the moderating variable's value. Therefore, this suggests that the researcher has to represent the interaction effects through “simple slopes”, in order to interpret the interaction effects appropriately (e.g., Aguinis et al., 2017). The researcher adopted these recommendations, and by using SmartPLS 3.0 plugins (Ringle, Wende, & Becker, 2015), was able to establish the moderating differential effects of DSC on the direct relationships between CLT subconstructs and OA, the results of these procedures are presented in Chapter 5. The next section discusses the procedures carried out to confirm the results' veracity and robustness, following Hair et al. (2019). The robustness test's necessity is derived from the CR’s need to confirm the model’s explanatory and predictive powers.

4.16 Assessing The Robustness Of the PLS-SEM Results

The final process in PLS-SEM assessment was to validate the model’s robustness as it relates to the out-of-sample predictive power by using the complementary methods named the “confirmatory tetrad analysis” (CTA) (Gudergan et al., 2008; Shmueli, Ray, Estrada, & Chatla, 2016). This process allows for the empirical substantiation of the outer specification measurement model (Hair et al., 2017a; Hult et al., 2018; Sarstedt et al., 2019). The validation test was also used to check for endogeneity and heterogeneity using Ramsey’s (1969) linear regression mapping. Since this study's objective, as guided by the CR philosophical assumptions, was to explain the nature of relationship between CLT and OA, explanatory and predictive power were consequently a necessary capability for the model. Therefore, the model’s predictive relevance was assessed through the use of the CTA procedures per Sarstedt et al. (2019) and Ramsey’s (1969) linear regression (LM). Extant research recommends that the results obtained through PLS-SEM analysis should return lower prediction errors (which is only available for manifest variables) than those produced by the LM. The attributes compared are Root Mean-Square Error (RMSE), Mean Absolute Error (MAE) and Mean Absolute Percentage Error (MAPE) (Gardner et al., 2017; Sarstedt et al., 2019; Shmueli et al., 2016). The attained results are presented in Chapter 5.

4.17 Ethical considerations

Ethics in research are of high eminence in all social science-based research at each stage of planning, designing, executing, and reporting processes involving human participants (Creswell and Creswell, 2018). Ethics ensure against harm and adverse consequences that could emanate from research activities (Creswell and Creswell, 2018). The following ethical considerations were observed and complied with to the fullest ability of the researcher.

4.17.1 Informed consent

Informed consent implies full awareness by participants in the nature of the research as well as the choice to take part in the research (Creswell and Creswell, 2018). Participants were not coerced in any way nor forced to take part in any action. All participants were provided with clear and accurate information about the study and any possible risks. The participants' rights within the study were fully highlighted so that they could withdraw from the study at any time if they wish. This is highlighted in the introduction on the attached questionnaire in Appendix 1. Utmost confidentiality was applied to the results; moreover, the results will only be provided to the participants' company only, internally and on request. Compliance with this provision was honored and fulfilled through an ethical clearance from GIBS through the Ethics Clearance Committee which is attached in Appendix 2.

4.17.2 Protection from harm and the right to privacy

The study did not subject any participant to any manner of physical harm or mental discomfort. The contents as well as any recommendations made from the research, may only be given to the participating organisation. Only voluntary participation was considered. Moreover, none of the information obtained from the study will be attributed to any particular persons. The questionnaire design and handling guaranteed anonymity to enhance honesty of responses as no names or personal identifiers were requested (see Creswell and Creswell, 2018).

4.18 Limitations Of Methodology

The study's primary limitation concerns the population, the sample and the sampling technique applied. The population of targets was limited to Zimbabwean firms that were registered with SME member groups cited in Sections 6 and 7. This admittedly imposes certain limitations on the generalizability of the results across other jurisdictions.

Although the researcher made efforts to minimize CMB and CI that are endemic to cross-sectional studies, the researcher notes that interpreting the results through the concurrent measurement of variables is subject to shortfalls in the importance of directional influences (see, MacCallum and Austin, 2000). This condition leads the researcher to concede that the attained results do not necessarily prove causality.

Additionally, the understanding of the proposed analytical technique, PLS-SEM, is limited as at present day. Conceptualisations from past studies have mainly drawn on common-factor methods and thus have received widespread development and reviews. Similar to reflective measures, PLS-SEM also derives the meaning of formative measures in no small degree on a construct's position. The meaning emanates from where a construct is positioned in the

model (Aguirre-Urreta, Rönkkö, & Marakas, 2016), implying the dependence of indicator weights on the embedded context in the path model, therefore, may bias the outcome of the study.

4.19 Conclusion

The work in this chapter has described the methodological considerations and processes the researcher undertook in collecting and analysing data to afford the dispensation of sought-after answers to the research questions. The methodology was informed by the CR's abductive explanatory philosophy, its attendant retroduction epistemological assumptions, and the causal etiological assumptions in which CLT and DSC's interaction was posited to result in OA. This led to constructing a MIMIC measurement framework in which CLT and DSC were formatively specified while OA was reflectively specified. The SME sector was chosen as the population from which 24 firms ethically consented to provide responses. The development of the MIMIC model consequently motivated PLS-SEM's choice as the most appropriate data analysis technique, by which the measurement model and construct relationship assessments were conducted. Given that the data gathering, curation and the analytical procedures on the measurement models confirmed the instruments' reliability and consistency attributes, conclusive tests on the collected data were carried out, of which the results are presented in Chapter 5 that ensues.

5. Chapter 5: Results and Data Analysis

5.1 Introduction

This Chapter provides an illustration of the study's results. The chapter begins with a contextual illustration of the sample set's characterisation and the collected data through descriptive statistics. This is followed by a report on statistical analyses which interrogated the constructs developed from the literature as the conceptual and theoretical frameworks. The final presentation addresses the research questions tendered in Chapter 3. The study aimed to explain the nature of the relationship between CL and OA under DSC contexts. The research problem was to explain whether and to what extent CL influences OA in DSC contexts. The overarching aim of the data analyses was thus to confirm or disconfirm the hypothesised construct relationships.

5.2 Sample Data Descriptive Characterisation

5.2.1 Raw Sample Size and Response Rate

The initial target sample for this study was N=150. Extensive attempts were made to gain a larger sample; however, due to the limited population of consenting firms conflated with the cross-sectional limitations imposed on the study, a larger sample proved a significant hurdle to obtain. Of the 495 respondents who received invitations to participate, 132 started the survey, and 128 passed the screening question to complete the survey subsequently. Table 8 offers an illustration of the audience size and responses rate.

Table 8 Response rate on the final sample

Distribution Channel	Audience Size	Surveys Started	Responses Completed	Response Rate	Completion Rate
QR Code	N/A	N/A	2	N/A	N/A
Invite Over Email	495	132	126	26.70%	91.68%

The table shows that the final sample returned a 91.68% completion rate and a 26.67% response rate. Fricker (2008) contents that the average rate of online surveys is 15%-30%. Therefore, the response rate of 26.67% was considered sufficient for this study, thus, further analysis was carried out.

5.2.2 Final Data Sample

Of the 128 responses, two surveys had missing information in more than 15% of the fields. Though data imputation recommendations by Kock (2018) could have been conducted, the

researcher considered that there was no need to impute the data from these two surveys responses since the threshold of a minimum sample size of 50 (Ringle et al,2012; Hair et al. 2017, p.118) had already been achieved. Therefore, the researcher consequently expunged these two responses culminating in a final sample of N=126.

5.2.3 Normality Of Data

This study considered CLT and DSC as formative constructs while OA was specified as a reflective construct in the MIMIC theoretical model presented in Chapter 4. Normality, a necessity in Likert scale data, is reflected by Skewness, which confers the symmetrical distribution of data and Kurtosis, which measures the 'peakedness' of the distribution (Hair et al., 2010). Hair et al. (2010) recommends for distribution skewness and kurtosis to range -2.58 and +2.58 for data to be accepted as having normal univariate distribution characteristics. Table 9 presents the attained values for the normality tests performed on the variables' obtained data.

Table 9 Normality Test Output for all constructs (variables)

Descriptive Statistics					
Variable	**N**	**Skewness**		**Kurtosis**	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
EntreLead	126	-0.887	0.216	0.466	0.428
OpLead	126	-0.350	0.216	-0.088	0.428
EnableLead	126	-0.682	0.216	1.074	0.428
OrgAdap	126	-0.946	0.216	1.804	0.428
ModDsc	126	-0.125	0.216	-0.778	0.428
Valid N (Listwise)	126				

From the displayed results, all that constructs returned values within the critical threshold of -2.58 and +2.58. Therefore, this conferred the normality assumption, justifying further analysis.

5.2.4 Respondents and Organisations Descriptive Characteristics

Biographic and demographic variables such as age and organisation, functional unit and location were used to characterise and profile respondents.

5.2.5 Respondents Age

Respondents age statistics are displayed in Table 10, which shows that the respondents' minimum age was 27 years, and the maximum age was 62 years. The mean age of respondents was 41 years old.

Table 10 Age Demographics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Age	126	27	62	40.62	7.083	.312	.216
Valid N (listwise)	126						

5.2.6 Organisations Represented.

A total of 24 different organisations participated in the research. The attained statistics in Table 11 show the frequencies of respondents from each category of organisations they represented.

Table 11 Organisation's industry category and total respondents from each

Core_Bus		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agriculture, Fishery, Forestry	4	3.2	3.2	3.2
	Mining Industry	5	4.0	4.0	7.1
	Manufacturing, Industry, Commerce	11	8.7	8.7	15.9
	Energy, Electricity, Gas, and Water supply	3	2.4	2.4	18.3
	Construction & Road Works	2	1.6	1.6	19.8
	Wholesale and Retail Trade	2	1.6	1.6	21.4
	Information and Communication Technology	29	23.0	23.0	44.4
	Finance, Insurance, Real Estate	32	25.4	25.4	69.8
	Travel & Tourism, Hotel, Restaurant	2	1.6	1.6	71.4
	Security Services	1	.8	.8	72.2
	Accounting and Professional Business Services	8	6.3	6.3	78.6
	Shipping, Transportation and Freight Logistics	3	2.4	2.4	81.0
	Education and Training	7	5.6	5.6	86.5
	Media and Entertainment	1	.8	.8	87.3

	Healthcare & Pharmaceuticals	10	7.9	7.9	95.2
	Motor Industry	2	1.6	1.6	96.8
	MNO and ISP	3	2.4	2.4	99.2
	Regulator and Professional Body	1	.8	.8	100.0
	Total	126	100.0	100.0	

The displayed results show that the most respondents (32) were from Finance, Insurance and Real Estate industry, followed by Information and Communication Technology Industry with 29, cumulatively representing 48.42% of the total sample while manufacturing, Industry and Commerce contributed the 3rd highest respondents, (n=11, 8.73%).

5.2.7 Countries In Which Firms Are Headquartered

Table 12 elucidates that 86.5% of the firms that provided respondents had their headquarters in Zimbabwe, 4% in Europe and the rest from other jurisdictions.

Table 12 Firm's headquarter country.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Zimbabwe	109	86.5	86.5	86.5
	South Africa	2	1.6	1.6	88.1
	SADC	2	1.6	1.6	89.7
	EMEA	1	.8	.8	90.5
	Europe	5	4.0	4.0	94.4
	USA	2	1.6	1.6	96.0
	Other	5	4.0	4.0	100.0
	Total	126	100.0	100.0	

5.2.8 Respondent Functional Area

The sample offered multiple respondents from various functional departments as shown in Table 13.

Table 13 Functional Departments Represented

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sales & Marketing	15	11.9	11.9	11.9
	Finance, Treasury & Accounting	21	16.7	16.7	28.6
	Operations	14	11.1	11.1	39.7
	Engineering or Technical	7	5.6	5.6	45.2
	Business Development and Strategy	17	13.5	13.5	58.7
	ICT & Digital Office	25	19.8	19.8	78.6
	General Management, Legal, Strategy	15	11.9	11.9	90.5
	Human Resource Management & Development	4	3.2	3.2	93.7
	Audit, Risk, Compliance	5	4.0	4.0	97.6
	Other Support Services	3	2.4	2.4	100.0
	Total	126	100.0	100.0	

The data shows that most respondents (n=25) were from the ICT and Digital Office department, followed by Finance, Treasury and Accounting (n=21). Business Development and Strategy provided the third-largest number (n=17) of respondents, cumulatively representing 50% of the sample.

5.2.9 Respondent Position or Seniority in the Organisation

This variable considered the potential and relative level of respondents' exposure to the CLT phenomenon within their firms and the statistic is offered in Table 14.

Table 14 Respondent position in the firm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Senior Manager or Executive	65	51.6	51.6	51.6
	Middle Manager	36	28.6	28.6	80.2
	Entry-Level Manager (e.g. supervisor	11	8.7	8.7	88.9
	Professional Specialist	13	10.3	10.3	99.2
	Other	1	.8	.8	100.0
	Total	126	100.0	100.0	

The data illustrates a relatively senior representation of Senior Manager or Executive level in the sample (n=65, 51.6%), while N=36, 28.6% of the sample was middle management, resulting in a

cumulative sample representation of 80.2%. The researcher expected this as the criteria at the sampling phase requested for respondents within management positions who were adjudged to possess a more nuanced appreciation of the CLT leadership phenomenon.

5.3 Construct Summary Descriptive Statistics

All constructs were based on the Likert scale (1-5) responses, the outcomes of which are displayed in Table 15 which shows that ENALEAD returned the highest mean at μ=4.39, while OA had the lowest mean at μ=2.85, a lower average, suggesting most respondents rated their firms' OA as average.

Table 15 Summary -Construct Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
EntrLead	126	2.05	5.52	4.2372	.73679
OpLead	126	2.45	5.09	3.9597	.58245
Enablead	126	1.67	5.64	4.3950	.69693
OrgAdap	126	1.20	3.81	2.8459	.46411
Modsc	126	2.78	5.66	4.3869	.74271
Valid N (listwise)	126				

5.3 Assessment Of Constructs

This area discusses the results and analysis of the construct assessment using PLS-SEM. PLS-SEM has been recommended in estimating complex models as its assumptions do not impose stringent distributional assumptions on the data (Hair et al., 2019). The foremost advantage in the use of PLS-SEM arises from the capability to incorporate measurement error in the observed variables, unlike ordinary least squares regression, particularly when the theoretical model has interaction (moderator and mediator) terms (Aguinis et al., 2017). PLS-SEM explicitly overcomes the dichotomy between explanation and prediction against which managerial implications are developed (Hair et al., 2019), a key consideration earlier discussed in the CR philosophical choice.

The MIMIC model presented in Chapter 4 specified the constructs as formative and reflective. Therefore, the constructs were assessed accordingly (reflectively and formatively) by applying the recommendations and approaches advanced by Hair et al. (2019). The assessment was done in three stages as described in Chapter 4. The first stage examined the measurement model (the outer model). Once the measurement model satisfied the required criteria, the second stage assessed the structural model (the inner model). Following Hair et al.'s (2017a) exhibit, the final

stage involved running relevant robustness checks to validate and support results' stability. The conceptual framework and the MIMIC theoretical measurement model are summarised in Table 16 for reference.

Table 16 Construct and indicator measurement framework.

Complexity Leadership Theory Construct - Independent Variable	
Sub Construct (Coding)	**Measurement Model**
Operational Leadership (OpLead)	Formative
Entrepreneurial Leadership (EntreLead)	Formative
Enabling Leadership (EnableLead)	Formative
Dramatic Social Change Construct - Independent Moderator Variable	
Dramatic Social Change (ModDsc)	Formative
Organisational Adaptability - Dependent Variable	
Organisational Adaptability (OrgAdap)	Reflective

5.4 Assessing The Measurement Model (Outer Model)

The results of the assessments are presented according to the reflective model and the formative model specifications as follows:

5.4.1 Assessing Reflective Measurement Model - Organisational Adaptability

5.4.1.1 Indicator Loadings

Table 17 illustrates the model's final obtained indicator loadings for OA.

Table 17 Final Indicator loadings for Organisational Adaptability

Indicator Loadings -Organisational Adaptability	
OrgAdap_1	0.684
OrgAdap_2	0.702
OrgAdap_3	0.643
OrgAdap_4	0.791
OrgAdap_5	0.768
OrgAdap_6	0.660
OrgAdap_8	0.736
OrgAdap_10	0.710
OrgAdap_11	0.744
OrgAdap_12	0.683
OrgAdap_13	0.753
OrgAdap_14	0.781

The loadings for all construct's items were greater than the threshold of 0.501setout it in Chapter 4; therefore, further analysis was performed.

5.4.1.2 Internal Consistency

The internal consistency was measured using the method recommended by Jöreskog (1971), where the composite reliability method considers weighted indicators. It was conflated with the Cronbach's (1951) alpha, the measure of unweighted indicators, and Rho_A (Dijkstra and Henseler, 2015), that more closely approximates the construct reliability. Table 18 denotes the attained internal consistency values for OA.

Table 18 Reliability Values for OrgAdapt (Organisational Adaptability).

	Cronbach's Alpha (α)	Joreskog's Composite Reliability (CR)	Dijkstra-Henseler's rho_A
OrgAdapt	0.928	0.936	0.937

Base on Hair et al.'s (2019) suggested threshold of α between 0.6 to 0.7 being acceptable in exploratory studies while 0.7 to 0.9 being considered satisfactory to good, Table 5.9 clearly shows that the Composite Reliability for OA (OrgAdapt) measure at (CR= 0.936> 0.7 and (Rho_A = 0.937 > 0.7) was satisfactory, the measurement model for OA was confirmed to have consistency, and therefore further analysis was conducted.

5.4.1.3 Convergent Validity

Convergent validity is used to characterise the extent to which the construct converges to explain the variance of its factors is indicated through the average variance extracted (AVE), which should be greater than 0.5 (Hair et al., 2019, p.9). An illustration of the attained values for AVE is offered in Table 19.

Table 19 Convergent Validity Test of AVE

	Cronbach's Alpha (α)	Joreskog's Composite Reliability (CR)	Dijkstra-Henseler's rho_A	Average Variance Extracted
OrgAdapt	0.928	0.936	0.937	0.578

The output indicates that the AVE = 0.578 > 0.5, therefore the measurement model for OA has convergent validity, warranting further analysis.

5.4.1.4 Discriminant Validity

The study applied the Henseler et al.'s (2015) heterotrait-monotrait (HTMT) ratio of correlations with bootstrapping at 5000 resamples, set at the upper limit of under 0.85-0.9, as described in Chapter 4. Discriminant validity is acceptable when correlations among a distinctive latent variable, and those of other latent variables achieve lower communality measures within the network (Kock, 2015). The attained values for all constructs: OA, OPLEAD, ENTLEAD, ENALEAD, DSC, are displayed in Table 20.

Table 20 Organisational Adaptability discriminant validity results

	EnableLead	Entrelead	Modsc	Oplead	OrgAdap
EnableLead					
EntrLead	0.761				
ModDsc	0.436	0.492			
OpLead	0.78	0.815	0.353		
OrgAdap	0.602	0.672	0.516	0.603	

The attained HTMT results confirm discriminant validity for OA against ENALEAD, ENTLEAD, DSC and OPLEAD (HTMT=0.602, 0.672, 0.516, 0.603 < 0.85) respectively. It should be noted that this same test is the same one used to assess the formative measures (Henseler et al., 2015). Therefore, this assessment confirmed that the whole outer measurement model did not have problematic discriminant validity issues implying further inquiry.

5.4.2 Assessing Formative Measurement Model – Operational Leadership, Entrepreneurial Leadership, Enabling Leadership and Dramatic Social Change

Following Hair et al. (2019) as well as Hair et al. (2017a) the threshold for relevance is measured through the t-test, being $t > 1.96$; while the significance threshold is measured through the p-value, being $p < 0.05$ (Hair et al., 2019; Hair et al., 2017a).

5.4.2.1 Convergent Validity

Chin' (1998) redundancy analysis procedure was executed, being guided by Cheah et al.'s (2018) single item global measures as well as Hair et al.'s (2017) suggested formative measurement correlation threshold of 0.7. The standardised loadings for all indicators shown in Table 21 met the criteria to be accepted for further analysis. Convergent Validity is accepted confirmed when the indicators strongly load on their corresponding latent variables (Kock, 2015).

Table 21 Redundancy analysis for convergent validity for endogenous independent variables.

Item	EnableLead	Entrelead	Modsc	Oplead
EnabLead_1	0.792			
EnabLead_10	0.717			
EnabLead_11	0.794			
EnabLead_12	0.702			
EnabLead_13	0.781			
EnabLead_19	0.742			
EnabLead_2	0.775			
EnabLead_20	0.706			
EnabLead_21	0.780			
EnabLead_22	0.821			
EnabLead_6	0.743			
EnabLead_7	0.759			
EnabLead_8	0.798			
EntrLead_1		0.719		
EntrLead_14		0.813		
EntrLead_15		0.763		
EntrLead_16		0.757		
EntrLead_18		0.729		
EntrLead_19		0.797		
EntrLead_2		0.796		
EntrLead_7		0.775		
ModDSC_1			0.712	
ModDSC_2			0.710	
ModDSC_4			0.715	
ModDSC_5			0.743	
ModDSC_6			0.729	
ModDSC_7			0.785	
ModDSC_8			0.811	
ModDSC_9			0.768	
OpLead_11				0.783
OpLead_12				0.781
OpLead_13				0.727
OpLead_14				0.732

OpLead_15	0.755
OpLead_16	0.712
OpLead_17	0.735
OpLead_3	0.737
OpLead_4	0.724
OpLead_5	0.718
OpLead_7	0.703
OpLead_8	0.771
OpLead_9	0.705

Additionally, Table 5.22 below displays the AVE for each of the constructs, which shows that all values were greater than the minimum limit of 0.5. This evidence confirmed reasonable and acceptable convergent validity for each construct, therefore lending further analysis.

Table 22 Variance Extracted for Endogenous Independent Variables.

	Average Variance Extracted
EnableLead	0.560
EntrLead	0.578
ModDsc	0.504
OpLead	0.552

5.4.2.2 Indicator Multicollinearity

Variance Inflation Factor (VIF), a measure of the correlation of one independent variable with a group of other variables, is often used to measure multicollinearity of formative indicators (Hair et al., 2019). The full collinearity test procedure (Kock, 2015; Kock and Lynn, 2012), is important in determining potential spurious correlations among indicators caused by common method bias resulting from the measurement method and implicit social desirability driven by responses from respondents. For formatively modelled constructs, values of 5 or higher and values below 0.2 indicate critical multicollinearity issues (Hair et al., 2019). Table 23 displays the multicollinearity values attained for the indicators per each construct in the measurement model.

Table 23 Variance Inflation Factor (VIF) values for all reflective measurements.

	EnableLead	Entrelead	ModDsc	Oplead
EnabLead_1	2.61			
EnabLead_10	1.993			
EnabLead_11	2.653			
EnabLead_12	1.847			
EnabLead_13	1.944			
EnabLead_19	2.375			
EnabLead_2	2.475			
EnabLead_20	1.933			
EnabLead_21	2.685			
EnabLead_22	3.504			
EnabLead_6	3.177			
EnabLead_7	2.626			
EnabLead_8	3.152			
EntrLead_1		2.220		
EntrLead_14		2.594		
EntrLead_15		2.508		
EntrLead_16		2.501		
EntrLead_18		2.573		
EntrLead_19		2.872		
EntrLead_2		2.426		
EntrLead_7		2.317		
ModDSC_1			1.360	
ModDSC_2			1.645	
ModDSC_4			1.892	
ModDSC_5			1.840	
ModDSC_6			2.244	
ModDSC_7			1.647	
ModDSC_8			2.086	
ModDSC_9			1.750	
OpLead_11				2.610
OpLead_12				2.128
OpLead_13				2.504
OpLead_14				2.633

OpLead_15	2.476
OpLead_16	2.754
OpLead_17	2.728
OpLead_3	1.828
OpLead_4	1.430
OpLead_5	2.315
OpLead_7	2.290
OpLead_8	3.050
OpLead_9	2.624

The outlay indicates that all the VIF values were 0.2 < VIF < 5. Resultantly, the measurement model for the formatively specified constructs in the MIMIC model (Criterion Variables: OPLEAD, ENTLEAD, ENALEAD and DSC) were devoid of critical and problematic multicollinearity issues; thus further analysis was necessary.

5.4.2.3 Indicator Weights and Statistical Significance

As a nonparametric method, PLS-SEM utilises bootstrapping to establish statistical significance (Chin, 1998). Hair et al.'s (2017a) BCa was used to test significance as described in Chapter 4 and following (Hair et al., 2019, p.10). Indicators were examined for weight, significance and relevance within the standardised values between -1 and +1 as per Hair et al.'s (2019, p.11) recommended classifications. The attained results are illustrated in Table 24.

Table 24 Formative measures relevance and significance of attained values.

Item	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
EnabLead_1 <- EnableLead	0.081	0.08	0.009	8.981	0
EnabLead_10 <- EnableLead	0.066	0.065	0.007	9.111	0
EnabLead_11 <- EnableLead	0.067	0.068	0.009	7.659	0
EnabLead_12 <- EnableLead	0.058	0.059	0.011	5.109	0
EnabLead_13 <- EnableLead	0.059	0.06	0.011	5.558	0
EnabLead_14 <- EnableLead	0.041	0.041	0.011	3.756	0
EnabLead_16 <- EnableLead	0.079	0.078	0.01	8.120	0
EnabLead_17 <- EnableLead	0.05	0.05	0.011	4.550	0
EnabLead_18 <- EnableLead	0.055	0.055	0.01	5.611	0
EnabLead_19 <- EnableLead	0.065	0.065	0.009	7.193	0
EnabLead_2 <- EnableLead	0.075	0.075	0.007	10.137	0
EnabLead_20 <- EnableLead	0.081	0.081	0.011	7.351	0
EnabLead_21 <- EnableLead	0.072	0.072	0.011	6.431	0
EnabLead_22 <- EnableLead	0.065	0.066	0.008	8.617	0
EnabLead_23 <- EnableLead	0.033	0.033	0.01	3.254	0.001
EnabLead_3 <- EnableLead	0.078	0.078	0.009	8.940	0
EnabLead_4 <- EnableLead	0.065	0.065	0.008	8.492	0
EnabLead_5 <- EnableLead	0.058	0.059	0.01	5.871	0
EnabLead_6 <- EnableLead	0.058	0.058	0.009	6.716	0
EnabLead_7 <- EnableLead	0.057	0.056	0.009	6.097	0
EnabLead_8 <- EnableLead	0.064	0.064	0.009	7.381	0
EnabLead_9 <- EnableLead	0.055	0.055	0.01	5.496	0
EntrLead_1 <- Entrelead	0.106	0.105	0.013	7.960	0
EntrLead_12 <- Entrelead	0.095	0.094	0.012	8.221	0
EntrLead_11 <- Entrelead	0.108	0.108	0.013	1.540	0.133
EntrLead_10 <- Entrelead	0.101	0.092	0.016	1.585	0.113
EntrLead_14 <- Entrelead	0.122	0.122	0.012	9.990	0
EntrLead_15 <- Entrelead	0.098	0.098	0.011	9.104	0
EntrLead_16 <- Entrelead	0.102	0.102	0.015	6.998	0
EntrLead_17 <- Entrelead	0.081	0.081	0.014	5.872	0
EntrLead_18 <- Entrelead	0.105	0.103	0.013	7.854	0

EntrLead_19 <- Entrelead	0.099	0.098	0.013	7.791	0
EntrLead_2 <- Entrelead	0.109	0.109	0.015	7.412	0
EntrLead_3 <- Entrelead	0.068	0.068	0.014	4.778	0
EntrLead_4 <- Entrelead	0.07	0.071	0.015	4.495	0
EntrLead_5 <- Entrelead	0.038	0.036	0.018	2.100	0.036
EntrLead_7 <- Entrelead	0.088	0.088	0.01	9.002	0
EntrLead_6 <- Entrelead	0.118	0.108	0.069	1.406	0.15
EntrLead_8 <- Entrelead	0.083	0.082	0.013	6.187	0
EntrLead_9 <- Entrelead	0.084	0.083	0.015	5.462	0
ModDSC_1 <- Modsc	0.112	0.107	0.065	1.718	0.086
ModDSC_2 <- Modsc	0.164	0.158	0.068	2.391	0.017
ModDSC_4 <- Modsc	0.113	0.109	0.069	1.643	0.101
ModDSC_5 <- Modsc	0.118	0.112	0.061	1.918	0.055
ModDSC_6 <- Modsc	0.046	0.044	0.073	0.629	0.53
ModDSC_7 <- Modsc	0.311	0.309	0.073	4.274	0
ModDSC_8 <- Modsc	0.265	0.257	0.053	4.974	0
ModDSC_9 <- Modsc	0.277	0.27	0.067	4.142	0
OpLead_10 <- Oplead	0.084	0.083	0.011	7.781	0
OpLead_11 <- Oplead	0.095	0.095	0.013	7.278	0
OpLead_12 <- Oplead	0.091	0.091	0.017	5.369	0
OpLead_13 <- Oplead	0.077	0.077	0.016	4.853	0
OpLead_14 <- Oplead	0.07	0.07	0.015	4.554	0
OpLead_15 <- Oplead	0.078	0.077	0.015	5.066	0
OpLead_16 <- Oplead	0.082	0.083	0.015	5.552	0
OpLead_17 <- Oplead	0.104	0.104	0.014	7.358	0
OpLead_2 <- Oplead	0.07	0.069	0.014	5.040	0
OpLead_3 <- Oplead	0.074	0.073	0.017	4.509	0
OpLead_4 <- Oplead	0.083	0.082	0.018	4.701	0
OpLead_5 <- Oplead	0.095	0.094	0.016	5.754	0
OpLead_6 <- Oplead	0.111	0.111	0.017	6.583	0
OpLead_7 <- Oplead	0.096	0.097	0.018	5.333	0
OpLead_8 <- Oplead	0.119	0.118	0.015	7.759	0
OpLead_9 <- Oplead	0.071	0.07	0.016	4.458	0

The data illustrates that in the formative construct measurement model, three items under ENTLEAD (EntrLead_6: t=1.406, p=0.15, EntrLead_10: t=1.540, p=0.133, EntreLead_11: t=1.585, p=0.113) and two items under the moderator DSC (ModDsc_4: t=1.679, p=0.093 and ModDsc_6: t=0.613, p=0.54) did not meet the criteria for relevance and significance and were thus expunged in the subsequent procedures. All these are highlighted in yellow. Now that the rest of all the items in the model met the relevance criteria, $t > 1.96$, and the significance criteria, $p < 0.05$, further assessment was conducted.

5.5 Assessing The Structural Model (Inner Model)

This assessment constituted the second stage of the analysis. The standard assessment criteria for PLS-SEM involves assessing construct multicollinearity, coefficient of determination R^2, (the model's explanatory power); the redundancy measure Q^2 (the model's predictive power through blindfolding-based cross-validation). Statistical significance (p-value) and relevance (t-value) form an integral part of the assessment of the structural model's path coefficients, and so is establishing the effect sizes (f^2) of each predictor (Hair et al., 2019).

5.5.1 Assessing Construct Multicollinearity

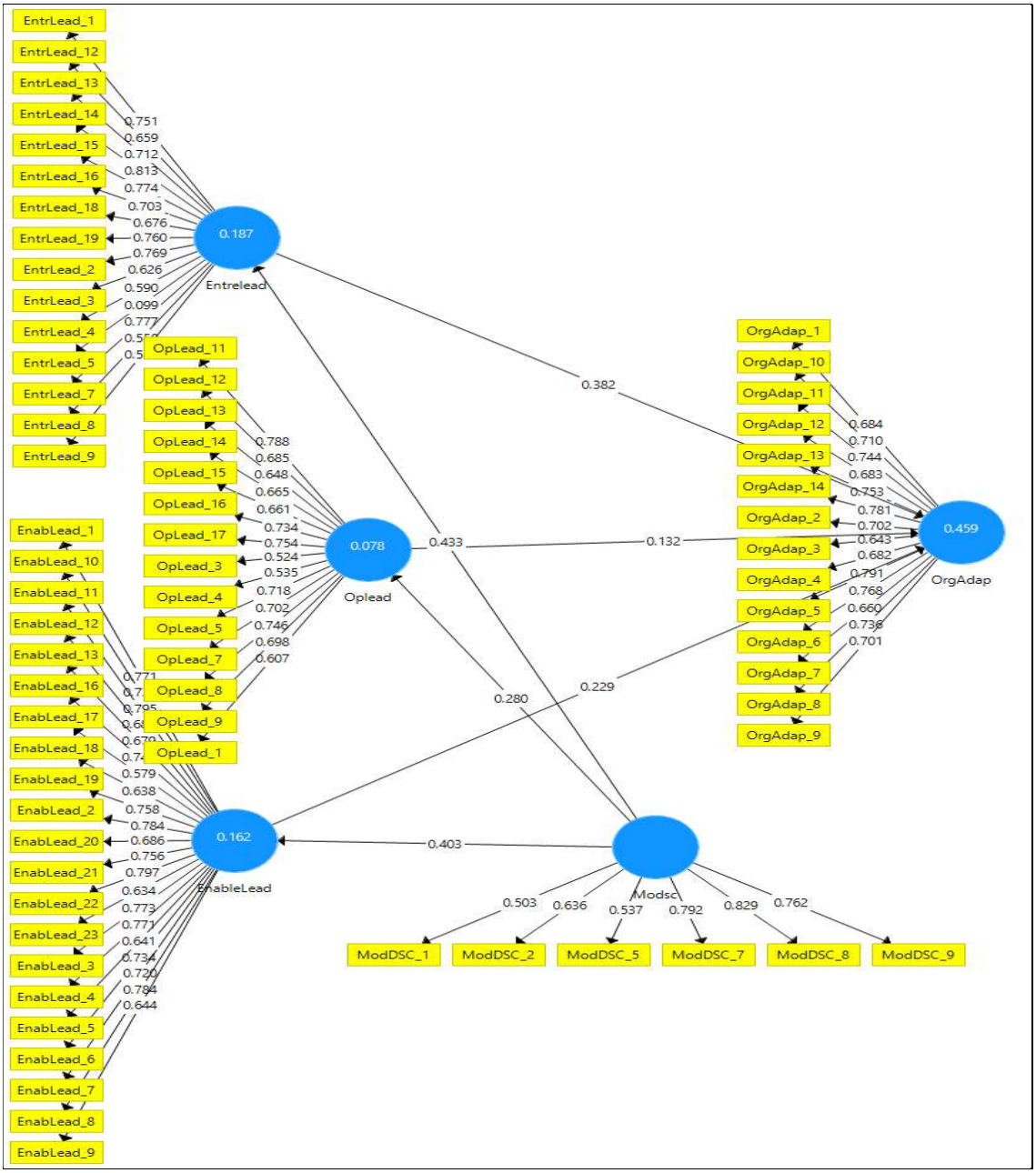
Construct multicollinearity needs to be examined to eliminate bias on the regression results though common method biases (Hair et al., 2019; Kock, 2015). This is similarly achieved by using the full collinearity test procedure's VIF concept, where VIF should be 0.2 <VIF<-5, most preferably close to 3 (Hair et al., 2019, p.11). Table 25 displays the attained VIF results of the structural (inner) model. Construct VIF

Table 25 Construct VIF Output

Formative Construct	Variance Inflation Factor (VIF)
EnableLead	2.437
EntrLead	2.656
OpLead	2.774
ModDsc	1.050

The attained results all fell within the recommended range, suggesting that construct multicollinearity was not a problem in the model, therefore necessitating further assessment. Figure 5 depicts the visual representation of the PLS-SEM output obtained through various procedures further carried out. Further discussion will refer to Figure 5 in relevant instances.

Figure 5 SEM OUTPUT



5.5.2 Assessing R^2 -Total Variance

The R^2-test is a measure of the model's in-sample predictive power (Rigdon, 2012; Hair et al.,2019, p.11); it measures the **total (not common)** variance. Therefore, it establishes a model's explanatory power (Shmueli and Koppius, 2011) by accounting for the total variance. Thresholds are such that 0.75 =satisfactory, 0.5 =moderate and 0.25=weak (Hair et al., 2011). Table 26 provides an illustration of attained R^2 values.

Table 26 R^2 values for endogenous variables

	R Square	R Square Adjusted
EnableLead	0.162	0.155
Entrelead	0.187	0.181
Oplead	0.078	0.071

The attained adjusted R^2 values are all positive, with ENTLEAD showing the highest explanatory power at $R^2 = 0.181$ while ENALEAD ($R^2 = 0.155$) and OPLEAD ($R^2 = 0.071$). Even though all the are $R^2 < 0.25$, suggesting weak explanatory power, the model returned acceptable levels of in-sample explanatory power. However, according to Dolce et al. (2017) and Shmueli and Koppius (2011), this condition does not speak to the structural's out-of-sample predictive power. Since the model suggested explanatory power, it justified further analysis to ascertain its predictive power.

5.5.3 Assessing Q^2 -Predictive Accuracy

This metric assesses the structural model's predictive accuracy, where the researcher applied the blindfolding procedure (Rigdon, 2014; Sarstedt, Ringle, Smith, Reams, & Hair, 2014b). This procedure combines aspects of out-of-sample prediction and in-sample explanatory power (Shmueli et al., 2016; Sarstedt et al., 2017a). Q^2 thresholds were set at $Q^2 > 0$, small, $Q^2 > 0.25$, medium and $Q^2 > 0.5$, large. Table 27 denotes Q^2 predictive power for all endogenous constructs.

Table 27 Q^2 predictive power for all endogenous variables

	SSO	SSE	Q^2 (=1-SSE/SSO)
EnableLead	2646	2438.25	0.079
Entrelead	1890	1745.846	0.076
ModDsc	756	756	
Oplead	1764	1707.471	0.032

From the displayed results, all Q^2 values are positive with ENALEAD showing the highest, though weak predictive power ($Q^2 = 0.079 < 0.25$). Similarly, ENTLEAD returned predictive power ($Q^2 = 0.076 < 0.25$) confirming the model's predictive relevance, further substantiating a further needful significance test.

5.5.4 Assessing Statistical Significance and Relevance Of Path Coefficients

The penultimate procedure in the PLS-SEM involved assessing the significance and relevance of the path coefficients (β values) to establish the model's out-of-sample predictive power. This was achieved by running accelerated bootstrapping (BCa) and comparing the output against thresholds, typically ranging between -1 and +1 (see Nitzl, 2016). Further, the importance of performance map analysis (IPMA) established the total effects of the target constructs directly as

well as indirectly through the moderating construct as per Ringle and Sarstedt's (2016) recommendations. The beta path coefficients for the direct relationships and the indirect relationships are rendered in Tables 28 and 29, respectively.

Table 28 Hypothesis Verification Using Path coefficients, significance, and relevance - Direct Relationships.

Structural Path Direction	Path Coefficient Original Sample (O)	Path Coefficient Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (|O/STDEV|)	P Values	Decision
H1: Oplead -> OrgAdap	0.126	0.132	0.103	1.698	0.090	Not Supported
H2: Entrelead -> OrgAdap	0.355	0.382	0.090	3.949	0.000	Supported
H2: EnableLead -> OrgAdap	0.215	0.229	0.112	1.995	0.044	Supported

From this displayed outcome , the structural path, OpLead -> OrgAdap (β = 0.132), OPLEAD is positively linked to OA, but however the link has no relevance (t = 1.698 < 1.96) and no significance (p = 0.09 > 0.05) hence hypothesis H1 is therefore not supported. Meanwhile, ENTLEAD shows a positive, relevant, and significant link to OA (β = 0.382, p=0.000 < 0.05, t=3.949 > 1.96) which lends support to hypothesis H2. Equally, ENALEAD and OA are positively linked (β = 0.229, p=0.044 < 0.05, t=1.995 > 1.96), therefore lending support to hypothesis H3.

Further, Figure 5 and Table 28 elaborate that ENTLEAD elucidated 38.2% (β = 0.382) of OA variance. Meanwhile, ENALEAD explicated 22.9% (β = 0.229) of the variance in OA. While OPLEAD returned an explanatory and predictive level of 13.2% (β = 0.132), this explanatory power could not be attributable to ENALEAD alone due to the absence of significance and relevance.

5.6 Confirming Moderation Of Dramatic Social Change

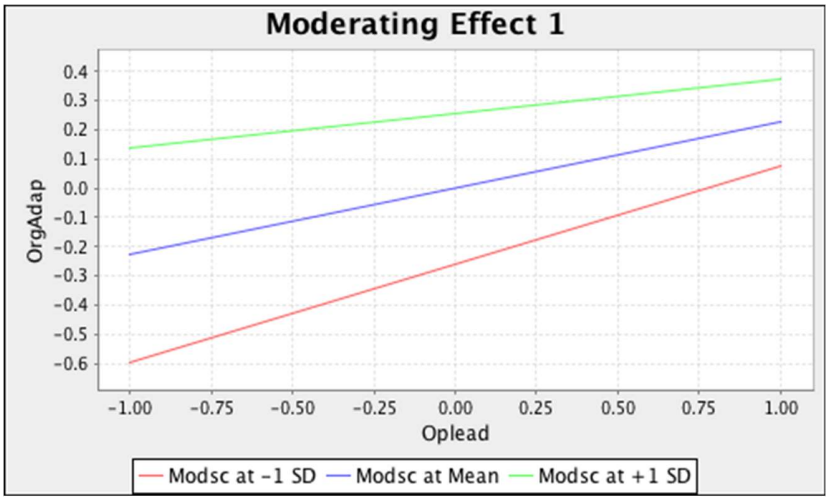
Part of the final procedures in assessing the model was the evaluation of the impact of DSC moderator. Accordingly, by following Nitzl (2016) as well as Ringle and Sarstedt (2016), indirect effects were computed using the BCa procedures. The moderation effects were hypothesised through Hypothesis H4 (H4.1, H4.2 and H4.3). Therefore the significance of these indirect effects and their relevance needed to be evaluated. Refer to Figure 5, as well as Table 29 below, which denotes the hypothesis verification using path coefficients, significance, and relevance of indirect relationships. The moderation effects are supplemented through the Simple Slopes illustrations in Figure 6 (H4.1), Figure 7 (H4.2) and Figure 8 (H4.3).

Table 29 Hypothesis Verification On Indirect Relationships

Structural Path Direction	Path Coefficient Original Sample (O)	Path Coefficient Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (|O/STDEV|)	P-Values	Decision
H4.1: Modsc -> Oplead	0.261	0.280	0.079	3.316	0.010	Supported
H4.2: Modsc -> Entrelead	0.402	0.433	0.057	7.528	0.000	Supported
H4.3: ModDsc -> EnableLead	0.382	0.403	0.065	5.575	0.000	Supported

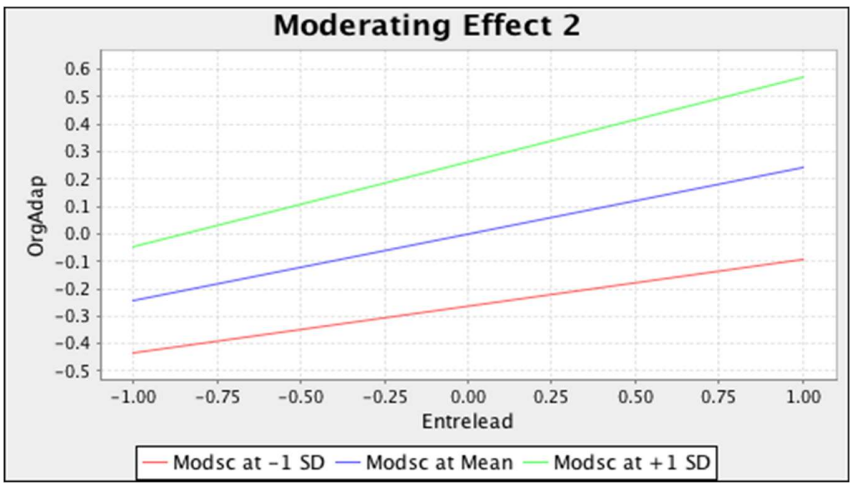
The results show that the indirect effects had significance and thus affirms the positive moderation of DSC in the link between CLT and OA. More critically and noteworthily, while the link between OPLEAD and OA was not significant directly, under moderation, the relationship is significant and relevant (β = 0.280, P=0.01 <0.05, t=3.316), hence hypothesis H4.1 is accepted. Figure 6 depicts the Simple Slopes test outcome form SmartPLS 3.0, which confirms that indeed the relationship varies at different levels of DSC.

Figure 6 Simple Slopes Output of Operational Leadership Moderation



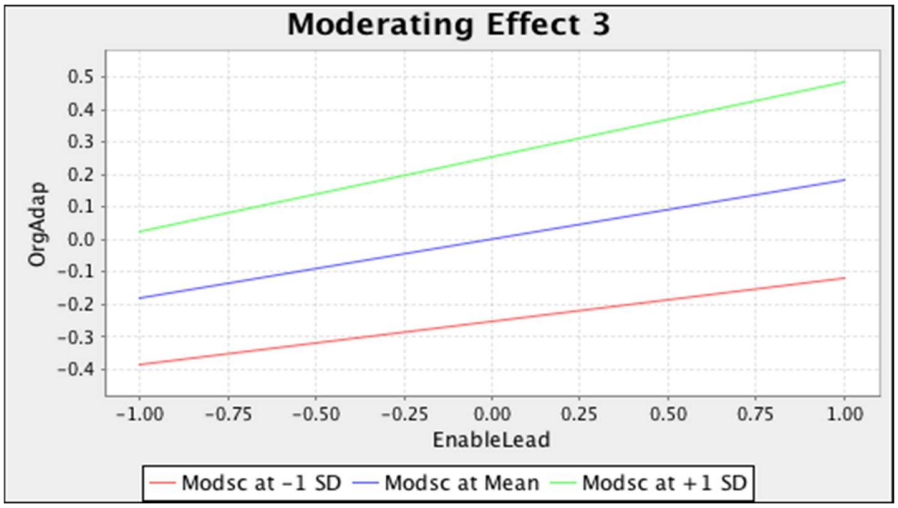
Further, DSC positively moderates the link between ENTLEAD and OA DSC (β = 0.433, p=0.000, t=7.528). As such, the indirect effects affirm hypothesis H4.2. Similarly, Figure 7 depicts the differential effects of DCS on the link between ENTLEAD and OA, confirming positive moderating effects.

Figure 7 Simple Slopes Output of Entrepreneurial Leadership Moderation



Additionally, the relationship between ENALEAD and OA returned (β = 0.403, p=0.000, t=5.575), confirming DSC's positive moderation, and therefore H4.3 is accepted. Figure 8 attests to these positive moderation effects by showing the positive slopes on the graphs while OA's outcome is seen to vary with a shift in DSC level.

Figure 8 Simple Slopes Output of Enabling Leadership Moderation



From these attained results, the explained variance by OPLEAD, ENTLEAD and ENALEAD on Organisational Leadership under DSC moderation is 28.0%, 43.3%, and 40.3% respectively.

5.7 Assessing Effect Sizes Of Constructs

As outcome affirmation, the f^2 test, which ascertains each predictor variable's effect size on the criterion variable (Hair et al., 2019), was computed with the results denoted in Table 30. The f^2 is important in identifying the rank order of an endogenous construct in the structural model in how much it explains a criterion construct (Hair et al. 2019, Nitzl, Roldán, & Cepeda (2016). As per

Nitzl et al. (2016), values under 0.02 are small, under 0.15 are medium and under 0.35 depict large effect sizes.

Table 30 Effect Sizes (f^2)

	EnableLead	Entrelead	Modsc	Oplead	OrgAdap
EnableLead					0.035
Entrelead					0.118
Modsc	0.194	0.23		0.085	
Oplead					0.012
OrgAdap					

The results show that the highest rank-order on the direct effects is ENTLEAD (f^2 =0.118 >0.15), a medium effect that further increases under moderation (f^2 =0.23 <0.35) explaining its prevalence on OA. Furthermore, ENALEAD has the second biggest, though small, effect size (f^2 =0.035 <0.15) when directly related to OA, while its effect size under DSC moderation significantly rises to medium effect size(f^2 =0.194>0.15), a similar effect as ENTLEAD. Lastly, OPLEAD returns small effect sizes in explaining OA, (f^2 =0.012 <0.15) directly, though rising significantly, yet still small effects under moderation (f^2 =0.085 <0.25).

Considering that the hypothesized positive moderation was affirmed, it was prudent to verify the results through robustness procedures whose outcomes are presented in the next section.

5.8 Assessing The Robustness Of the PLS-SEM Results

As guided through the CR philosophical assumptions and retroduction epistemology, this study's objective was to explain the relationship between CLT and OA. Consequently, explanatory power and predictive power were both necessary for the model. Therefore, the model's predictive relevance was assessed by applying the CTA (Sarstedt et al., 2019) and Ramsey's (1969) linear regression (LM). The procedures guide that the PLS-SEM results should have lower prediction error than the LM on the following criteria Root RMSE, MAE and MAPE (e.g., Gardner et al., 2017; Sarstedt et al., 2019; Shmueli et al., 2016). Table 31 represents an illustration of the PLS-SEM comparison to the LM error test results side by side.

Table 31 PLS-SEM versus LM Comparison Robustness Test Results

PLS- SEM Results				LM Results			
Indicator	**RMSE**	**MAE**	**MAPE**	**Indicator**	**RMSE**	**MAE**	**MAPE**
EnabLead_10	0.941	0.746	25.642	**EnabLead_10**	0.971	0.764	26.401
EnabLead_21	0.79	0.616	18.544	**EnabLead_21**	0.808	0.631	18.968
EnabLead_22	0.863	0.684	22.537	**EnabLead_22**	0.879	0.701	23.094
EnabLead_6	1.105	0.926	37.264	**EnabLead_6**	1.132	0.945	38.133

EnabLead_20	0.834	0.631	19.822	**EnabLead_20**	0.842	0.653	20.409
EnabLead_19	0.801	0.637	20.268	**EnabLead_19**	0.815	0.648	20.657
EnabLead_2	0.85	0.658	22.3	**EnabLead_2**	0.876	0.677	23.023
EnabLead_1	0.724	0.52	15.806	**EnabLead_1**	0.748	0.531	16.212
EnabLead_7	0.916	0.695	24.415	**EnabLead_7**	0.934	0.673	24.162
EnabLead_8	0.784	0.595	18.479	**EnabLead_8**	0.808	0.608	19.074
EnabLead_12	0.797	0.561	18.889	**EnabLead_12**	0.819	0.571	19.268
EnabLead_11	0.864	0.661	21.367	**EnabLead_11**	0.889	0.677	22.004
EnabLead_13	0.757	0.562	16.484	**EnabLead_13**	0.761	0.582	17.065
EntrLead_15	0.911	0.726	24.446	**EntrLead_15**	0.93	0.746	24.959
EntrLead_2	0.807	0.6	18.21	**EntrLead_2**	0.825	0.62	18.845
EntrLead_7	0.859	0.66	19.904	**EntrLead_7**	0.883	0.654	20.042
EntrLead_17	0.924	0.712	24.622	**EntrLead_17**	0.946	0.726	25.182
EntrLead_14	0.861	0.651	21.542	**EntrLead_14**	0.885	0.67	22.259
EntrLead_1	0.883	0.697	21.784	**EntrLead_1**	0.897	0.702	21.847
EntrLead_18	0.805	0.619	19.501	**EntrLead_18**	0.832	0.629	20.141
EntrLead_16	0.791	0.596	18.242	**EntrLead_16**	0.802	0.609	18.653
EntrLead_19	0.84	0.636	20.612	**EntrLead_19**	0.869	0.644	21.142
OpLead_16	0.859	0.697	22.24	**OpLead_16**	0.861	0.7	22.312
OpLead_4	0.809	0.567	17.307	**OpLead_4**	0.825	0.593	18.106
OpLead_3	0.662	0.524	13.504	**OpLead_3**	0.671	0.537	13.833
OpLead_14	0.814	0.635	19.258	**OpLead_14**	0.835	0.65	19.718
OpLead_13	0.787	0.562	17.862	**OpLead_13**	0.802	0.56	17.922
OpLead_7	0.841	0.634	19.539	**OpLead_7**	0.831	0.655	19.649
OpLead_1	0.671	0.511	14.48	**OpLead_1**	0.69	0.524	14.859
OpLead_12	0.856	0.678	23.337	**OpLead_12**	0.875	0.691	23.779
OpLead_9	0.774	0.648	21.101	**OpLead_9**	0.785	0.661	21.57
OpLead_11	0.888	0.724	23.561	**OpLead_11**	0.898	0.721	23.667
OpLead_8	0.828	0.628	19.431	**OpLead_8**	0.835	0.634	19.528
OpLead_15	1.074	0.917	34.278	**OpLead_15**	1.092	0.928	34.943
OpLead_17	0.851	0.663	22.265	**OpLead_17**	0.865	0.673	22.844
OpLead_5	0.76	0.575	16.243	**OpLead_5**	0.755	0.607	16.911
OrgAdap_13	0.9	0.744	27.067	**OrgAdap_13**	0.905	0.741	26.914
OrgAdap_3	0.831	0.621	19.43	**OrgAdap_3**	0.855	0.655	20.37
OrgAdap_14	0.786	0.609	18.756	**OrgAdap_14**	0.792	0.633	19.373
OrgAdap_10	0.952	0.797	27.57	**OrgAdap_10**	0.966	0.811	28.078
OrgAdap_7	0.688	0.572	17.903	**OrgAdap_7**	0.687	0.536	16.781
OrgAdap_4	0.919	0.702	25.279	**OrgAdap_4**	0.93	0.709	24.946
OrgAdap_1	0.752	0.56	19.005	**OrgAdap_1**	0.761	0.552	18.539
OrgAdap_5	0.795	0.642	23.391	**OrgAdap_5**	0.803	0.62	22.433
OrgAdap_6	0.796	0.639	20.347	**OrgAdap_6**	0.802	0.642	20.564
OrgAdap_2	0.732	0.575	18.853	**OrgAdap_2**	0.745	0.571	18.681
OrgAdap_15	1.074	0.844	40.705	**OrgAdap_15**	1.034	0.829	38.081
OrgAdap_12	0.945	0.787	29.353	**OrgAdap_12**	0.959	0.781	28.918
OrgAdap_11	0.981	0.813	31.689	**OrgAdap_11**	0.971	0.769	30.354
OrgAdap_9	0.862	0.699	23.055	**OrgAdap_9**	0.86	0.689	22.64
OrgAdap_8	0.931	0.78	25.743	**OrgAdap_8**	0.945	0.787	25.818

The PLS-SEM results from the model are seen to have lower prediction errors than the LM output. Therefore, following recommendations by (e.g., Gardner et al., 2017; Sarstedt et al.,2019; Shmueli et al., 2016), the model's results were confirmed to be robust. With the model robustness confirmed and veracity of the results assured, the next appropriate step is to address the research questions, which the next section discusses.

5.9 Answering The Research Questions

The first central research question is CL's role (as in, what is done by complexity leaders, why and how do they do it) whose impact chages OA's level. Notably, the sub-questions were motivated by the nature of CLT second-order constructs' influence on OA. The second research question sought to establish an understanding of how a DSC context moderated the relationship between CLT and OA. This section reports on the nature of these relationships along with describing how the second-order constructs impact OA. The section also reports on the nature of moderation by DSC on the relationships hypothesised in Chapter 3. As a basis for further discussion, the visuals of Figure 5, Figure 6, Figure 7, and Figure 8, together with Tables 28-30 are referred to.

5.9.1 Answering Research Question 1.1

The first research question considered the nature of the relationship between OPLEAD and OA. This was done through H1, which predicted the presence of a positive relationship between OPLEAD and OA.

As presented in Table 28, although a weak relationship ($\beta = 0.132 < 0.25$) exists, the relationship has no relevance ($t = 1.698 < 1.96$) and no significance ($p = 0.09 > 0.05$). Given this outcome, the researcher fails to reject the null hypothesis, implying that in the model, an increase in OPLEAD fails to significantly explain variance in OA.

5.9.2 Answering Research Question 1.2

The second research question was concerned with the nature of the relationship between ENTLEAD and OA against which H2 posited the presence of a positive relationship between these constructs. Table 28 shows the existence of a moderate relationship ($\beta = 0.382 > 0.25$) which is relevant ($t = 3.949 > 1.96$) and significant ($p = 0.000 < 0.05$). As such, the researcher rejects the null hypothesis. This implies an increase in ENTLEAD has a direct positive significance and prominently explains 38.2% of the variance in OA.

5.9.3 Answering Research Question 1.3

On the third research question, the nature of the relationship between ENALEAD and OA was sought through H3, and it was presupposed that there exists a positive relationship between ENALEAD and OA. Regarding the relationship, it is shown through Table 28 that a weak relationship ($\beta = 0.229 < 0.25$) which is relevant ($t = 1.995 > 1.96$) and significant ($p = 0.044 < 0.05$) exists. On this basis, the researcher rejects the null hypothesis, signifying that, an accentuation of ENALEAD explains 22.9% of the increase in OA.

5.9.4 Answering Research Question 2.1

This question contemplated the nature of the association between OPLEAD and OA as being moderated by DSC and did so through H4.1. It was conjectured that in the presence of a DSC context, there would be a positive increase in the levels of OPLEAD. As can be observed from Table 29, the path coefficient increased to ($\beta = 0.280 > 0.25$) suggesting an enhancing moderate moderation that is relevant ($t = 3.316 > 1.96$) and has significance ($p = 0.001 < 0.05$). With this result, the researcher rejects the null hypothesis, implying that in the model, DSC positively enhances an increase in OPLEAD's impact on OA.

5.9.5 Answering Research Question 2.2

The fifth research question evaluated how the nature of the association between ENTLEAD and OA was moderated by DSC and did so through H4.2. In this inquiry, the researcher advanced that an increase in the intensity of the DSC context accentuates the levels of ENTLEAD, leading to higher OA. As Table 29 reveals, DSC positively enhances ENTLEAD ($\beta = 0.433 > 0.25$), the enhancing effect has relevance ($t = 7.528 > 1.96$) and has significance ($p = 0.000 < 0.05$), leading the researcher to reject the null hypothesis and conclude that DSC positively enhances the relationship.

5.9.6 Answering Research Question 2.3

The nature of DSC's moderating effects on the link between ENALEAD and OA as set out through H4.3 was the subject. The researcher posited that that DSC positively enhances ENALEAD escalations, giving rise to an increase in OA. The outcome displayed in Table 29 confirms the positive enhancing effects of DSC on the relationship ($\beta = 0.403 > 0.25$ from $\beta = 0.229$ obtained in the direct relationship. This enhancing effect is relevant ($t = 5.575 > 1.96$) and has significance ($p = 0.000 < 0.05$). Accordingly, the researcher rejects the null hypothesis, implying that 40.3%. (up from 22.9%) of variance on OA is ascribed to the enhancing effects of DSC on ENALEAD.

5.10 Conclusion

The findings on the research questions established in Chapter 3 have provided important insight into CLT and OA's relationship. A total of 24 SME organisations, represented by 124 participants, provided data that was analysed in the study. The findings confirm the efficacy of the MIMIC theoretical model and its indicator specification assumptions. Additionally, the analytical method, PLS-SEM, that was proposed in Chapter 4, returned satisfactory analytical output on this early stage of theory testing and theory confirmation (see Hair et al., 2019; Sarstedt et al., 2017a; Shmueli et al., 2016). The results elucidate that the conjectures advanced in Chapter 3 were all affirmed except for Hypothesis 1, the direct relationship between OPLEAD and OA. Additionally, positive enhancing moderation of DSC was established, consequently conferring a univocal confirmation of Hypothesis 4. Equally important is that the robustness tests confirmed the model's explanatory power as well as the model's out-of-sample predictive power, a key consideration in management science studies. This concludes the results' presentation; a detailed discussion of these findings follows in Chapter 6 that comes next.

6. Chapter 6: Discussion Of Findings

6.1 Introduction

The purpose of this chapter is to discuss in detail, the findings and provide their interpretation in view of extant literature and the study's own context, providing insights on how CLT may contribute to a firm's OA capability building. A comparative analysis is conducted to aid in the augmentation to the extant body of knowledge on CL and OA. The discussion sets out with an overview of the descriptive statistics' implications, followed by methodological connotations and concludes with a detailed commentary on the inferences from hypothesis and research questions. The study examined the nature of the relationship between CL and OA. Further, the moderation role of DSC on the link between CLT and OA was equally scrutinized. The research problem was to explain whether and to what extent CL influences OA in DSC contexts. The results obtained through the PLS-SEM statistical evaluation of the MIMIC model developed in Chapter 4 as derived from the Conceptual Framework created in Chapter 3 are summarised in Table 6.1 below.

Table 32 Summary Of Findings

Descriptive Statistics	Instrument Reliability and Validity	Objective 1-Direct Effects	Objective 2-Moderation Effects
• Data Normality Established • Construct Summary • Sample Statistic N=126	• Data Curation Conducted • Scales-Reliability Confirmed • Scales-Convergent Validity Confirmed • Scales-Discriminant Validity Confirmed	• H1 Disproved • H2 Supported, positive and significant direct link between EntreLead and OrgAdap • H3 Supported, positive and significant direct relationship between EnableLead and OrgAdap	• H4.1 Supported, DSC positively enhances the link between OpLead and OrgAdap • H4.2 Supported, DSC positively enhances links between EntreLead and OrgAdap • H4.3 Supported, DSC positively enhances the link between EnableLead and OrgAdap

Source: Author

6.2 Discussion: Descriptive Statistics

The discussion of some key descriptive statistics accords an appropriate context for the interpretation of the results. The final sample of N=126 was obtained from the 495 respondents that were supplied by 24 consenting SME firms from Zimbabwe. With a 26.67% response rate from the survey-based study, which Fricker (2008) contents are typical of online surveys where it ranges between 15% and 30%, is considered sufficient, the researcher notes that this fell short of the targeted N=150 responses. This could limit the generalisability of the study's results to other populations. The sample being limited to the SME population thus precluded established firms in which aspects of CLT might have been more nuanced. Prior empirical studies on CLT (e.g., Diesel and Scheepers, 2019; Lombard, 2017; Visser, 2017) have returned much larger sample sizes, N =1204, obtained from multiple firms across multiple sectors and industry categories. The lack of familiarity and the complexity of the study's subject constructs could have led to the limited consent from target SME firms, and yet more, the attained response rate.

Additionally, the results showed that ENALEAD had the highest mean at μ= 4.39, while OA had the lowest mean at μ=2.85, a relatively lower average, suggesting that most of the respondents may not have considered their organisations to exhibit higher levels of OA. This could be attributed to the study's cross-sectional nature where data was collected during the Covid-19 pandemic successive lockdowns periods. During these periods, economic activity was significantly impaired by the lockdowns, with widespread company closures, especially in consumer-facing industries within the sample, such as media and entertainment, wholesale and retail trade, travel, tourism, hotel, and transportation segments. Some respondents might have had biased in the cognition of their firms' responses to the DSC phenomena obtaining at the time. However, this study offers a contribution to our understanding of how CLT happens, as well as its impact on OA, within the SME market segment.

6.3 Discussion: Methodological and Construct Assessment

6.3.1 Discussion: Theoretical Model and Indicator Specification

This study developed a MIMIC theoretical model in which the predictor and moderator variables were specified as formative composite constructs, while the criterion variable was specified as a reflective factor-based construct. The need for correctly specifying measurement models has received broader discussions and emphasis in empirical methodology scholarship (e.g., Bollen and Lennox, 1991; Diamantopoulos, Hair et al. 2019; Wilcox et al., 2008). The MIMIC model specified in the research was motivated by the need to attain simultaneous inclusion of reflective indicators and formative indicators (as suggested by the core theory descriptions) to overcome identification problems asserted in Posey et al. (2015). In this light, this study is arguably the first

in the CLT empirical stream (e.g., Ahmadi et al., 2017; Diesel and Scheepers, 2019; Palermo et al., 2017; Visser, 2017) to apply a MIMIC model. As such,lends it to potential contribution in future studies on the CLT, future researchers can specify CLT as a formative composite construct.

6.3.2 Discussion: Analytical Approach

Ringle et al. (2012), supported by Hair et al. (2017, p.118), illustrated PLS-SEM's power in achieving statistical superiority at all samples of all size, particularly smaller sample sizes as low as 50. The scholarship has called for researchers to apply PLS-SEM when their models include multiple constructs, as in this case (CLT, DSC, and OA), yet sample sizes are small (e.g., Hair et al., 2017b; Willaby et al., 2015). While extant studies have applied other analytical approaches such as Linear Regression Analysis (e.g., Lombard, 2017) and CB-SEM (e.g., Ahmadi et al., 2017; Diesel and Scheepers, 2019; Visser, 2017), this study applied the PLS-SEM analytical approach on relatively small sample size. As such, the study offers a key methodological contribution to future studies that may not have access to larger sample sizes, promoting the further development of the CLT and DSC theories.

6.3.3 Discussion: Construct Development and Validation

In their work, Uhl-Bien and Arena (2018) conceptualised CLT as being composed of Operational, Entrepreneurial and ENALEAD practices. De la Sablonnière (2017) characterised DSC context through the rapid pace of change, the rapture of normative structures, the rapture of social structures and threat to cultural identity. As a nascent scholarship, these theories have largely remained heuristic and at conceptual development (Tourish, 2019; Tsoukas, 2017), with no presently known scales for empirical research. As per Tourish (2019), the researcher abducted a construct conceptualisation of CLT as a first-order construct. The class of leadership practices described by Uhl-Bien and Arena (2017, 2018) were construed as second-order constructs. Similarly, DSC was abducted as composed of four second-order constructs that characterise DSC as described by De la Sablonnière (2017). This guided the conjectured conceptual model leading to the MIMIC theoretical model. Thus, the constructs were therefore specified for measurement by incorporating multiple extant instruments (by way of direct adoption or adaptation) conflated with theoretical inferences from literature as described in detail in Chapter 4. Table 33 denotes a summary of the developed constructs and their reliabilities, as described in Chapters 4 and 5.

Table 33 Construct Development and Validity Outcomes

CONSTRUCT DEVELOPMENT AND VALIDATION								
Construct Confirmed	Total Items	Items Adapted / Adopted	Authors	Items Inferred	Authors	Constuct Reliability		
						Cronbach's Alpha	rho_A	Composite Reliability
Operational Leadership	19	14	Antonakis & House (2014)	5	Uhl-Bien & Arena (2018)	0.909	0.914	0.923
Entrepreneurial leadership	23	23	Kuratko & Morris (2006); Khalili (2017)			0.907	0.923	0.923
Enabling leadership	21	17	Osborn & Marion (2009), Kutz (2008)	4	Uhl-Bien & Arena (2018)	0.954	0.957	0.958
Dramatic Social Change	9	5	De la Sablonnière (2017)	4	De la Sablonnière (2017)	0.779	0.834	0.839
Organisational Adaptability	14	14	Jansen et.al. (2009); Flatten et al. (2017), Roberts et al. (2017)			0.928	0.936	0.937
TOTAL	86	73	New Items Contributed	13				

Source: Author

The adopted items and inferred items all loaded well on to the constructs. As described and presented in Chapter 5, the constructs obtained acceptable convergent validity and discriminant validity, implying that CMV biases were satisfactorily addressed. On this basis, therefore, the researcher established a theoretical grounding for applying ENTLEAD, ENTLEAD, ENALEAD, DSC and OA as unique, measurable constructs which could be valuable in future studies on CLT.

The item adoption and inferential approach compare similarly to that of Diesel and Scheepers (2019) as well as Lombard (2017) in their CL studies, although these authors did not delineate CLT into second-order subcontracts. Significantly, this study's instrument reliabilities established on the second-order constructs were all within acceptable thresholds, as shown in Table 33. The researcher notes Colquitt and Zapata-Phelan (2007), Crane, Henriques, Husted and Matten (2016) as well as Podsakoff, MacKenzie, & Podsakoff's (2016) on their recommendations regarding what constitutes theoretical contributions and constructs development. The researcher submits that this methodological construction constitutes a substantive contribution to CLT and DSC theories' current discourse in that future research may empirically test CLT as a first-order construct. Alternatively, future researchers may test CLT through the second-order constructs established in this study by adapting or adopting the instruments developed in this study.

6.4 Discussion: The Research Questions

The central research question sought to explain the role played by CL in terms of, what is done by complexity leaders (practices), how they do it (behaviours) and why they do it (motives) that results in OA. Notably, the sub-questions (1.1, 1.2 and 1.3) were motivated by the nature of

each of the conceptualised CLT second-order constructs' impact on OA. Additionally. The second research question was concerned with the nature of a DSC context's interaction effects on the relationship between CLT and OA. This section turns to discuss the findings on the nature of these relationships and describes how the findings suggest CLT, specifically its subconstructs, impact OA. The discussion further explores the implications of the findings on DSC's moderating role of the relationship between CLT and OA.

6.5 Discussion: Research Question 1.1

The first research question considered the nature of the relationship between OPLEAD and OA and did so through H1, which posited the presence of a positive relationship between OPLEAD and OA. Conceptualisations by Uhl-Bien and Arena (2018) argue for the limited use of traditional analytical tools and techniques as these are claimed to get in the out-of-context trap. This suggests the need for continual refinement in execution efficiencies through contextual adaptation of tools and techniques. In view of the ever-present indeterminacy, unpredictability, and uncertainty, entitative leaders have to act to construct tools and implement new techniques as contexts emerge so as to build relevant OA. Emerging contexts are laden with implications for institutional complexity; internal complexity, external complexity and inter-organisational complexity, all of which require a commensurate measure of resolution by either internal complexity initiatives, collaborative complexity activities, or both (see, Schneider et al., 2017; Tsoukas, 2017).

In describing the OPLEAD practices, Uhl-Bien and Arena (2018) expressed the need for studies that may shed a greater understanding of how CLT could lead to OA as an outcome. Uhl-Bien and Arena (2018, p.3) posit that OPLEAD is inherently grounded in needful bureaucratic hierarchy, with hierarchical leaders vested with power and authority. The fabric of bureaucratic systems, structures and processes value stability, efficiency, and rationality over adaptability. Therefore, the Operational Leader's function in facilitating adaptation in the face of complexity has to be redefined in multiple ways to eliminate the destructive effects of pulling back to the *status quo*.

According to their conceptual framework, Uhl-Bien and Arena (2018) illustrate that OPLEAD should privilege decision making that entrenches entrepreneurial thinking in the firm by instead, shifting from stifling tendencies to postures that accommodate entrepreneurial attempts. Leaders may also practice sponsoring and executing initiatives on emergent ideas into the firm's operational core (exploitation). Further, leaders promote OA by instilling alignment and execution of serendipitous outcomes through support, energy and enthusiasm for new ideas and activities. Additionally, the framework emphasises the transformation of perceived blocking "brick-walls" into

filters for ideas, thus linking these ideas with the firm's strategic intent in the form of new methods and practices, which leads to adaptation.

Palermo et al. (2017) demonstrated in their longitudinal study conducted over four years, the importance of dealing with a contextual adaptation of tools and practices, akin to OPLEAD. The study evinces how UK financial services firms dealt with the global financial crisis by fundamentally adapting their risk practices and cultural routines. By using institutional complexity theory, the scholars show how it was important for the firms to rebalance from extant dominant "logic of opportunity" before the financial calamity to a new dominant "logic of precaution" post the catastrophe, thereby adapting their firms. The contextual adaptation of tools and techniques in this view, by decoupling means and ends for reconstruction, exemplified in the study, therefore buttresses that the appropriate application of OPLEAD leads to OA. This is a stark proposition to the old leadership ideas of maintaining status quo, aptly described by Palermo et al., (2017) as incompatible logics. The old leadership models are seen as stifling needful incorporation of explorative activities into the business's operating core that may lead to OA.

In order to advance this conceptualisation, understanding OPLEAD as a construct is thus essential. Prior studies have described this construct in multiple forms such Administrative Leadership (Marion et al., 2016, Uhl-Bien and Arena, 2017), Instrumental Leadership (Jacquart and Antonakis, 2015) and Directive Leadership (Stoker et al. 2019). Despite the multiple conceptualisations of practices associated with OPLEAD that include the bureaucratic-hierarchical based environment monitoring, strategic intent, strategic implementation, path-goal identification, outcome monitoring, (and the newly proposed forms, as in sponsoring, executing, alignment, support, and filtering ideas), the construct itself in this form, as in this study, has not been previously empirically tested. As described in Chapter 4 and Chapter 5, the OPLEAD and OA constructs' appropriateness was confirmed, and thus the direct application was conferred.

The findings show that a weak relationship ($\beta = 0.132 < 0.25$) exists, the relationship has no relevance ($t = 1.698 < 1.96$) and no significance ($p = 0.09 > 0.05$). Given this outcome, the researcher failed to reject the null hypothesis, implying that in the constructed model, an increase in OPLEAD levels fails to significantly explain variance in OA. This suggests that other variables may contribute to explaining variance in OA. This outcome could be attributable to the measures that were applied in the construct. Most of the items were borrowed from other older leadership constructs that entrench the old traditional type of Administrative Leadership practices. This attribution's plausibility may be reasonable since the researcher adopted 14 of 19 items and inferred only four items. The outcome though not expected, is not surprising to the researcher. The new OPLEAD practices proposed by Uhl-Bien and Arena (2018) of sponsoring, aligning,

executing, transforming, filtering and enthusiastic support in the new firm logic under uncertainty and complexity are still to find their way into mainstream leadership development training. Some of the practices may have been construed by respondents as being against their social desirability biases, thus rating them unfavourably. Another possible explanation could be that the SME's in the sample may not usually engage in the entrenched OPLEAD practices arising from the selective attention and contextual cue prioritization (cf, Ahmadi et al., 2017)

Moreover, scholars have argued that the levels of analysis (internal, market or institutional) of OA have implications on leaders' cognition in distinguishing between performance and adaptation (Sarta et al., 2020; Stoker et al., 2019). As this study's data was collected during the multiple lockdowns, it would be cogent to suggest that respondents may have interpreted their firms' performance, ascribed to OPLEAD practices, indifferently to their cognition of the OA expectations at the time. Notwithstanding, this study offers significant light on the underexplored link between these constructs, and therefore future research could consider recalibrating this construct by introducing measures such as those enlisted in the practices recommended by Uhl-Bien and Arena (2017, 2018) in new measurement instruments to further our understanding on this construct.

6.6 Discussion: Research Question 1.2

The second sub research question contemplated the nature of the relationship between ENTLEAD and OA against which H2 conjectured the presence of a positive relationship between these constructs. Through the deliberate promotion of serendipity, fortuity, accident and coincidence, leaders are presented with subjective reality tests. Therefore, they can best confirm the plausibility of ideas and recommendations from actual experience and practice (Rosenhead et al., 2019). When fortuity and accident are accepted in the firm, leaders and members derive the motivation to engage in uncertain and unpredictable endeavours in seeking impactful and far-reaching outcomes (Gamache, McNamara, Mannor, & Johnson, 2015). Informal networks within CLT perspectives in organisations have been observed to absorb and exchange large amounts of information flow, thereby promoting higher novelty and ingenuity (Marion et al., 2016, Perry-Smith and Mannucci, 2017). This suggests that these networks that form layers of distributed and shared leadership roles (e.g., Pitelis and Wagner, 2019; Zhu, Liao, Yam, & Johnson, 2018); increase the absorptive capacity surface area of the firm (see Darwish et al., 2020; Flatten et al., 2015; Teece et al., 2016; Uhl-Bien and Arena, 2017, 2018; Zahra and George, 2002). As a result, this increases the firm's ability to discern, absorb, and capitalise on internal and extrinsic knowledge, thus obtaining convergence (e.g., Birkinshaw et al., 2016; Sarta et al., 2020) with emerging and unpredictable contextual demands.

By experiencing specific circumstances, leaders are encouraged to acclimatise their leadership practices by way of inculcating and applying dynamic capabilities practices (e.g., Teece, Pisano, & Shuen, 1997), which promotes relational and conditioned organisational adaptation (see Sarta et al., 2020). Perry-Smith and Mannucci (2017) demonstrate that ENTLEAD practices allow firms to produce relevant and contextually appropriate novel products, knowledge, skills, systems, and processes that may sustain the organisation's viability and resilience through engrained exploration. The consequences of exploratory behaviours at the micro (internal) level have recently been empirically studied by Ahmadi et al. (2017). In this experimental vignette study, the authors conceptualise the impact of decision-making complexity in exploratory and entrepreneurial behaviours emerging from a multiplicity of factors. Their research demonstrates that individuals with a higher propensity on diversity, focusing on opportunities, growth and advancement produce the highest levels of exploratory behaviours mainly when leaders and the firm match their focus congruently with the company's policies and regulatory characteristics. The study provides insights on what antecedents are essential in understanding the boundaries for explorative behaviours. Lingo (2020) buttresses the need for leaders to support these explorative behaviours by emphasising the significance of creative brokering by incorporating distal actors in the market and then utilising their expertise and resources to advance novel ideas. Additionally, Gamache et al. (2015) empirically demonstrate that managers' positive explorative orientation is improved when leadership practices encourage engagement in uncertain and unpredictable trials and ventures. Put together; extant literature avers the significance of ENTLEAD.

Uhl-Bien and Arena (2017, 2018) articulate the need for leadership scholarship to further our understanding of how CLT practices influence OA as an outcome. However, the propositions have remained predominantly heuristic, implying that the constructs require studies to develop needed specification and measurement models for empirical testing. Recent studies (e.g., Diesel and Scheepers, 2019; Lombard, 2017, Visser, 2017) have developed models to empirically test CL at the first-order construct level and proved the appropriateness of CL for direct application. Noteworthily, Ahmadi et al. (2017) 's work was based on a vignette experiment that considered consequences of complexity at the individual decision-making level. With the CLT still being mostly heuristic (see Tourish, 2019; Tsoukas, 2017), the construct conception of ENTLEAD was necessary. This study further delineated the construct into second-order constructs and confirmed these sub-constructs' appropriateness for direct application, as shown in Table 6.2.

The findings obtained evince the existence of a moderate relationship ($\beta = 0.382 > 0.25$) which is relevant ($t = 3.949 > 1.96$) and significant ($p = 0.000 < 0.05$) leading to the rejection of the null hypothesis. Unlike OPLEAD, this finding explicates that an increase in ENTLEAD has direct positive significance and prominence on OA and explains 38.2% of its variance. The researcher

expected this outcome as literature has suggested that ENTLEAD practices such as creativity, exploration, collaboratively linking up diverse agents, brokerage, tenacity, flexibility, timing, co-action, and co-creation lead to OA. The results compare favourably to those obtained by Diesel and Scheepers (2019), who established a link between CL and Explorative Ambidexterity. The findings further compare similarly to those established by Visser (2017), whose study confirmed a positive link between CL and Innovation Climate. This illustrates that firms whose leaders embrace CLT practices outlined in the ENTLEAD practices facilitate the Organisational Adaptation capability.

The moderate strength of the relationship ($\beta = 0.382 < 0.5$) could be attributable to the levels of entrepreneurial practices in the target population. Sarta et al. (2020) position that adaptation can manifest at three levels thus: internal adaptation (alignment of resources and competences), market adaptation (the degree to which value proposition addresses the firm's main audience) and institutional adaptation (alignment between the firm and its surrounding social and normative structures). Lei, Waller, Hagen, & Kaplan (2016) demonstrated that certain leadership behaviours during non-routine circumstances lead to temporal episodic performance resulting in u-shaped adaptiveness. As such, and specifically, regarding internal adaptation, the sample in this study was of relative low resources slack and capability endowments when compared to large established firms. Consequently, that under Covid-19 (a non-routine circumstance), ENTLEAD tendencies could have been curtailed due to limited "stakeholder enrollment" that is prevalent under uncertainty (cf. Burns, Barney, Angus, & Herrick, 2016; Townsend, Hunt, McMullen, & Sarasvathy, 2018). Thus, we could argue that the leaders would have been emphasising less of ENTLEAD for OPLEAD practices, leading to the inverse u-shaped organisation adaptiveness (Lei et al., 2016). As such, the respondents may not have rated the ENTLEAD practices and outcomes in their firms as highly. Nonetheless, this finding confirms extant theoretical propositions by Uhl-Bien and Arena (2017, 2018), lending it as a significant contribution to advancing the underexplored CLT and its impact on OA.

6.7 Discussion: Research Question 1.3

On the third research question, the nature of the connection between ENALEAD and OA was sought through H3. It was presupposed that there is a positive relationship between ENALEAD and OA. CLT proclaims that a collaborative posture is a crucial necessity in attaining OA. OA is viewed as occurring through the influence of informal and distributed leaders. Instead of direct control (cooperation), leaders facilitate and manage conflict (collaboration) within the complex adaptive space (Uhl-Bien and Arena, 2017, 2018). Practices such as patterning of attention, developing networks, conflicting, linking up, sponsoring and temporary decentralisation from the

Contextual Theory Of Leadership (e.g., Hiller et al., 2019; Kutz, 2008, Oc, 2018; Osborn and Marion, 2009; Osborn et al., 2002) are promoted. Moreover, leaders are encouraged to go beyond *quid-pro-quo* leader behaviours to creating the adaptive space (Clark, 2013; Osborn et al., 2002; Uhl-Bien and Arena, 2018).

Following Sarta et al. (2020), OA through ENALEAD is viewed to occur at all the three levels classified as, internal adaptation, market adaptation and institutional adaptation. This happens when leaders engender appropriate practices and behaviours that enable their people and firms to converge with internal and external environment intentionally, relationally, conditionally and convergently. Scholars have called on researchers to promote new insights on CLT through disciplinary studies (e.g., Uhl-Bien and Arena, 2018), and interdisciplinary, integrative studies (e.g., McMahan and Evans, 2018; Tsoukas, 2017). The current corpus has demonstrated that CL behaviours that include among others patterning attention, developing networks, as well as contextual intelligence, are positively and significantly related to creativity and innovative behaviours at the individual level (e.g., Khalili, 2017) and similarly at the firm level (e.g., Diesel and Scheepers 2019; Lombard, 2017, Visser, 2017). Therefore, their scales were adapted in this study in the construction of the second-order construct, ENALEAD, whose construct appropriateness was confirmed.

The findings on the hypothesised relationship show that a weak relationship ($\beta = 0.229 < 0.25$) which is relevant ($t = 1.995 > 1.96$) and significant ($p = 0.044 < 0.05$) exists. On this basis, the null hypothesis was rejected, signifying that accentuation of ENALEAD explains 22.9% of the variance in OA. The researcher expected this outcome, as inferred from theoretical propositions by Uhl-Bien and Arena (2017, 2018) and supported by similar findings from recent scholarship (e.g., Diesel and Scheepers, 2019; Khalili, 2017). This finding signifies that an organisation's ability to embrace the appropriate levels of ENALEAD practices has significance in its ability to create the OA capability, especially at the three strata illustrated by Sarta et al. (2020).

Based on an abductive retroduction of this finding, especially that the strength of the relationship is weak, ($\beta = 0.229 < 0.25$), this weak association could be attributable to the SME population in which some of the nuances of ENALEAD that are counterintuitive (see Tourish, 2019; Tsoukas, 2017), could discourage leaders who perceive them as taking away from their authority (see Pentland, Feldman, Becker, & Liu, 2012; Schneider et al., 2017). This behaviour is claimed to be prevalent in contexts characterised by higher levels of power distance and hierarchy (e.g., Kirkman et al., 2009). This reasoning is similar to that of Winter, Szulanski, Ringov, & Jensen (2012) who studied franchise relationships and demonstrated that when leaders adjust known routines to nonstandard ones, the odds of failure heightened, claiming that a tight routine

replication regime is conducive to a survival advantage over *ex-ante* adaptation (p.681). Yet still, this study has taken up the challenges posed by scholars to integrate diverse leadership theories (e.g., Dinh et al., 2014; Sarta et al. 2020; Tourish, 2019; Uhl-Bien and Arena, 2018). The positive affirmation in the findings clearly offers significant sought-after insights in CLT and OA. Therefore, the researcher submits that outcomes of this work could annex to our knowledge on building a repertoire of CLT skills, behaviours and practices that drive positive consequences on OA.

6.8 Discussion: Research Question 2

This section will first discuss DSC Moderation, a necessity submitted by Aguinis et al. (2017), then elaborates the individual sub-questions' findings. The second research question pursued the nature of a DSC context's interaction effects on the relationship between CLT and OA. Studies have been univocal in calling for researchers to integrate leadership theories in integrative models that are sensitive to context (e.g., Gardner et al., 2017; McCauley and Palus, 2020; Oc, 2018; Tsoukas, 2017). Further, scholars such as Smith et al. (2019, p. 34) have called on researchers to empirically capture, study and analyse phenomena of qualitative transformations (such as DSC) that are rapid and discontinuous, transitory, and contingent (e.g., Tsoukas, 2017). Therefore, it is conceivable to contend that context is one of the eminent foci in leadership. Its role is germane in the construction of meaning by setting expectations on how individuals behave and framing the associated behavioural consequences.

Moderation has long been viewed as the notion that the magnitude of effects ascribed to an antecedent on the firm outcomes is factorially contingent (e.g., Schoonhoven, 1981). It has evolved to take central importance in business science and social science theory development (Andersson et al., 2020), symbolizing sophistication and maturity of a subject of inquiry (Froese, Peltokorpi, Varma, & Hitotsuyanagi-Hansel, 2019). Moreover, moderation has been applied in testing new theoretical insights. Arguments are clearly advanced on why the moderator variable's inclusion will provide a superior explanation of the subject phenomenon (e.g., Andersson et al., 2020). An illustration is provided in Hauff et al. (2015), who identified and filled a research gap through their study that conjectured, then confirmed the moderating effect of national culture on the association between job characteristics and job satisfaction.

Stoker et al. (2019) demonstrate that when faced with a high threat of macro-level environmental uncertainty, such as DSC, leaders tend to maximise control and directive leadership. Additionally, in the face of adverse uncertainty, leaders have been found to selectively retain necessary patterns of action that relevantly impact organisational capabilities (Pentland et al., 2012). The nature of industry competition, the competitive intensity at the meso (market) level (see Hiller et al., 2019, Oc, 2018) has also been found to influence leader's behaviours and cognition towards

their employees (e.g., Ahmadi et al., 2017; Desmet, Hoogervorst, & Van Dijke, 2015;). According to Hiller et al., (2019), highly competitive contexts tend to drive leaders towards instrumental leadership (akin to OPLEAD) tendencies; wherein they apply carrot and stick methods, command and control policies and become more cooperative than collaborative. In contrast, leaders whose companies operate in higher profit sanctuaries tend to be more transformative and collaborative (e.g., Cheng et al., 2015).

Furthermore, the work of Jacquart and Antonakis (2015) conducted at the micro-level concluded that firm performance gets attributed more to executives over other employees, suggesting a deeper emphasis on historical performance context informing present-day context. Additionally, the work of Peng et al. (2016) reckoned that the quality of the relationship between a C.E.O and employees' work perceptions about the CEO's intellectual stimulation varied within the context provided by firm performance. For instance, even at a macro contextual level, Peus, Braun, & Knipfer (2015) illustrated that country and spatial differences variably affect the emergence of particular leadership traits and styles. These studies put together all seem to suggest that variability arises due to the way leaders evaluate and relate to contexts. Following Johns (2006, 2017) and Kutz (2008) in addition to arguments rendered above, it follows, therefore, that when faced with DSC contexts, leaders interpret, evaluate, and handle them variably implying that DSC has moderating effects on leadership actions, thus the link between CLT and OA.

6.9. Discussion: Research Question 2.1

This question contemplated the nature of the relationship between OPLEAD and OA as being moderated by DSC and did so through H4.1. The hypothesis posited the presence of a positive enhancing moderating effect of DSC on the relationship. Prior studies on CL have produced mixed results on moderating effects of CL adduced outcomes. For example, Lombard (2017) could not confirm the moderating impact of Environmental Dynamism on CL, yet Visser (2017) confirmed the moderation of CL by Innovation Climate.

The findings in this study show that the path coefficient for OPLEAD increased from path ($\beta = 0.132 < 0.25$, $p=0.09$) to ($\beta = 0.280 > 0.25$, $p=0.001$) confirming a significant enhancing but moderate moderating effect, with the researcher rejecting the null hypothesis. This implies that in the model, DSC has positive enhancing effects on increases in OPLEAD, increasing the firm's adaptability level, especially at the internal level. The researcher expected this finding. Given from literature by De la Sablonnière (2017) that DSC is associated with a "rapid pace of change" and "rapture of normative structures", it would be reasonable and credible to expect that in these contexts, many leaders tend to act to preserve liquidity and adapt working routines. When firm performance forecasts are in flux in DSC contexts, leaders have been observed to tend to

prioritise just getting through the immediate months and quarters (Levinthal and Marino, 2015). They do this by securing scarce resources, persuasively communicating, internally selecting from a population of routines (cf. Levinthal and Marino, 2015, Pentland, Feldman, Becker, & Liu, 2012).

More prominently, in crisis, most leadership default to cooperative postures (e.g., Rosenhead et al., 2019; Tsoukas, 2017) and Directive Leadership (Stoker et al., 2019). Moreover, selective attention, cue prioritization, emphasis on gains and outcome achievement have been found to prevail under high complexity and uncertainty (e.g., Ahmadi et al., 2017). Consequently, with such a posture, leaders are expected to inadvertently accelerate their OPLEAD practices through increased monitoring of the environment, monitoring outcomes, and the doubling up of goal facilitation to survive the rapidly changing context. Invariably, this promotes a more inward outlook at the resource and competency levels (Sarta et al. 2020). Leaders may thus entrench parsimonious and frugal practices to adapt to the new dramatic contexts. This would imply a much more internally focused adaptation of routines, tools and behaviours, thus increasing internal OA. When faced with complexity, Uhl-Bien and Arena (2018) posit that leaders accept new initiatives that quickly solve operational constraints. They focus on alignment and execution, provide enthusiasm, and link initiatives that support the strategic mission, thus accepting new ideas. Yet again, this entrenches further contextual adaptation of tools leading to organisation adaptation. Therefore, this finding underpins De la Sablonnière (2017) arguments and Uhl-Bien and Arena (2018) propositions. The finding is also similar to that obtained by Stoker et al. (2019) whose study concluded that context does not only moderate but it also additionally shapes leadership behaviours to the extent that context allows for causal inference.

6.10 Discussion: Research Question 2.2

The fifth research question evaluated how the nature of the relationship between ENTLEAD and OA was moderated by DSC and did so through H4.2. In this inquiry, the researcher advanced that an increase in DSC context intensity accentuates the levels of ENTLEAD, leading to higher OA. The findings illustrate that the path coefficient for ENTLEAD increased from path coefficient ($\beta = 0.32 > 0.25$, $p=0.000$) to ($\beta = 0.433 < 0.5$, $p=0.005$) confirming a significant enhancing moderate moderating effect, with the researcher rejecting the null hypothesis. This outcome implies that DSC has positive enhancing effects on increases in ENTLEAD. This strengthens the firm's adaptability level, especially at the market level (see Sarta et al., 2020). Leaning on the theoretical advances, this finding was not surprising to the researcher.

De la Sablonnière (2017)'s descriptions suggest that in the midst of DSC, rapid pace of change, the rapture of normative and social structures and the threat to cultural identity could trigger the intensification of ENTLEAD practices. Such a context calls for quick experimentation with multi-

stakeholders, co-acting and co-creating (e.g., Lingo, 2020) of a number of options, then selecting and scaling those promising one to address emerging market demands. This would result in increased learning, thus absorptive capacity (Cohen and Levinthal, 1990). Therefore, this implies the need for appropriate leadership for members and the firm to covert external and internal knowledge into innovation (see Darwish et al., 2020; Salvato and Vassolo, 2018). Furthermore, such contexts may demand that leaders modify their market focus. Firms may then fulfil new customer preferences by shifting their portfolio mix (see Ince and Hahn, 2018) to meet new consumer behaviours and policy environments at the institutional level in what Sarta et al. (2020) define as convergent adaptation. By allowing their members to think and act creatively within DSC contexts, leaders facilitate the establishment of brokerage platforms, therefore incorporating market perspectives that drive the strategic adaptation of their firms. In another view, despite the dramatic changes, the leaders may still have to provide ENTLEAD to address those markets and societies who may be compelled to preserve their cultural identities and reintegrate raptured social structures. In both these instances above, it is plausible and conceivable to argue that these ENTLEAD practices result in heightened OA. The finding to Research Question 2.2 reinforces the conceptualisations posited by De la Sablonnière (2017) and Uhl-Bien and Arena (2018). Additionally, it supports findings by Salvato and Vassolo (2018) and Stoker et al. (2019). Therefore, this finding underpins a significant contribution to extant knowledge on context moderation within the CLT scholarship.

6.11 Discussion: Research Question 2.3

The nature of DSC's moderating effects on the relationship between ENALEAD and OA as set out through H4.3 was the concern of this research question. The researcher advanced that that DSC positively enhances ENALEAD increases, giving rise to the rise in OA. Multiple leadership scholars (e.g., Lopez-Cabrales, Bornay-Barrachina, & Diaz-Fernandez, 2017; Schoemaker et al., 2018; Vergne and Depeyre, 2016) seem to agree that capability building in organisations is the central prerogative of leadership and therefore ascribe Organisation Adaptability to leadership.

In the early stages, leaders use their medial influence to foster collaborative behaviours and idea generation within the firm, expanding manifold knowledge access (Perry-Smith and Mannucci, 2017; Salvato, Reuer, & Battigalli, 2017; Uhl-Bien and Arena 2018). Over time, the developed alliances and networks are mapped to entrepreneurial and specialist networks and institutions, classified as the adaptive space, through distributed leadership (Uhl-Bien and Arena, 2018). Uhl-Bien and Arena (2017, 2018) literature call for clarifying our understanding of how ENALEAD Leads to OA. More specifically, Vergne and Depeyre (2016) and Sarta et al. (2020, p.61) call for

survey-based measures that retain OA conceptualisations by distinguishing adaptability from constructs such performance strategic change, and survival.

In response, this study's findings elucidate that the path coefficient for ENALEAD increased from path ($\beta = 0.229 < 0.25$, $p=0.000$) to ($\beta = 0.403 < 0.05$, $p=0.005$). Accordingly, the researcher rejected the null hypothesis, implying that 40.3%. (up from 22.9%) of variance on OA is ascribed to the enhancing effects of DSC on ENALEAD. This result was within the expectations of the researcher. Recognizing that the "pace of change", the "rapture of normative structures", "rapture of social structures and the threat to cultural identity" phenomena as described by De la Sablonnière (2017), all pose existential threats to the businesses is plausible. As such, leaders would be expected to exhibit deeper and stronger ENALEAD practices that shift their firms from the multivariate near-term modelling tendencies in stable situations.

The researcher reasons that the need to survive within DSC contexts may force the leaders to increase their skills levels such as patterning attention (Osborn and Marion, 2009) to new information sources, developing more in-depth and broader networks (Perry-Smith and Mannucci, 2017). The more comprehensive and more profound networks would result in promoting collaboration beyond the firm (Salvato et al., 2017); and provide brokerage (Uhl-Bien and Arena, 2017, 2018) that catalyses OA. Therefore, it can be persuasive and convincing to argue that an increase in DSC would intensify ENALEAD practices. With this intensification in CL practices such as sponsoring, promoting conflict, linking up and temporary decentralisation, we can expect that the firm conditionally, intentionally, and relationally adapt to the context. Therefore, leaning on Sarta et al. (2020), the firm positively enhances its OA at all three levels (internal, market and institutional). The finding on the subject research question fortifies Uhl-Bien and Arena (2018) conceptualisations, further contributing to calls by (Tourish, 2019) for integrative and conjunctive leadership research.

6.12 Discussion: Construct and Moderation Effect Sizes

Scholars have called on researchers in empirical studies to integrate, as a standard, out-of-sample prediction when assessing their models (Shmueli et al., 2019, p. 2324) as the out-of-sample predictive power is of practical relevance to management decision-making (Steenkamp and Baumgartner, 2000, p. 197). The effect size, f^2, is important in identifying a construct's rank order in the hypothesised relationships in how much it explains a criterion construct (Hair et al. 2019, Nitzl et al.,2016). This is an important consideration so as to understand which of the CLT constructs has the highest contributory impact on OA. Therefore, the commentary below is appropriate in contextualizing the findings.

The results show that the highest rank-order on the direct effects is ENTLEAD (f^2 =0.118 >0.15), a medium effect that further increases under moderation (f^2 =0.23 <0.35). ENALEAD returned the second biggest effect size, though small, effect size (f^2 =0.035 <0.15) on direct relationship, while its effect size when moderated by DSC significantly rises to medium effect size(f^2 =0.194>0.15). The findings further show that OPLEAD has small effect size directly, (f^2 =0.012 <0.15), though rising significantly, to yet still a small effect size under moderation (f^2 =0.085 <0.25). These effect size findings are fundamental in that they confirm the eminence of ENTLEAD practices over the other leadership practices in enabling OA in the firm. This notion sees a lot of discussion in multiple postulations in the literature (e.g., Hahn, Spieth & Ince, 2018; Lingo, 2020; Perry-Smith and Mannucci, 2017; Uhl-Bien and Arena, 2018). More importantly, the finding suggests that leaders' emphasis on ENTLEAD practices would yield the biggest positive impact on their firms' adaptability capability. Yet more, the rise in the impact of ENALEAD practices' effects under the boundaries of DSC places them as equally important. This is pertinent in management decision-making and contributes to literature recommendations that posit the enactment of ENALEAD practices for OA.

6.13 Conclusion

This chapter has offered insights into findings on the relationship between CLT and OA and the moderating effect of DSC on this link. The connection between CLT's second-order constructs was established to answer Research Question 1 and its sub-questions. Research Question 2 and its sub-questions were comprehensively responded to by DSC's moderating effect on CLT and OA's link.

It was established that although OPLEAD is directly linked to OA, the link is not significant and meaningful, such that increases in OPLEAD do not directly result in substantial increases in Organisational Leadership. This result did not support the hypothesis put forward from conceptualisations by Uhl-Bien and Arena (2018). The findings further confirmed the significant relationship between ENTLEAD as well as ENALEAD and OA, to support the literature on CLT by Uhl-Bien and Arena (2018). The research did not explore the mediation role of ENALEAD between both OPLEAD and ENTLEAD, as may be insinuated from the literature by the same authors. Therefore, research question 1 was answered with an inconclusive answer on research question 1.1, suggesting that further research on CL and especially OPLEAD in this regard as a sub construct is further warranted.

The study confirmed DSC as a theory that reducible to a measurable construct, subsequently establishing that indeed, DSC has a positive enhancing effect on the impact of CLT on OA. All the three CLT subconstructs returned intensified and notably significant and meaningful

moderated effects, to imply that CLT practices strengthen under intensified DSC, and their effects lead to higher OA capabilities. This outcome is quite pertinent in that it qualifies the importance of boundary conditions in the application of CLT practices. This is consistent with context moderation finding streams by (e.g., Ahmadi et al., 2017; Cheng et al., 2015; Desmet et al., 2015; Jacquart and Antonakis, 2015; Peus et al., 2015). Consequently, the study further affirms literature on context (e.g., Gardner et al., 2017; Johns, 2017; Oc, 2018), leadership theory conjunction and integration (e.g., Rosenhead et al., 2019; Tsoukas, 2017; Tourish, 2019), organisation adaptation (e.g., Birkinshaw et al., 2016; Sarta et al., 2020). Moreover, the study supports methodological principles and literature on moderation (e.g., Aguinis et al., 2017) and models' predictive relevance (e.g., Shmueli et al., 2019). Finally, and therefore, Research Question 2 was answered comprehensively and conclusively. The next chapter dwells on recommendations arising from the study and offers a conclusion to the study.

7. Chapter 7: Conclusion and Recommendations

7.1 Introduction

The conjecture that CLT aids the adaptation of firms was proposed by Uhl-Bien and Arena (2017, 2018) in an effort to address leadership concerns and practices within complex, dynamic, and uncertain contexts. According to Sarta et al. (2020), many practitioners and scholars struggle to distinguish between OA as an outcome, its causes, and its own outcomes. Consequently, many firms grapple with building this OA capability, especially when faced by indeterminate and uncertainty-saturated contexts described by De la Sablonnière (2017) as DSC. What is less well understood is the nature of the relationship between CLT propositions and OA. It is for these reasons that this study sought to explain the relationship between CLT in terms of, what is done by complexity leaders (practices), how they do it (behaviours) and why they do it (motives) and OA, especially within contexts of discontinuous DSC. The study used theories of complexity, organisational behaviour and social change to develop a conceptual framework for the empirical examination of the impact of CLT on OA in DSC.

Although extant literature is replete with organisation adaptation debate in multivocal forms (e.g., fitness, strategic change, survival, performance, and growth), the stream exhibits considerable conflicting tautological measures and unwitting conflation. Therefore, there are heightened calls for researchers to develop a more nuanced understanding of the levels at which this phenomenon happens through empirical means (Sarta et al., 2020, p.61). Crucially, CLT has been touted as prescribing CL practices that could help firms build the OA capability (Teece et al., 2016), with calls by Uhl-Bien and Arena (2018, p98-100.) for researchers to empirically study how CLT may lead to OA as an outcome. Furthermore, Tsoukas (2017), as well as Tourish (2019), have called on leadership researchers to conjunctively integrate theories and add context, respectively, that exposes the depth of conceptualisations on leadership. Therefore, with theoretical conjunctive integration and contextual integration of DSC in a quantitative design, this study extends prior research beyond largely framework conceptualisations and heuristic prescription in extant studies (e.g., Sarta et al., 2020; Uhl-Bien and Arena, 2017, 2018).

This chapter offers a conclusion to the research, firstly, restating the research findings and the implication thereof, for both theory and practice. The chapter further focuses on the study's limitations, closing off with recommendations for possible opportunities for future research.

7.2 Research Findings

The study drew on key nascent but burgeoning theoretical constructs, CL Theory, DSC and a more developed, and ubiquitous yet highly fragmented concept, Organisation Adaptation. The study explored how and why CLT impacts OA, forming the basis for Research Question 1 and its three sub-questions. The research further sought to explain how this relationship's nature would be bounded by DSC, establishing the origins for Research Question 2 and its three sub-questions as presented in Chapter 3.

The research adopted a quantitative approach, studying the SME population in Zimbabwe, that provided sound empirical answers to the research questions (the six sub-questions) which are hereby summarised. Unlike prior studies that analysed CLT as a first-order construct, this study delineated CLT into three sub-constructs thus: OPLEAD, ENTLEAD and ENALEAD, whose appropriateness for use as constructs was confirmed through reliability, discriminant and convergent validity assessments presented in Chapter 4 and Chapter 5. Although DSC was not delineated, the researcher found no extant studies that had tested it empirically. Therefore, the researcher largely inferred measures from literature and then established its appropriateness for application as a direct construct leaning on reliability, convergent, and discriminant validity tests.

The methodological originality of this study has to be stressed in the context of prior empirical studies on CLT. Arguably, the delineation of the CLT into the three subcontracts clears up some conceptual ambiguity of CLT and therefore opens up pathways for much needed future scholarship, scaled reviews of inter-disciplinary literature such as DSC (Sociology and Psychology), OA (Strategic Management and Organisational Behaviours) and CLT (Leadership and Natural Science). It is advanced that this methodological originality has the potential to add pertinent impetus to the CLT, DSC and OA scholarship in terms of breadth and depth. This dispersion of areas of inquiry in the study should serve for integrative and conjunctive analysis of the many theoretical assumptions premised in the theories that anchor the research. Future researchers may locate areas of integration, further clear up lingering conceptual ambiguity (see Hannigan et al., 2019). Future researchers may follow the methodology chapter that presented stepwise procedures. The results chapter has provided detailed stepwise processes and analytical procedures that could inspire literature reviews, CLT, DSC and Organisational Adaptation empirical studies.

The study established that although a weak relationship exists between OPLEAD and OA, the relationship was not statistically significant and meaningful ($\beta = 0.132 < 0.25$, $t = 1.698 < 1.96$, $p = 0.09 > 0.05$), thus, returning an inconclusive answer to Research Question 1.1. The relationship between ENTLEAD and OA was found to be moderate, significant, and meaningful ($\beta = 0.382 >$

0.25, t = 3.949 > 1.96, p = 0.000 < 0.05). The study further established a weak though significant and relevant link between ENALEAD and OA (β = 0.229 < 0.25, t = 1.995 > 1.96, p = 0.044 < 0.05). These outcomes provided conclusive answers to Research Question 1.2 and Research Question 1.3.

Considering the moderating effects of DSC on the link between CLT and OA, the study established enhancing moderating effects on all the links. Moderation on the effects of OPLEAD on OA crucially returned significance and meaning, (β = 0.280 > 0.25, t = 3.316 > 1.96, p = 0.001 < 0.05). Moreover, the link between ENTLEAD was enhanced to the extent of (β = 0.433 > 0.25, t = 7.528 > 1.96, p = 0.000 < 0.05), while that of ENALEAD and OA increased to (β = 0.403 > 0.25 from β = 0.229, t = 5.575 > 1.96, p = 0.000 < 0.05). This outcome was fundamentally important in that it established that within certain boundary conditions such as DSC, the conceptualised relationships in Research Question 1 hold true. Thus, Research question 2 was comprehensively answered.

An important finding of the study related to the effect sizes (rank order) is the strength of each leadership practice's importance in explaining OA. The results show that the highest rank-order on the direct effects is ENTLEAD (f^2 =0.118 >0.15), a medium effect that further increases under moderation (f^2 =0.23 <0.35). ENALEAD returned the second biggest effect size, though small, effect size (f^2 =0.035 <0.15) on direct relationship, while its effect size when moderated by DSC significantly rises to medium effect size(f^2 =0.194>0.15). The findings further show that OPLEAD has small effect sizes directly, (f^2 =0.012 <0.15) directly, though rising significantly, yet still small effect size under moderation (f^2 =0.085 <0.25).

Even more eminently, the research established the proposed model's predictive power, including the effect sizes of the individual constructs. The statistical power and predictive power are essential in explaining that specific relationships are more likely to be statistically significant when they are present in a population (Hair et al., 2019). Thus, a combination of explanation and prediction perspectives can be derived from these findings. This is seen as the *sine-qua-non* need for business and social research (Hair et al., 2017 p.120). Thus, the findings from this study contribute to calls from the multiple leadership disciplines and scholars integrated in this study. These include context (e.g., Gardner et al., 2017; Johns, 2017; Oc, 2018), leadership theory conjunction and integration (e.g., Rosenhead et al., 2019; Tsoukas, 2017, Tourish, 2019), adaptation (e.g., Sarta et al., 2020). Moreover, the study supports methodological principles and literature on moderation (e.g., Aguinis et al., 2017) and predictive relevance of theoretical models (e.g., Shmueli et al., 2019).

7.3 Research Limitations

The researcher notes the following limitations on the study, which may be viewed as opportunities for future research.

1. The study's primary limitation concerns the population, the sample, and the non-probability purposive sampling technique applied. The population of targets was limited to Zimbabwean SME firms that were registered with membership groups cited in Sections 6 and 7 of Chapter 4. The study did not include the large organisations and those listed on the Zimbabwe Stock Exchange, where some of the CLT practices might be more nuanced. The study did not sample Micro-Businesses and excluded startup companies of less than 2 years. The purposive sampling adopted in the study is limited to availability and the researcher's judgement on which potential respondents meet the sought-after qualities. This altogether admittedly imposes certain limitations on the generalizability of the results within and across other jurisdictions. Although the sample provided hypothesis support and the sample size proved sampling adequacy, larger sample sizes could offer higher statistical power and the reduction of potential errors.
2. The researcher made efforts to minimize Common Method Variance (CMB) and Causal Inferences (CI) by applying the PLS-SEM full multicollinearity procedures recommended by Kock and Lynn (2012) as well as Kock (2015). These included both the vertical (predictor-predictor) and, lateral (predictor -criterion) as illustrated in Chapter 4 and the favourable results on VIF output in Chapter 5. However, CMB is endemic to cross-sectional studies and empirical studies (Kock, 2015), due to the measurement model itself, confounded by respondents' social desirability (e.g., Podsakoff et al., 2013). The researcher submits that even though the measures taken minimized it, they may not have completely eliminated it. On this basis, therefore, the researcher notes that interpreting the results through the concurrent measurement of variables is subject to shortfalls in the importance of directional influences (see MacCallum and Austin, 2000), leading the researcher to concede that the attained results may not necessarily prove causality.
3. Additionally, the general understanding of the proposed analytical technique, PLS-SEM, is limited as at present day. Conceptualisations from past studies have mainly drawn on common-factor methods and thus have received widespread development and reviews. Similar to reflective measures, PLS-SEM also derives the meaning of formative measures to a large degree on where a construct is positioned in the model (Aguirre-Urreta, Rönkkö, & Marakas, 2016). This implies the dependence of indicator weights on the embedded context in the path model; therefore, it may have biased the study's outcome.

4. The study constructs, especially CLT and DSC, are nascent and burgeoning, the researcher notes that these may not be fully developed as constructs, still requiring further development. Specifically, the exhaustiveness of the constructs in measuring the phenomenon in question might be limited. This poses limitations on the appropriateness of required responses to questions, some of which were adopted from alternative leadership fields. Moreover, the suitability of the questions in capturing the respondents' perceptions and sentiments could have been limited. Additionally, appropriateness of the characterisation of especially CLT and DSC could have been problematic as inferences from the literature on some measures were made by the researcher.

7.4 Implications For Business

Scholarly work has proposed differing constructs of CL (e.g., Osborn et al., 2002; Uhl-Bien and Arena, 2017; Uhl-Bien and Arena, 2018; Uhl-Bien et al., 2007). Though similar in their production and communication of ideas, they differ in their motivations and intentions by which their communication is expressed to leaders. Therefore they capture different aspects of the processes, behaviours and practices. In bringing more clarity to the various conceptualisation, CLT and the findings of this study offer a better promise to practice.

Firstly, this study contributes some perspectives to practitioners on the emerging CL practices, behaviours and processes that inspire and guide leaders and their organisations to proactively deal with emerging and obtaining discontinuous dramatic complexity and ambiguity. CLT proffers that institutionalising OPLEAD, ENTLEAD and ENALEAD practices engender behaviours necessary for learning and increased absorptive capacity, promoting OA (Marion et al., 2016; Sarta et al., 2020; Uhl-Bien and Arena, 2018; Zahra and George, 2002). These perspectives could potentially influence leaders' views on their roles in leading with resource constraints, largely endemic to DSC contexts characterised by uncertainty, high dynamism, and heightened complexity. This study's outcomes explain that the reliance on episodic performance and multivariate modelling to manage risk, the focus on near-term and reliance on familiar routines and patterns may not necessarily encourage organisation adaptation. Thus these practices should be supplemented by a continuous contextual adaptation of tools and practices. The contextual adaptation of tools leans on the OPLEAD practices where leaders should devise communication systems and incentive systems to fit operational training needs. This could be achieved by contextually reframing bureaucratic hierarchies to those that include sponsoring new ideas, moving from blocking ideas to filtering of ideas, and accepting and incorporating new methods. The implications of the finding suggest that when leaders are dealing with heightened levels of complexity, the triggers are more conducive to particular leaders of a higher bureaucratic

discourse, therefore more consistent with internal adaptation. In this case, leaders have to assess their motives and allocate related mentally oriented personnel to lead in such circumstances.

Secondly, Uhl-Bien et al. (2007) posit that the success of organisations is affected more by their social ability to learn than by their tangible assets, inferring that even when endowed with resource slack, there is a fundamental need for leaders to espouse new leadership ideas to enable adaptation at the appropriate levels, whether internally, at the market level or at the institutional stratus. This was empirically proven through research question 1.2 in this study. Therefore, by adopting CL propositions, leaders could potentially shift competency models, remuneration models, reward models and human resources practices that allow greater OA. The practice of ENALEAD and ENTLEAD practices suggested by CLT is called for. Typical examples include co-action, co-creation, brokering, decentralisation, establishing semi-structured and increased multilevel collaboration. Leaders are recommended to exercise a significant level of variance in the diversity of resources, teams, and profit sanctuaries through natural and planned experimentation, learning, and flexibility instead of perpetuating minimal variance and stability. This way, sustaining long term growth and convergent adaptation (Sarta et al., 2020) for their firms becomes a potent capability.

Fundamentally, organisations should consider empowering their leaders and managers in experimentation with unfamiliar practices, markets, and products and growth mindsets that emphasise higher motivation and anticipatory outcomes over pessimistic views of contextual complexity. Leadership practitioners are recommended to distinguish the level of adaptation their organisations seek at particular times, noting that a combination of adaptations will require a different combination of CLT practices. When the adaptation sought is internal, OPLEAD practices are more appropriate, whereas when the motive is a market adaptation, ENTLEAD and OPLEAD practices and behaviours are more appropriate. Finally, suppose institutional level adaptation is the motive. In that case, all the CLT practices altogether become essential to implement and emphasise, with a trade-off between the CLT practices being implemented. ENTLEAD and ENALEAD's effects imply that delegating entrepreneurial activities to leaders and managers with a bureaucratic and hierarchical orientation will more likely lead to regulative exploitative endeavours and less likely of explorative ones. Put differently, hiring and delegating leaders with a higher ENTLEAD and ENALEAD focus has the prospects of inhibiting the core operations of the business that are equally important in the competitiveness of the firm.

Thirdly, this research could potentially inform leadership education as well as leadership development programs that train employees in CL competencies and knowledge required to lead in adaptable organisations operating in DSC Contexts, which are becoming a permanent feature

of the business landscape. The outcomes on the nature and strength of the relationships established in this study inform leaders on which areas and what combinations of leadership practices they should place greater emphasis to accentuate appropriate OA. The findings implore the prevalence of ENTLEAD in OA. DSC's moderation elucidates the eminence of ENALEAD under these complex DSC contexts, where even the lesser prevalent OPLEAD practices become more critical when bounded by DSC. Strategic leaders with interests in developing CL behaviours, processes and systems, could take measures that ensure all the CL skills are developed, vigorously supported, and effectively implemented, minimising their perceived downsides and escalating their advantages. More pertinent is the need to understand the CL personal traits and methods that trigger Organisation Adaptation. While it may be argued that certain organisations are way better than their peers at managing varying degrees of indeterminate uncertainty, others have found better ways of looking in different places of the same context to thrive on contexts such as DSC. CLT practices and the outcomes of this study suggest that leaders can predict success in their firms' adaptation capability development when appropriately applied by applying CLT practices. At various stages of their lifecycles, organisations have to ponder the nature and extent of their exploitation and exploration activities that achieve convergence with the operating environment, then aligning these activities with their strategic intent and strategic posture. Therefore, these arguments place implications on leadership hiring processes, a different view on personal traits and behavioural integration.

7.5 Implications For Theory

CLT remains mostly unexplored, and consequently, there are calls for Leadership researchers to advance CLT by adding a focus on understanding the intricacies of how OA as an outcome is achieved through the CLT lens (Linnenluecke, 2017; Rosenhead et al., 2019; Tourish, 2019; Uhl-Bien and Arena, 2018 p.100). This study, therefore, contributes in multiple and vital ways.

Firstly, the study contributes further perspectives in the field of CL in the emerging and burgeoning stream of CLT. The nascent CLT is specifically characterised by leadership processes and practices that enable OA (Uhl-Bien and Arena, 2017; Uhl-Bien and Arena, 2018; Uhl-Bien et al., 2007). However, minimal prior studies have offered sufficient empirical evidence to further its theoretical underpinnings and justifications (see Rosenhead et al. 2019; Tourish, 2019; Tsoukas 2017). For instance, Tourish (2019) suggests that CLT writings are conceptually abstract, and there is a great deal of empirical illustration scantiness. This study offers its contribution to this shortcoming by presenting plausible empirical outcomes within the study's own limitations. Furthermore, the empirical outcomes were based on a delineated CLT theory at second-order construct level. Consequently, this clears out some conceptual ambiguity and leveraged

theoretical assumptions to facilitate further inquiry and dispersion of the subcontracts in future studies.

Secondly, the CLT by Uhl-Bien and Arena (2017) advances three leadership sub-constructs of ENTLEAD, OPLEAD and ENALEAD. Given the different motives behind these types of CL, the study examined the strength of the association between each type and OA so as to inform the leadership scholarship when CL might more or less facilitate OA as it relates to practices, processes and behaviours that address challenges and opportunities ascribed to DSC. More significantly, the study empirically confirmed the appropriateness for the direct application of OPLEAD, ENTLEAD and ENALEAD as constructs in future studies. This opens many avenues for future research as it revealed the subtle factor configurations and the underlying logic behind CLT's qualitative conceptualisations into quantitative realities, thereby deepening and modifying our knowledge about the theory. Further studies could undoubtedly build on additional measures, indicators, and specifications to build more reliability on the scales developed in this study, as well as entrenching a long outstanding yet much needed known scale for CLT empirical and theoretical development.

Thirdly, the research sought to further enumerate the potential moderation of the hypothesised relationships by a DSC context and thereby identify the conditions under which CLT as a construct might differ in its strengths to impact a leader's contribution to OA. Without plausible extant empirical studies on De la Sablonnière's (2017) DSC Theory, this study confirmed DSC's appropriateness for empirical testing. Much more fundamentally, the study contributes to further debate on DSC and how its propositions could be further reviewed in as far as they set boundary conditions for leadership. Furthermore, the study concluded that indeed, DSC has positive enhancing effects on CLT, therefore it sheds more light to current streams on moderation of leadership by context (e.g., Gardner et al., 2017; Hiller et al., 2019; Johns, 2017; Oc, 2018). Crane et al (2016) posit that one of the three levels of theory contribution is the "theory testing and refinement" (p.785). This study can make a claim to this postulation, having successfully tested theoretical conceptualisations of CLT and DSC.

Fourthly, scholars have called for the conjunctive understanding of leadership theories (e.g., Rosenhead et al., 2019; Tourish, 2019; Tsoukas, 2017). Extant research sets clear the importance of considering context in Leadership research (e.g., Hiller et al., 2019; Johns, 2017; Oc, 2018; Papachroni et al., 2015). This work integrated the theoretical propositions of DSC (De la Sablonnière, 2017), CLT (Uhl-Bien and Arena, 2017, 2018) and OA (Sarta et al., 2020) to advance an understanding of their interaction. It has been argued that the added value of a contextual approach is to illustrate how context shapes personalities, behaviours, workstreams

and decision making in organisations (cf. Hiller et al., 2019; Johns, 2017; Papachroni et al., 2015). While enabling demarcation of the distinctiveness of situations, context also allows for the integration of areas of research and levels of analysis, a key aspect to be considered in leadership studies (Johns, 2017, Sarta et al., 2020, Oc, 2018). In this respect, this study considered Organisational Adaptation at the three convergent levels postulated by Sarta et al. (2020), thus internal, market, and institutional. Therefore, it adds different perspectives to the empirical survey-based studies prior conducted. DSC's context consideration moved the theory to a more clearer conceptual characterisation that may ground scholars for future research in leadership and strategic management.

Following Crane et al. (2016) and Colquitt and Zapata-Phelan (2007), this study's methodological contribution is the sixth instance. Almost all the reviewed and available prior CL empirical studies that the researcher could locate (e.g., Ahmadi et al., 2017; Diesel and Scheepers, 2019; Lombard, 2017; Visser, 2017) universally specified their construct indicators as reflective measures in factor-based models. The analytical approaches were either CB-SEM or Linear Regression. This study's approach was different in that the MIMIC measurement model applied formative measures on CLT and DSC constructs and reflective measures on OA construct. The subsequent application of PLS-SEM analysis is the first among those known and available within CLT empirical literature obtained by the researcher.

Multiple studies have demonstrated the robustness and efficacy of PLS-SEM (e.g., Becker et al., 2018; Hair et al., 2019; Hair et al., 2017; Sarstedt et al., 2017a). Yet more, its superiority has been found as more pronounced when interaction effects are present (e.g., Aguinis et al., 2017). All these scholars have called for the application of the PLS-SEM analytical approach. As such, this study offers further contribution in this methodological approach by confirming and validating that indeed, the analytical approach is applicable to small sample sizes in transition economies. The research further validates that the measurement specification concerns by Jarvis et al. (2003) can actually be addressed when researchers correctly specify measures by considering whether constructs are exogenous or endogenous.

7.6 Suggestions For Future Research

1 While it is acknowledged that the concept of organisation adaptation has been a subject of study for a much longer time, it has proven a to be elusive for many a firm (Sarta et al., 2020; Teece et al., 2016, Uhl-Bien and Arena, 2018). Streams of literature on its importance as a capability and outcome remain scant, and as such, it requires much further illustration. This study considered OA as an outcome, responding to the challenge posed by Uhl-Bien and Arena (2018). However, instead of viewing it at its individual stratified layers (internal, market

or institutional) per Sarta et al. (2020), the study took the multilevel approach. Therefore, this offers future studies a gap to consider the impact of CLT on OA as an outcome at each individual stratum, delineating CLT's effects on different layers of firm adaptation.

2 The study considered CLT as directly influencing OA, being moderated by DSC. Future studies may consider a wider constellation of complex models that may evaluate ENALEAD as a mediator to OPLEAD and ENTLEAD, leading to OA. Other Hierarchical models, such mediated moderation could be appraised. The mediating effects of ENALEAD are moderated by contexts such as DSC, firm maturity, firm location, or cognitive leadership capabilities.

3 Composite constructs and models have been argued to offer greater efficacy in accurately capturing conceptual variables (cf. Rigdon et al., 2017b, Rhemtulla, van Bork, & Borsboom, 2020). Sarta et al. (2020) suggest that organisation adaptation is composed of intentional practices, relational practices, conditioning practices, and convergent practices, implying a composite formation. On this basis, future studies could look at specifying OA using formative measures and consider it as either a moderator or mediator between CLT and Firm performance.

4 This study was based on a cross-sectional design and therefore limits the finding's causal implications. Future studies should consider longitudinal designs that may bring more light into the causal efficacy of CLT on OA.

5 While this study was based on the SME firm population in Zimbabwe, a cultural population in which high power distances exist, this may have impacted the respondents' perceptions. Therefore, there is a need for replication studies in other populations of different cultural contexts that could shed more light on the development of both CLT and DSC theories.

6 The study sampled minimum manager-level employees and higher positions, but the ENALEAD construct emphasises leadership emergence and distributed leadership at all levels, positing that leadership emerges as distributed amongst agents; therefore it can not only be an Executive remit. Thus, future studies could consider antecedents of CLT by looking at how it emerges in practice, how exactly is it practised at all levels of seniority within firms leading to its emergence. This could help establish potential configurational and factorial issues to light, therefore further deepening our understanding of CLT and its theoretical development.

7 Future studies are urged to consider multi-group analysis (MGA), where the variability of the impact of CLT is assessed on different industry sectors or concentric spatial contexts to allow the development of congruently appropriate prescriptions of CLT practices for each industry segment or cluster.

7.7 Conclusion

The need for organisational adaptation in scholarship and practice is univocal. As such, it is regarded as the quintessence of managerial and leadership efficacy. This research has provided significant insights into the nature of the relationship between CLT and OA under DSC contexts. A survey-based design was used to collect data from SME firms in Zimbabwe. The data was analysed using PLS-SEM procedures and processes. The findings largely confirm the positive impact of CLT practices on OA. DSC's moderation effect was also tested and established to positively enhance the impact of CLT on OA. Though CLT remains relatively unexplored in leadership research, this study's findings suggest the predictive potency of CLT on a firm's adaptation. Thus, the study provides new perspectives on how organisations and their leaders could embrace complexity to deal with complexity. These comprehensive findings can find usefulness in the development of leadership recruitment, training, compensation, and leadership development. The study further contributes to the yearning need in the literature to further our understanding of how CLT practices can be implemented in firms to build capabilities such as OA. The study contributes to scholars' calls to conjunctively integrate multiple theories to create a better understanding of the CL intricacies. Furthermore, contribution toward literature derived from this study concern how DSC Theory can be applied as a context that bounds CLT practices.

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Appendix 1- Questionnaire

QUESTIONNAIRRE

Implications Of Complexity Leadership On Organisational Adaptability In Dramatic Social Change Context

Survey Flow

Block: Default Question Block (2 Questions)
Standard: Organisation and respondent particulars (7 Questions)
Standard: Operational Leadership Practices -Exploitation (1 Question)
Standard: Entrepreneurial Leadership Practices -Exploration (1 Question)
Standard: Enabling Leadership Practices (1 Question)
Standard: Organisational Adaptability (1 Question)
Standard: Moderating Context (Dramatic Social Changes Impacting Operations and Resources) (1 Question)
Standard: Personal particulars (5 Questions)
Standard: Thank You (1 Question)

Page Break

Start of Block: Default Question Block

Dear Respondent

You are herewith invited to participate in an academic research study conducted by Gordon Institute Of Business Science (GIBS). The purpose of the study is to investigate complexity leadership in organisations, and the focus of the research is on building adaptable organisations in view of emerging dynamic, uncertain, complex and dramatic social change contexts. All your answers will be treated as confidential and anonymous, and you or your organisation will not be identified in any of the research reports or publications emanating from this research in which data will be reported only in aggregated form. Your participation in this study is very important to us. You may however choose not to participate, and you may also withdraw from the study at any time without any negative consequences. Please answer the questions in the attached questionnaire as completely and honestly as possible. Completing the questionnaire should not take more than 15-20 minutes of your time. The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of the findings on request. Please contact the researcher, Tongesai Chingwena, (19405911@mygibs.co.za) or the research supervisor Prof Caren Scheepers (scheepersc@gibs.co.za) if you have any questions or comments regarding the study. By clicking on the "submit" button below, you are indicating your consent to voluntarily participate in the study.

Consent_YN *I agree to participate in the study* described *above. I have made this decision based on the information I have read in this information consent letter.*

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If Consent_YN = 2

End of Block: Default Question Block

Start of Block: Organisation and respondent particulars

OrgPart **1. Organisation and Respondent Particulars**

Please kindly complete this section by providing the requested organisation particulars to the best of your knowledge.

Org_Type Which of the following best describes the type of organisation that you work for?

▼ A privately-owned enterprise (1) ... Government Business Enterprise (7)

Num_Employ How many full-time employees (approximately) work in your organisation, strategic business unit (if part of a group)?

_____

Core_Bus What is the core business of your establishment?

▼ Agriculture, Fishery, Forestry (1) ... Regulator and Professional Body (19)

Country In which country/ region is your organisation's head office located?

▼ Zimbabwe (1) ... Other (8)

Position What best describes your position within your company?

▼ Senior Manager or Executive (1) ... Other (6)

Functional_Area Which of the following best describes the functional area that you work in?

▼ Sales & Marketing (1) ... Other Support Services (13)

End of Block: Organisation and respondent particulars

Start of Block: Operational Leadership Practices -ExploitationOpLead

2. Operational Leadership Practices

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
In our organisation, our leaders understand the constraints of our organisation (OpLead_1)	○	○	○	○	○
Our leaders implement sensing mechanisms for what needs to be changed in our organisation (OpLead_2)	○	○	○	○	○
Our leaders recognise the strengths and weaknesses of our organisation. (OpLead_3)	○	○	○	○	○
Our leaders capitalise on opportunities presented by the external environment. (OpLead_4)	○	○	○	○	○
Our leaders develop specific policies to support our firm vision and purpose. (OpLead_5)	○	○	○	○	○
Our leaders set specific objectives so that the mission can be accomplished. (OpLead_6)	○	○	○	○	○
Our leaders ensure that the firm's vision is well understood in specific terms (OpLead_7)	○	○	○	○	○
In this organization, leaders translate the company's mission into specific goals. (OpLead_8)	○	○	○	○	○
In this organisation, leaders remove obstacles to our goal attainment. (OpLead_9)	○	○	○	○	○
Leaders in this organisation ensure that we have sufficient resources to reach our goals. (OpLead_10)	○	○	○	○	○

In our firm, leaders clarify the path to my goal attainment (OpLead_11)	○	○	○	○	○
Our organisation's leaders have effective systems to facilitate goal achievement (OpLead_12)	○	○	○	○	○
Our leaders help me to correct my mistakes (OpLead_13)	○	○	○	○	○
The leadership in in our company assists me to learn from my mistakes (OpLead_14)	○	○	○	○	○
In our company our leaders quickly disseminate and communicate information to all units or departments (OpLead_15)	○	○	○	○	○
Our leaders provides me with information concerning how mistakes can be avoided (OpLead_16)	○	○	○	○	○
Our leaders provide me with constructive feedback about my mistakes (OpLead_17)	○	○	○	○	○

End of Block: Operational Leadership Practices -Exploitation

Start of Block: Entrepreneurial Leadership Practices -Exploration EntrLead

3. Entrepreneurial Leadership Practices

	Strongly Disagree (1)	Disagree (2)	Neither Agree Nor Disagree (3)	Agree (4)	Strongly Agree (5)
Our leaders emphasise a high rate of new product /service introductions compared to our competitors. (EntrLead_1)	○	○	○	○	○
Our leaders place emphasis on continuous improvements in methods of production or service delivery . (EntrLead_2)	○	○	○	○	○
The leaders in our company practice risky experimentation with new products and new services in our operating markets. (EntrLead_3)	○	○	○	○	○
The executives in our firm seek new and novel solutions to emerging problems via brainstorming. (EntrLead_4)	○	○	○	○	○
Our top management has a philosophy that emphasises proven products and services, and the avoidance of heavy new product and service development costs. (EntrLead_5)	○	○	○	○	○
Our leaders are cautious and pragmatic and make step-at-a-time adjustments to problems. (EntrLead_6)	○	○	○	○	○
Our executives actively search for new ideas and big opportunities. (EntrLead_7)	○	○	○	○	○

Our management emphasises rapid growth as the dominant goal. (EntrLead_8)	○	○	○	○	○
The leaders in our firm make large and bold decisions despite uncertainties of outcomes. (EntrLead_9)	○	○	○	○	○
When faced with conflicting demands of owners, regulators, customers, employees and customers, our leaders make compromises. (EntrLead_10)	○	○	○	○	○
Our leaders view steady growth and stability as primary concerns. (EntrLead_11)	○	○	○	○	○
Our management introduces new products and services more frequently in our firm than competitors. (EntrLead_12)	○	○	○	○	○
The leaders in our company regularly assess ideas for viability and desirability. (EntrLead_13)	○	○	○	○	○
Our management regularly searches for new products, services and clients in new markets. (EntrLead_14)	○	○	○	○	○
In this organisation, leaders seek out and promote creative and innovative thoughts in order to create new products and services. (EntrLead_15)	○	○	○	○	○

Our management promotes changes to our products or services due to customer demands and competitor moves (EntrLead_16)	○	○	○	○	○
Our executives often introduce new methods and operational processes in managing customers, sales, distribution, support, and HR (EntrLead_17)	○	○	○	○	○
Our management motivates the employees to use new information sources within our industry (EntrLead_18)	○	○	○	○	○
Our management and employees successfully link existing knowledge with new insights and methods. (EntrLead_19)	○	○	○	○	○

End of Block: Entrepreneurial Leadership Practices -Exploration

Start of Block: Enabling Leadership Practices EnabLead

4. Enabling Leadership Practices

	Strongly Disagree (1)	Disagree (2)	Neither Agree Nor Disagree (3)	Agree (4)	Strongly Agree (5)
Our leaders facilitate dialogue and discussion to help employees share knowledge in developing a shared understanding of issues. (EnabLead_1)	○	○	○	○	○
Our leaders initiate discussions on what is important, not what to do and how to do it. (EnabLead_2)	○	○	○	○	○
Our leaders connect employees with a broad variety of potential information sources such as those people with relevant information. (EnabLead_3)	○	○	○	○	○
Our leaders inject ideas and information into the system for it to process to create energy for change. (EnabLead_4)	○	○	○	○	○
Our leaders tell stories to illustrate important learning points. (EnabLead_5)	○	○	○	○	○
Our leaders encourage employees to raise difficult and challenging questions that others may perceive as a threat to the status quo. (EnabLead_6)	○	○	○	○	○
In this organization, leaders provide advice and coaching. (EnabLead_7)	○	○	○	○	○

Our leaders create linkages between entities inside the organisation and with external stakeholders. (EnabLead_8)	○	○	○	○	○
Our leaders have political skill of sizing up group politics for the benefit of the department or business unit. (EnabLead_9)	○	○	○	○	○
Our leaders display political savvy in understanding the interests of the other players in organisational networks. (EnabLead_10)	○	○	○	○	○
Our leaders build networks across internal organisational boundaries/silos or functions. (EnabLead_11)	○	○	○	○	○
Our leaders embrace diversity by having diverse people and views as part of the network. (EnabLead_12)	○	○	○	○	○
Our leaders gather feedback information from external stakeholders such as suppliers and customers to improve the organisation. (EnabLead_13)	○	○	○	○	○
Our leaders in this organization are easy and approachable to talk to about work-related problems (EnabLead_14)	○	○	○	○	○

In this organisation, we gather intelligence from what is happening in the context like which threats and opportunities are developing. (EnabLead_15)	○	○	○	○	○
In this organisation we demonstrate being in tune with the organisational and external environment or context. (EnabLead_16)	○	○	○	○	○
In our organisation, we frame our change projects in ways that appeal or speak to the interest of particular stakeholders. (EnabLead_17)	○	○	○	○	○
Our leaders adapt their communication to different ethnic cultures in the organisation. (EnabLead_18)	○	○	○	○	○
In this organisation, the management investigates relevant contextual variables that might influence the organisation's decisions. (EnabLead_19)	○	○	○	○	○
Our management has a forward-looking mentality – sense of direction for where the organisation is going in the future. (EnabLead_20)	○	○	○	○	○
Our leaders provide opportunities for diverse employees to interact in a non-discriminatory manner. (EnabLead_21)	○	○	○	○	○

Our leaders promote debate among employees about what creates value for our customers. (EnabLead_22)	○	○	○	○	○
Our leaders provide all the information we need to make value-added decisions. (EnabLead_23)	○	○	○	○	○

End of Block: Enabling Leadership Practices

Start of Block: Organisational Adaptability

OrgAdap 5. Organisational Adaptability
When considering your organisation's overall position compared to your industry average over the last three years, how would you rate it on each of the metrics below?

	Poor (1)	Below Industry Average (2)	Average (3)	Above Average (4)	Excellent (5)
Overall financial performance (OrgAdap_1)	○	○	○	○	○
Growth in revenue (OrgAdap_2)	○	○	○	○	○
Customer perceptions of our brand (OrgAdap_3)	○	○	○	○	○
Technology screening, monitoring and application (OrgAdap_4)	○	○	○	○	○
Market scanning, collaboration with customers and marketing channels (OrgAdap_5)	○	○	○	○	○
Customer intimacy and competitor focus (OrgAdap_6)	○	○	○	○	○
Structural arrangements and empowerment of operational processes (OrgAdap_7)	○	○	○	○	○
Inter-functional coordination and intra-firm cooperation (OrgAdap_8)	○	○	○	○	○
Perceived competitive edge in product innovations (OrgAdap_9)	○	○	○	○	○
Number and quality of product innovations (OrgAdap_10)	○	○	○	○	○
Perceived research and development in the firm (OrgAdap_11)	○	○	○	○	○
Accelerated launch of new products (OrgAdap_12)	○	○	○	○	○

Exploitation of new domains of organisational capabilities (products, markets, locations) (OrgAdap_13)	○	○	○	○	○
Strategic intent and focus (broad firm direction, advantage, collaboration, engagement) (OrgAdap_14)	○	○	○	○	○
Managerial risk aversion (OrgAdap_15)	○	○	○	○	○

End of Block: Organisational Adaptability

Start of Block: Moderating Context (Dramatic Social Changes Impacting Operations and Resources)

ModDSC 6. Dramatic Social Change Context When considering your organisation's operating environment after the outbreak of Covid-19, to what extent do you agree with each of the following statements on each of the metrics below?

	Strongly Disagree (1)	Disagree (2)	Neither Disagree Nor Agree (3)	Agree (4)	Strongly Agree (5)
In our industry segment, the level of rivalry is intense (ModDSC_1)	○	○	○	○	○
In our industry segment, supply conditions are erratic and frequent (ModDSC_2)	○	○	○	○	○
In our industry segment, the level of introduction of new processes is high (ModDSC_3)	○	○	○	○	○
In our industry sector, the level of technological changes is high (ModDSC_4)	○	○	○	○	○
In our Industry, demand conditions for products and services are erratic and frequent (ModDSC_5)	○	○	○	○	○
The level of changes within our industry is frequent and of high impact (ModDSC_6)	○	○	○	○	○
In our company, the level of impact on strategic planning and speed of execution has become dramatic (ModDSC_7)	○	○	○	○	○
In our department, the level of technological changes has become dramatic (ModDSC_8)	○	○	○	○	○
There has been a dramatic impact on the way and methods our teams use to communicate, operate and introduce new ideas in our company (ModDSC_9)	○	○	○	○	○

End of Block: Moderating Context (Dramatic Social Changes Impacting Operations and Resources)

Start of Block: Personal particulars

Personal **7. Personal Demographics**

In this last section, please respond by providing the requested personal attributes

Age How old will you be on your next birthday?

_____

Gender What is your gender?

- ○ Male (1)
- ○ Female (2)

Education What is your highest formal educational qualification?

- ○ Did not complete high school (1)
- ○ Completed high school (2)
- ○ Diploma (3)
- ○ Tertiary Degree (4)
- ○ Post Graduate Degree (5)

Race Which ethnic group do you belong to?

- ○ African (1)
- ○ Asian / Indian (2)
- ○ Mixed (3)
- ○ White (4)
- ○ Coloured (6)
- ○ Other (7)

End of Block: Personal particulars

Start of Block: Thank You

ThankYou **Thank you very much for your time. Should you wish to receive feedback on the results of the study, please enter your e-mail address below.**

_____

End of Block: Thank You

Appendix 2- Ethical Clearance

29/01/2021 Ethical Clearance Approved - 19405911@mygibs.co.za - Gordon Institute of Business Science Mail

Gordon Institute of Business Science
University of Pretoria

Ethical ClearanceApproved

Dear Tongesai Chingwena,

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

Ethical Clearance Form

Kind Regards