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Advance Methodology for Effective Implementation of Ambidextrous Innovation Culture

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Abstract

The organizations are facing a challenge of sustaining long-term business performance. As literature suggests, such long-term business performance can be attained through innovation. The ambidextrous innovation framework appears to be a key strategic framework that organizations can adopt in order to sustain their long-term business performance. Ambidextrous innovation is impactful because it helps organizations carry out both radical innovation, referred to as explorative, and incremental innovation, often referred to as exploitative innovation. However, implementing and adopting such a framework presents significant challenges that organizations have to face. Early insights and theories suggest that innovation, and more specifically ambidextrous innovation, requires a conducive culture that promotes behavioral patterns such as risk-taking, application of new ideas, collaboration, and cooperation. In light of such insights, the aim of the present research is to build the methodological toolbox to extract key insights and build theoretical models that assess the relationship between ambidextrous innovation and organizational culture. More specifically, this research guides organizations in modeling the culture so it can facilitate the implementation of ambidextrous innovation. The methodological stance and guidelines suggest that key grounded theory and action research methodologies of qualitative research can be employed to collect and analyze the data, leading to a theoretical model explaining the nuances of the culture necessary for the adaptation and implementation of ambidextrous innovation.

Keywords: *Organizational Culture, Ambidextrous Innovation, Methodology, Grounded Theory, Action Research.*

Introduction

The organization in today's hyper-competitive environment faces a lot of complex challenges. These challenges include various business and financial performance issues, competition, and other internal and external environmental challenges (Gomes & Mendes, 2023). The internal challenges pertain to various factors such as cost-cutting pressure, employee productivity and engagement, and operational efficiency (Masanja, 2024). Meanwhile, external pressures include factors such as market dynamics, technological advancements, and regulatory changes (Sani et al., 2019). Therefore, organizations need to undertake extra measures to mitigate these challenges to ensure smooth operation and long-term sustained performance (Fuertes et al., 2020). Among the many measures organizations can take, innovation appears to be a prudent and effective measure that can help organizations address both internal and external challenges (Palmié et al., 2023). Innovation not only ensures long-term sustainability by enabling companies to react quickly and effectively to changes in the external environment, but it also fosters the development and competitiveness of current operations (Mendoza-Silva, 2021).

The existing literature has been highly consistent regarding the impact of innovation not only on organizations but also on society in general, as innovation is being used to address various critical problems ranging from health to education (Takalo & Tooranloo, 2021). Current literature has reported significant positive impacts of innovation on aspects such as performance (Silva et al., 2020) and the strategic positioning of organizations for the long term (Saunila, 2020). The demand for novelty (an aspect of innovation requiring innovation to be more radical and new) is increasing as it is being adopted by organizations to face internal and external challenges they are encountering (Haefner et al., 2021). Thus, it is becoming urgent and imperative for organizations to channel their efforts in a way that ensures innovation remains novel (Silva et al., 2020). To implement such an effective way of pursuing innovation, various key frameworks have emerged. One such framework for channeling innovation in organizations is

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referred to as ambidextrous innovation (AlSaied & McLaughlin, 2024a). Ambidextrous innovation is also referred to as an innovation paradox, which means organizations undertaking new, radical, or incremental innovation need to balance both. It refers to exploratory innovation as new or radical and exploitative innovation as incremental, focusing on using current and existing resources to bring slight improvements in products and services (Saleh et al., 2023).

The key aspect of ambidextrous innovation is the organization's ability and decision to create a balance between explorative and exploitative activities (AlSaied & McLaughlin, 2024a). Literature suggests that explorative activities tend to focus on experiments, risk-taking, and the acquisition of new knowledge, resulting in novel products and services that provide a competitive advantage in the market (Saleh et al., 2023). On the other hand, exploitative innovation tends to utilize and exploit existing resources, knowledge, and technologies aimed at goals such as greater cost efficiency, optimization of current products and services, and maintaining current market share (Yun et al., 2021). Ambidextrous innovation is all about balancing the paradoxes of both exploration and exploitation (Srisathan et al., 2023). The general argument in favor of balancing the exploratory and exploitative paradoxes suggests that both approaches complement each other's efforts (Gong et al., 2021). The radical new knowledge, expertise, and technologies can provide significant guidelines and strategies for improving existing products and services (Saleh et al., 2023). At the same time, exploitative teams provide explorative teams with a path, initial knowledge, and information on demand and suitability regarding any new radical innovation in the form of products and services (Gong et al., 2021).

Given the conductive and effective framework ambidexterity offers to carry out innovation, it still faces several important challenges. The key challenge that existing researchers have identified is the culture of the organization (AlSaied & McLaughlin, 2024b). Ambidextrous innovation requires a culture that supports both exploration and exploitation and balances them (Muhammad et al., 2020). Thus, to achieve such a balance, culture needs to foster flexibility, collaboration, embrace change, and encourage risk-taking (Buccieri et al., 2020). Key theoretical models such as Schein's (Schein, 2010) competing values framework (Quinn & Rohrbaugh, 1983) and other models can provide valuable frameworks for understanding and shaping these cultural attributes, which support innovative thinking, collaboration, risk-taking, and flexibility necessary for ambidextrous innovation (AlSaied & McLaughlin, 2024b). However, literature on these key aspects of culture being designed to support ambidextrous innovation is highly limited, and more insight is needed to understand how organizational culture should be developed to serve as an anchor point for balancing paradoxes.

The existing studies, such as those by AlSaied and McLaughlin (2024b), Muhammad et al. (2020), and Buccieri et al. (2020), have shed light on how culture should be programmed for ambidextrous innovation. However, very little is known theoretically about the relationship between culture and ambidextrous innovation. Very few existing studies have specifically focused on the organizational culture aspect of ambidextrous innovation (Lee et al., 2023). Thus, comprehensive and exploratory research is urgently needed to uncover the nuances of the cultural anchoring necessary for ambidextrous innovation. This calls for a comprehensive methodology that aims to explore these deep insights. In this paper, we have attempted to highlight such a gap in the literature and propose that key methodologies focused on uncovering deep insight are necessary. These methodologies could include approaches such as focus groups, interviews, and literature reviews that are suitable to fill such gaps in the literature. Thus, the aim of the present research is to highlight the need for developing robust methodologies that can uncover the nuances of organizational culture necessary for modeling culture to implement ambidexterity.

Background On Organizational Culture and Ambidextrous Innovation

Organizational culture is defined as the values, norms, customs, and behavioral patterns widely shared by the members of the organization (Ouchi & Wilkins, 1985). Culture is said to be an important element that develops the identity of the organization both internally and externally (Market, 2009). Existing research and literature consistently conclude the impact of culture on key elements of business performance (Büschgens et al., 2013). Therefore, a culture that promotes values and norms such as collaboration, cooperation, and flexibility tends to perform better (Hogan & Coote, 2014) than a culture that is highly

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strict, bureaucratic, and authoritarian in nature (Garnett et al., 2008). Interestingly, such a positive culture promotes improved business performance through innovation.

An innovative organizational culture can be defined as a culture based on key values, norms, customs, and behavioral patterns that promote and encourage new ideas for products and services, risk-taking, team building, and team spirit (Harmancioglu et al., 2020). Organizational culture plays an important role in developing ideas, knowledge sharing, and experimentation, which result in the development of innovative products and services (Wang & Rafiq, 2014). Similarly, organizational culture also plays an important role in ambidextrous innovation. To achieve ambidextrous innovation and balance the exploratory and exploitative innovation paradoxes, the innovation team needs to strike a balance between using existing resources, expertise, and information to improve existing products while simultaneously striving to acquire new knowledge, technology, and ideas that lead to radical products and services (Khan & Mir, 2019). Such a delicate balance of exploratory and exploitative activities is not possible without an organizational culture that encourages people to take risks, seek out fresh information, and utilize this knowledge (Harmancioglu et al., 2020).

Importance And Significance of The Research

Given the important role organizational culture plays in balancing exploratory and exploitative innovation, a deep and comprehensive insight is needed, which is currently missing from the literature. While existing literature provides a comprehensive understanding based on empirical evidence, it is essential to develop a thorough, theory-driven understanding that informs the academic and managerial communities about the cultural traits, models, and other aspects needed for ambidextrous innovation. Thus, a more comprehensive research methodology must be designed to uncover such theory-driven insights on culture and ambidextrous innovation. The purpose and aim of the present research are to delve deeply into methodology literature and develop a methodological design to uncover the theoretical relationship between ambidextrous innovation and culture.

The present research study, which aims to develop a methodological design to uncover theoretical insights, has key significance. First, concepts like organizational culture and its impact on ambidextrous innovation are complex and require a thorough methodology that can capture the subtle relationships. The data collected needs to be both novel and comprehensive so that it can be analyzed effectively, resulting in the thorough development of a theoretical framework that appropriately depicts the way culture and innovation interact. Second, a well-thought-out technique makes it easier to triangulate data from several sources, enhancing the comprehensiveness and depth of the results. By integrating qualitative techniques like focus groups and interviews with comprehensive literature reviews, we can discern patterns, derive significant findings, and provide practical insights. This encompassing method not only reinforces the theoretical base but also paves the way for researchers to replicate such methodological designs to validate and replicate the findings, as well as apply them to other complex issues in management science. Thus, a sound methodological design is necessary to further academic understanding and provide thorough and well-balanced research methods for studying the complex nature of organizations.

Objectives of the Study

- To review literature on methodologies of Ambidextrous innovation and organizational studies including approaches used to study complex issues in innovation organizational science
- Develop comprehensive methodological guidelines with regard to understanding the theoretical relationship in between the ambidexterity innovation and organizational culture
- Provide instructional guidance on how to surface organizational culture (OC) that affects ambidextrous innovation implementation

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Conceptual Framework

The present research's aim to examine and understand ambidextrous innovation with the help of organizational culture is based on two key theoretical frameworks of culture, i.e., the Schein Model and the Competing Values Framework. Schein's model of organizational culture, or simply the Schein Cultural Model, is considered one of the most significant and effective models of organizational culture. The model, developed by renowned researcher Edgar Schein, conceptualizes organizational culture at three different levels: artifacts and behaviors, espoused values, and assumptions (Schein, 2010). Schein (2010) defines an organization's cultural artifacts as tangible and identifiable elements of behavior, such as office procedures, rules and regulations, dress codes, and presentation and behavioral styles. Secondly, Schein (2010) defines espoused values as an organization's stated values, norms, customs, and behavioral patterns, which are also sources of organizational identity. Finally, Schein (2010) defines assumptions as unwritten and widely shared codes of conduct that are fundamental to the organization's culture but are not formalized in any document or policy manual. Schein (2010) described assumptions as the fundamental component of a culture that links its members.

The Competing Values Framework is also considered a very important theoretical model for conceptualizing culture in organizations. The model postulates that organizational culture can be conceptualized through four competing values, defined as hierarchy, clan, adhocracy, and market (Quinn & Rohrbaugh, 1983). These competing values are plotted on two different horizontal and vertical axes (Schneider et al., 2013). The vertical axis of the Competing Values Framework illustrates key values, ranging from extreme flexibility to stability. Meanwhile, the horizontal axis dimension presents the organization's internal versus external focus. Thus, organizational culture is developed by choosing a competing value from the vertical axis, indicating either flexibility or stability, and the horizontal axis, indicating either an internal or external orientation (Lavine, 2014).

Research Philosophy

Choosing the right research philosophy and paradigm is essential (Strauss, 1987) because it specifies the nature and features of the field of investigation. According to Strauss (1993), naturalistic analysis can only partially explain occurrences in a universe where nothing is rigorously defined, including human participation in the creation of society systems. This emphasizes how crucial it is to carefully select a methodological philosophy that takes into account the ambiguity and complexity present in these kinds of occurrences (Alkhoraif and McLaughlin, 2021). Table 1, adopted from Guba & Lincoln (1989), outlines the methodological philosophical alternatives for guiding the investigation of qualitative research.

Table 1: Research Philosophy and Paradigms from Guba & Lincoln (1989)

Paradigm	Ontology	Epistemology	Methodology
Positivism	Naive realism: Reality is 'real' and directly apprehendable.	Dualist/objectivist: Findings are considered true.	Experimental/manipulative: Verification of hypotheses, primarily using quantitative methods.
Post-Positivism	Critical realism: Reality is 'real' but can only be imperfectly and probabilistically apprehended.	Modified dualist/objectivist: Findings are probably true, with critical community validation.	Modified experimental/manipulative: Testing and falsification of hypotheses, may include qualitative methods.

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Constructivism	Relativism: Realities are local, specific, and socially constructed.	Interpretivist: Knowledge is understood through interpretation.	Hermeneutical/dialectical: Emphasizes understanding and dialogue, often using qualitative methods.

Ontology

Ontology can be described as the nature of reality and its fundamental characteristics (Creswell, 2013). Ontology seeks to understand the form and nature of reality itself by gathering comprehensive facts and evidence using a systematic approach (Guba & Lincoln). Researchers can adopt various ontological stances, including positivism and constructivism (Blaikie, 2009). According to the positivist perspective, there is an external world that can be completely understood (Howell, 2012). The core idea that positivism advocates in relation to ontology is the separation or independence of researchers from the object of study, allowing them to collect, analyze, and interpret facts and evidence based on objective standards. This approach is effective in measuring concepts, testing theories, and identifying causal explanations (Easterby-Smith et al., 2012).

Realism, on the other hand, is defined as an ontological stance dedicated to understanding mechanisms and structures rather than focusing solely on empirical considerations, leading to the development of constructs and rigorous theories (Tsang & Kwan, 1999). Realists advocate for an anti-positivist position in the social sciences, emphasizing the differences between social and natural phenomena. They are situated between pure constructivist and positivist viewpoints (Marcos-Cuevas, 2006). According to realists, society is both a product and a condition of the people who make it up (Blaikie, 2009). Realism can be divided into two branches: critical realism and constructivist realism. Critical realism differentiates between human knowledge and knowledge about things. Human knowledge tends to evolve, while knowledge of things is characterized by discoverability (Howell, 2012).

Finally, the constructivist ontological position is based on the idea that both researchers and participants must work together to co-create reality (Ibrahim, 2013). Constructivists rely heavily on phenomenology, which attempts to combine both objective and subjective perspectives (Howell, 2012). According to Bryman and Bell (2015), the ontological position from the lens of constructivism implies that various key social elements, which originate from human interactions and experiences, are the key phenomena that need to be collected as evidence and analyzed to develop a holistic understanding. This implies that key elements such as culture originate from human interaction, experience, and observation. Culture, in turn, forms various phenomena, such as ambidextrous innovation and other dynamics within organizations. Therefore, to understand culture from the perspective of human interaction, experience, and observation—particularly in forming innovation paradoxes such as exploration and exploitation—it is necessary to approach it from the ontological position of constructivism.

Epistemology

While ontology refers to the nature of reality, epistemology can be defined as the theory or nature of knowledge and its characteristics (Conee & Feldman, 2004). In philosophical terms, epistemology is referred to as the theory of knowledge, which helps us understand the basic constituents of knowledge itself. Furthermore, Guba & Lincoln (1994) define epistemology as "*the relationship between the knower or the would-be knower and what can be known*" (p. 108). Thus, epistemology, in its effort to understand the constituents or nature of knowledge, helps us explore and understand the nature, extent, and boundaries of knowledge (Conee & Feldman, 2004). In epistemological inquiry, questions such as "*What is knowledge?*", "*How is knowledge acquired?*", and "*What do people know?*" take central importance (Hookway, 2008).

The epistemological viewpoint is said to be interpretative, highlighting the fact that the social world can be explored by assessing the way the world is perceived by humans. Adopting a positivist view ensures objectivity, and research findings are considered to be true (Audi, 2010). Conversely, an interpretivist

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epistemology places more emphasis on comprehending social phenomena from the viewpoint of those experiencing them, usually through qualitative methodologies (Potrac et al., 2014; Raelin, 2007). Finally, constructivists believe that the scientific community, in order to understand existing knowledge, tends to create concepts and constructs and logically group them into a framework (Kumar, 2006).

Positivism

Positivism is an epistemological stance and philosophy that argues that knowledge must come from empirical data and scientific observation. Positivism is based on the idea that reality is stable and amenable to objective observation and description (Park et al., 2020). Therefore, reality can be easily uncovered using measurable observations with the help of objective tools such as statistical analysis. Positivist inquiry always begins with specific research questions and hypotheses. To answer these questions or test hypotheses, researchers develop and utilize tools such as surveys, experiments, and other techniques that provide verifiable and empirical data (Comte & Bridges, 2015). A positivist approach to researching ambidextrous innovation and organizational culture can include conducting extensive surveys to find trends and relationships between cultural characteristics and innovation results (Hassard, 1995). It is important to note that positivism is based on the rigor and replicability of the tools used.

Constructivist Approach

The constructivist paradigm of research postulates that knowledge is the result of experiences and interactions between people that build meaning in social interaction. The constructivist paradigm views reality as a subjective construct that can be molded by social activities and processes within the surroundings and environment. Therefore, to uncover such interactions and meanings, constructivist researchers concentrate on the way people and communities comprehend, develop, interpret, and maintain their social environments and orders (Altman, 2009). To understand this, constructivist researchers tend to use qualitative techniques, including participant observation, interviews, and focus groups, to develop in-depth understandings of participants' viewpoints and lived experiences (Primecz, 2020). A constructivist approach would look at how individuals within an organization perceive and act upon cultural norms, beliefs, and practices to better understand corporate culture and encourage innovation. This viewpoint is essential for encapsulating the richness and complexity of social processes, offering a sophisticated comprehension that may guide theory and practice (Jakobsen et al., 2019).

Interpretivism

The interpretivist research paradigm tends to develop knowledge based on comprehending individual lived and subjective experiences by emphasizing the complexity of human behavior and the social environment (Alharahsheh & Pius, 2020). According to interpretivists, understanding the subtleties and complexity of human relationships requires researchers to fully immerse themselves in the environment of human social interactions (Turyahikayo, 2021). Interpretivists contend that reality is socially produced, and to understand such reality, researchers need to collect rich, comprehensive data using qualitative methods such as case studies, participant observations, and in-depth interviews (Vaivio & Sirén, 2010). An interpretivist method would investigate how organizational members perceive, interpret, and perform innovative behaviors and cultural norms in the context of analyzing organizational culture and ambidextrous innovation (Potrac et al., 2014).

Justification for the Chosen Philosophical Stance

The study has examined ambidextrous innovation through the lens of culture, grounded in constructivist ontology and interpretivist epistemology. The constructivist approach is well-suited for studying culture and innovation in general and, specifically, ambidexterity, as culture is highly complex and possesses a web of elements that can be hard to comprehend using the positivist method of empirical data and the interpretivist method of qualitative data (Pearse & Kanyangale, 2009). Since culture and its elements give birth to the wider meaning of existence, and such meaning can lead to the development of reality through innovation, constructivist methods such as focus group discussions are well-suited to uncover such meaning

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from participants within the social environment of an organization (Ray & Goppelt, 2011). As constructivism emphasizes the subjective production of reality through social interactions, we can fully understand the dynamics of cultures playing an active role in both exploratory and exploitative innovation by using sound methods such as focus group discussions and in-depth interviews (Lantis, 2009). These methods allow us to explore the meanings and motivations of culture-driven behavioral patterns and uncover key underlying mechanisms that drive both explorative and exploitative innovation within organizations. Therefore, constructivist methodology is well-suited because it offers the methodological depth and rigor required to reveal the complex link between ambidextrous innovation and organizational culture, providing insightful theoretical and practical information (Pathiranage et al., 2020).

Research Approach

In the methodology of scientific research, there are two dominant and commonly used approaches i.e., the deductive and inductive approach. The choice of a deductive versus an inductive approach depends on the research question and objectives that have been developed in a particular research study.

Inductive

The inductive approach, or inductive reasoning, is a widely used approach in management science in which the aim of a particular research study is to develop some tangible and testable theory (Liu, 2016). It can be said that inductive approaches in management science are always used with the aim and objectives of developing theories in the literature. Inductive approaches tend to start with observations, such as observing a culture and its role in innovation in general and in ambidextrous innovation in particular. Researchers then collect data on aspects of culture, innovation, and ambidexterity in order to identify patterns that best explain the nature and relationship of culture with innovation in general and ambidexterity specifically (Sabherwal & King, 1991).

As shown in Figure 1, the very first step in inductive reasoning is to begin with detailed and thorough observation of the particular phenomenon. This observation starts with a general assessment of the phenomenon and progresses to develop a tangible, comprehensive, and specific understanding of the key issues in the organization (Thomas, 2016). This may include highlighting the potential direction and nature of relationships between variables and constructs. It is important to note that the development of hypotheses (testable statements) is strongly discouraged at the beginning of inductive reasoning or the inductive approach. This is because the end result of inductive reasoning is to hypothesize or theorize the relationship between constructs such as culture and ambidextrous innovation (Jebreen, 2012).

Therefore, researchers beginning with inductive reasoning have to undertake a comprehensive observation of the phenomenon. They can make use of various resources and tools for such observations. Previous literature and both primary and secondary data can be great sources for researchers to develop concrete ideas. Next, the researcher attempts to collect comprehensive and empirical data. This data can be based on various methodological tools, issues, and designs (Banister, 1979). However, qualitative design is the most widely used design in this context. Finally, researchers analyze the data in order to find the patterns that can help theorize the relationship, phenomena, and observations.

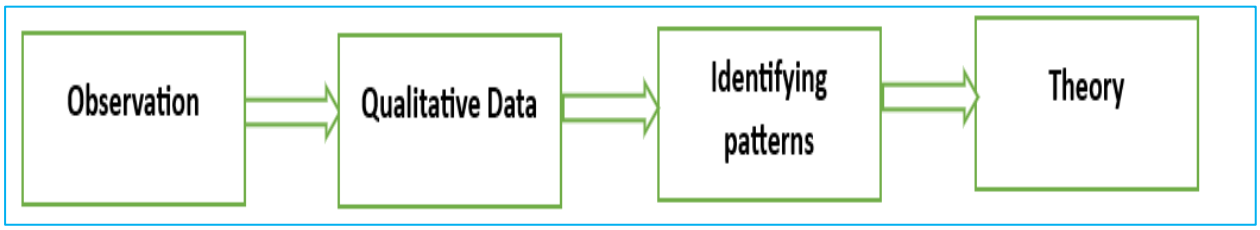

Figure 1: Inductive Approach

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Deductive

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Chosen Approach

The purpose of the present research is to employ an inductive approach in its methodology. The research aims to develop methodological guidelines for studying the nuances of organizational culture in relation to ambidextrous innovation. More specifically, the research attempts to answer the question of how organizational culture balances the paradox of ambidextrous innovation, i.e., exploratory and exploitative innovation. To address such questions and fulfill these research objectives, the study should begin with a general observation of the phenomenon of organizational culture and its role in innovation overall (Wiles et al., 2013). In conclusion, the inductive approach is the most suitable method for the present research study.

Research Method

In the course of conducting a research study, Easterby-Smith et al. (2012) state that there are two major types of data to gather, and each has its distinct mode of data collection. First, the qualitative method prioritizes quality over frequency and collects data through observation, interviews, and diary keeping. Second, the quantitative method emphasizes frequency over quality and collects data using questionnaires and other surveys. The nature of the current research leans towards collecting data using the qualitative method, particularly through conducting in-depth interviews. According to Seidman (2013), the use of in-depth interviews has grown in popularity among qualitative methods of data collection. As noted by Guest et al. (2011), there are various strategies with unique features that could also be used to gather relevant data. The qualitative method of data collection is usually preferred when the main goal is to gain in-depth knowledge regarding a phenomenon (Audet & D'Amboise, 2001; Javadi, 2013). Therefore, to gather relevant information and improve the understanding of organizational culture, the qualitative method was adopted for this study.

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Table 2 Characteristics of Qualitative and Quantitative Research (Source: Javadi, 2013)

No.	Criteria	Qualitative Research	Quantitative Research
1.	Purpose	To discover and interpret meaning and perceptions of social interactions.	To test hypotheses developed before research begins, look at cause and effects, and make predictions
2.	Focus	Wide-angle lens, examines the breadth and depth or phenomena.	Narrow-angle lense, tests specific hypotheses.
3.	Group Studied	Particular to the subject group. Smaller and not randomly selected. Replication is rare.	Larger and randomly selected. replication across different sites is possible.
4.	Variables	Study of the whole, not variables.	Specific variables studied.
5.	Data Type	Words, images or objects.	Numbers and statistics.
6.	Data Collection Method	Qualitative data such as open - ended responses, interviews, participant observations, field notes, and reflections.	Quantitative data based on precise measurements using structured and validated data collection instruments.
7.	Data Analysis Type	Identify patterns features, themes.	Identify statistical relationships
8.	Research Scope	Particular to the subject group. Replication is rare	Standardized so that replication across different sites is possible
9.	Units of Analysis	Subjects are selected to fit the purpose of the study.	Subjects are selected randomly.
10.	Objectivity and Subjectivity	Subjectivity is expected.	Objectivity is critical.
11.	Role of Researcher	Researcher and their biases may be known to participants in the study, and participant characteristics may be known to the researcher.	Researcher and their biases are not known to participants in the study and participant characteristics are deliberately hidden from the researcher.
12.	Question	Are typically open ended allowing flexibility in response.	Asked in such a way that the answers are a fixed set of choices.
13.	Scientific Method	Exploratory or bottom - up: the researcher generates a new hypothesis and theory from the data collected.	Confirmatory or top - down the researcher tests the hypothesis and theory with the data
14.	View on Human Behavior	Dynamic situational, social and personal.	Regular and predictable.
15.	Most Common Research Objectives	Explore discover and construct	Describe, explain and predict.
16.	Contact with the Subject	Research takes place in the field and involves face to face encounters with the subject.	Research can't take place without direct contact with subject, as in the case of telephone or mailed surveys.
17.	Nature of Observation	Study behavior in a natural environment.	Study behavior under controlled conditions; isolate causal effects.
18.	Nature of Reality	Multiple realities; subjective.	Single reality; objective.

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19.	Final Report	Narrative report with contextual description and direct quotations from research participants.	Statistical report with correlations, comparisons of means, and statistical significance of findings.
20.	Results	Particular or specialized findings that is less generalizable.	Generalizable findings that can be applied to other populations.
21.	Role of Theory in Research	Inductive, generating theory.	Deductive, testing of theory.
22.	Ontological Orientation	Constructionism	Objectivism.
23.	Epistemological Orientation	Interpretivism.	Natural science model.

Research Methodology for OC and Ambidexterity

Given the inductive approach selected in the current research, which aims to theorize organizational culture and ambidexterity, the present research has employed qualitative research methodologies. Qualitative research methodologies are the most suitable for researchers using inductive approaches. These methodologies are also referred to as exploratory in nature and can (depending on the objective and research question) lead to the development of testable theories. In the following section, various methodologies are outlined:

Grounded Theory

One of the key methodologies that qualitative researchers in social science use is referred to as grounded theory. Grounded theory is a systematic methodology that involves the construction of hypotheses and theories as the end result of the research process through the collection and analysis of qualitative data. Grounded theory research is widely popular among management science researchers who study complex and interesting organizational issues such as organizational culture and other topics (Dey, 2004). Additionally, it must be noted that grounded theory is also based on inductive reasoning and approaches to research.

A grounded theory research study usually starts with a research question. The research question establishes the grounded idea that can explain organizational problems or situations, such as organizational culture and its role in ambidextrous innovation. Alternatively, grounded theory can also start with an intriguing set of qualitative data (Oktay, 2012). The researcher then uses qualitative data collection tools to explore the research question or idea that emerged from the initial qualitative data. The researcher analyzes the data by identifying and uncovering concepts and ideas (Dunne, 2011). The researcher labels these ideas and concepts using codes as part of the data analysis process. These codes are then sorted into higher-level ideas and eventually into categories as more data are gathered and examined. Finally, these categories are merged to form the basis of a hypothesis or a new theory.

Case Study

The case study is also a highly popular qualitative research methodology used to undertake a comprehensive, in-depth analysis of a specific case in an organizational setting. Case studies in an organizational setting can cover very important and specific issues such as corporate strategy and its impact on key indicators like financial and business performance, productivity, and employee motivation (Baskarada, 2014). Case studies in an organizational context can also uncover insights related to other or broader audiences, such as customers and multiple stakeholders who play key roles in the case being investigated. Overall, the aim of case study research is to analyze a case, which can be a problem to be solved or an opportunity to be tapped. Researchers analyze and investigate the data, and then suggest solutions and actions needed to capitalize on the opportunity or solve the problem presented in the case (Gammelgaard, 2017).

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The important distinguishing characteristic of case study research is that the case is not dominated by a particular research methodology, unlike others, such as grounded theory. The literature indicates that broadly two different types of methodologies can be used here. First, the "no theory first" approach, in which no theory plays a leading role in either testing or developing the theory itself. The second type of case methodology involves single versus multiple-case study methodology, where researchers decide to focus on a single or multiple but highly interrelated cases. Each of these two types of case studies can utilize a different mix of qualitative and quantitative research methods to collect, analyze, and report the data and conclusions (Levy, 2008).

Ethnography

Ethnography is originally a brand of fields of anthropology which pertain to and attempts to study human beings from the point of view of their culture and environment. It tends to focus upon the cultural and environmental phenomena from the subjective experience point of view of individual persons (Brewer, 2000). In the management science context, ethnography is typically involved in studying and understanding behavior of the participants in a given social situation. Management science in recent times has been relying upon ethnography to study complex behavioral patterns in especially larger organizations (Atkinson, 2016).

As a methodological choice, ethnography depends heavily upon the participant observation as a tool of data collection in which the researcher has to immerse or embed himself/herself into an organizational setting or with the people being studied (Anderson-Levitt, 2012). During such participant observation, researchers attempt to seek to document in detail, record the patterns of social interaction among the people in the environment and try to record the perspectives of participants towards any particular problem or issues.

Laddering: Making Sense of Meaning

Laddering is a method employed in qualitative research to comprehend behavior in marketing contexts, often used to investigate consumer attitudes, opinions, and beliefs (Modesto Veludo-de-Oliveira et al., 2002). As described by Reynolds and Gutman (1988), laddering is "an in-depth one-on-one interviewing technique used to develop an understanding of how consumers translate the attributes of products into meaningful associations with respect to self." This approach utilizes a customized interview format, typically characterized by a series of directed probes, such as "Why is that important to you?" questions (Reynolds and Gutman, 1988, p. 12). Nevertheless, there are multiple drawbacks to using laddering interviews (Durgee, 1985).

First, these interviews can be time-consuming and expensive, although possibly not more so than alternative methods. Second, they necessitate highly skilled interviewers, but the required training may not be more demanding than for conventional interviewing, and the laddering technique could be readily incorporated into interviewer training courses. Both factors may discourage the use of this approach when collecting data from large, representative samples (Hofstede et al., 1999), although this issue can be addressed by applying laddering to a small sample and then validating the interview data with a larger sample. Third, the laddering interview process may cause participant fatigue and boredom, especially since the questioning style can be quite repetitive (Glynis M. Breakwell, 2004). Fourth, there is a challenge of potential interviewer bias influencing both the interview and the analysis (Breakwell, 2004; Modesto Veludo-de-Oliveira et al., 2006).

Action Research

Action research is a method that enables the work practices of practitioners to be evaluated and enhanced by them (Baskerville & Wood-Harper, 1996; Oates, 2009), and it is geared towards finding solutions to challenges faced in a professional environment (Collis & Hussey, 2013). In an effort to identify a problem and offer a solution, Bryman (2012) and Coghlan and Brannick (2014) stated that the group of people working in the field under investigation and the researcher should work collaboratively. In a relatively

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controlled environment, action research is mostly used to bring about conscious change (Collis & Hussey, 2013). This mode of inquiry is generally directed towards solving organizational challenges by taking action with the people experiencing the problems (Ibrahim, 2013).

Some major disadvantages of action research include the high cost of conducting the research, the set timelines that must be adhered to, and the assumption that a person's behavior can only be altered by testing them (Fisher, 2007). This research method goes beyond just observing and describing a phenomenon to taking decisive action. Thus, Oates (2009) refers to it as "research into action" – planning for change, performing the change, reflecting on what happened, then starting another cycle (p. 155). The approach involves examining and bringing change to a phenomenon being studied (Punch, 2005), and it also implements a continuous cycle of enhancement (Partington, 2002). When there is a contract for action research between an organization and a researcher, the microcosm group is expected to play a vital role in creating and conducting data feedback (Alderfer and Smith, 1982).

Phenomenology

Finally, phenomenology is a philosophical movement and research methodology, predominantly used in qualitative research, where the aim and objective of the researcher are to understand the phenomena as deliberately observed, without any underpinning theory, causal explanations, or presumptions and beliefs. The aim and objective of phenomenology studies is to directly understand human subjective experience and consciousness regarding a particular subject, state of affairs, or event (Zahavi, 2018). Therefore, it can be clearly said that phenomenology is all about objectively studying human subjective experience and consciousness. Phenomenology is particularly valuable for qualitative researchers who are interested in uncovering deep and comprehensive insights about the human condition, with the goal of developing a rich and nuanced understanding of how people perceive, feel, and make sense of their experiences within organizations. Management science researchers in recent decades have increasingly relied on phenomenology as a research methodology to study and uncover key insights involving employee and customer subjective experiences and perceptions regarding various issues such as strategies, products, services, and more (Lyotard, 1991).

Selected Methodology and Justification

The present research, in order to understand the role of organizational culture in relation to ambidextrous innovation, proposes to opt for grounded theory and action research methodologies (Wastell, 2011). Action research is defined as a research method aimed at finding a solution to an organizational problem and informing both the community of researchers and practitioners (Guertler et al., 2020). The present research proposes that ambidextrous innovation is a key opportunity for organizations to implement innovation. Such innovation involves balancing the paradox of exploration and exploitation. It further suggests that balancing such a paradox would require a culture that promotes collaboration, cooperation, idea generation, experimentation, and risk-taking (Ollila & Yström, 2010). Therefore, ambidextrous innovation will be greatly developed in such a culture.

However, the literature lacks a clear understanding of the key cultural characteristics required to promote and encourage collaboration, cooperation, idea generation, experimentation, and risk-taking. Although existing literature defines culture in terms of various theories, it is also missing key models that can help explain and implement ambidexterity. Thus, grounded theory research, which aims to collect qualitative data using key tools such as focus group discussions and interviews, can be better utilized (De Villiers, 2005). The data from these tools will be highly in-depth, and methods of analysis, including assigning codes and labels to key concepts, will be useful. These codes, at a meta-level, will inform us of the key cultural traits that are necessary prerequisites for a culture that can better balance the paradox of ambidextrous innovation. Finally, we aim to inform the community of managers and researchers about the insights we develop regarding the nuances of organizational culture and ambidextrous innovation. Therefore, action research, which aims at developing managerial and strategy guidelines related to culture, will be employed.

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Selected Research Philosophy

In this study, figure 2 and table 3 illustrate the selected Paradigm and Process.

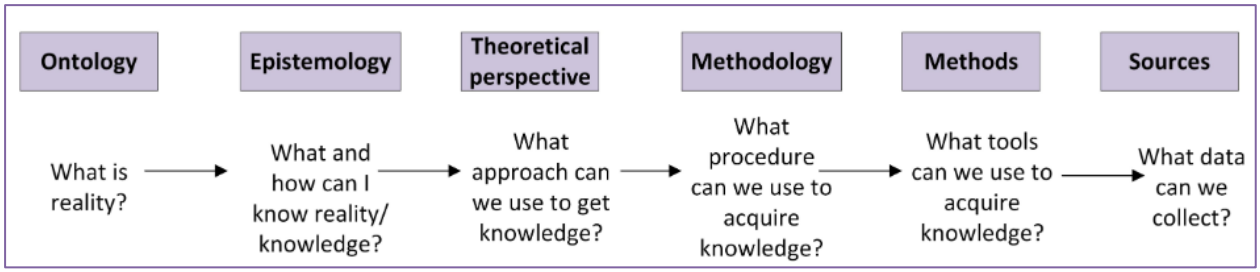

Figure 2: Research Paradigm and Process

Table 3: Research Paradigm and Process

Ontology	Epistemology	Approach	Method	Methodology
Constructivism	Interpretivism	Inductive	Qualitative	Grounded Theory
				Action research

Data Collection Tools

The study of culture is typically characterized by a qualitative research design, where the most commonly used tools include in-depth, semi-structured, or structured interviews. These interviews may be in the form of one-on-one interviews or focus groups (Pearse & Kanyangale, 2009). Each method has a different set of advantages and limitations. When investigating organizational culture, studies generally adopt a deductive or inductive approach. The deductive approach reflects the perspective of the outsider, while the inductive approach reflects the perspective of the insider (Pearse & Kanyangale, 2009). The type of questions included in the interviews determines which of these approaches is being applied and can help to generate hypotheses. Interestingly, in this context, culture is one of the modifiable variables, and the researcher can be considered the outsider or onlooker (Sackmann, 1991). For this study, the inductive approach was found to be the most appropriate as it allows for a more accurate portrayal of the environment in question (Golden-Biddle & Locke, 2007). However, due to its high specificity and focus, the resulting information cannot be easily generalized or applied to other contexts, which is one of the disadvantages of the approach.

Data Sampling

For data collection, various semi-governmental and public entities were selected, and a subsequent inquiry was made to determine which organizations were willing to participate in the study. The inclusion of different types of entities within the chosen sector was important to ensure a complete and representative sampling of organizational cultures. This approach also ensured the sampling of a variety of different perceptions and perspectives among participants. The selected entities included vision realization offices, vision realization programs, and public semi-governmental entities.

Interviews

Interviews are qualitative research methods that involve asking open- or close-ended questions, depending on research aims. Open-ended questions are better suited for drawing out deeper reflections from

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participants and exploring their opinions and perceptions (Taylor, 2005). In contrast, close-ended questions and structured interviews are associated with lower levels of reliability because they encourage a certain degree of passiveness on the part of respondents. Moreover, structured interviews can potentially pressure individuals to respond in ways that are consistent with the culture of the researcher (Pearse & Kanyangale, 2009). However, the risk of bias can be lowered through specific and well-planned measures (Patton, 2014).

Since many aspects of culture are implicit and even subconscious, unstructured or in-depth interviews are the preferred method for uncovering accurate perceptions (Patton, 2014). While the risk of bias towards conforming to the researcher's culture is still present, albeit to a smaller extent, this can be managed by integrating language that closely aligns with the participant's own culture. This safeguard can elicit accurate responses that are highly representative of the individual's ordinary and natural thoughts and perceptions (Creswell, 2013).

Nevertheless, in-depth interviews are associated with a few limitations. First, it is difficult to ascertain whether the information presented by the participants is reliable and objective (G. R. Taylor, 2005). This is why preventing any potential influence by the researcher is crucial to acquiring accurate information (Patton, 2014). Importantly, preventing researcher bias is also valuable during data analysis. This can be accomplished by assigning multiple professionals with a similar understanding of the subject matter and insider perspective to data analysis (Sackmann, 1991). Finally, it can be challenging to distinguish between participants' opinions and representations of cultural features in in-depth interviews.

To acquire standardized information that is easier to compare across participants, semi-structured interviews will also be conducted. For this purpose, a few team members, managers, and executive leaders in the project offices from each entity will be interviewed. Obtaining perspectives across various levels of employment is important for generating a precise overall image of organizational culture and innovation features (Angelis et al., 2011). The semi-structured interviews will also be conducted using the issue-focused approach mentioned previously (Sackmann, 1991).

Observations

Directly observing participants in the study group can produce valuable and objective information on patterns of behavior, communication, interactions, and other aspects that contribute to organizational culture (Taylor, 2005). In this study, observations will also include the following aspects of the organization's setting: individual moods and displays of emotion, working style, overall operational procedures, displayed printed materials and office layout, and notice or announcement boards. To achieve this, the researcher must spend extensive time in the field setting. In this context, the researcher does not necessarily need to have prior knowledge about the topic of interest, as ideas are generated in an inductive manner (Cook & Yanow, 1993). Nevertheless, a drawback of observations is that they are often time-consuming and can be relatively costly. To mitigate the time burden, periods of observation can be divided across a team of researchers, but this may lead to redundant data collection, potentially affecting the reliability and validity of the data if left unaddressed (Taylor, 2005). Additionally, it is important to note that the researcher's cultural biases may influence how they report or interpret observations (Patton, 2014).

Focus Groups

Focus groups have been widely used in qualitative research and investigations of cultural beliefs because they can help uncover cultural assumptions (Frey and Fontana, 1993). According to Schein (1985), the group setting may act as a stimulus that draws out implicit thought patterns. While focus groups are not typically characterized by the depth found in one-on-one interviews, they are valuable for generating different types of observations (Patton, 2002). This is particularly relevant for this study, as social context is important to organizational culture and provides an additional method for observing interpersonal interactions, modes of communication, and potential disagreements regarding the implementation of projects in an organization (Fontana & Frey, 1994). Additionally, researchers may draw conclusions regarding how group dynamics influence individual responses.

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Focus groups also allow participants to be exposed to different opinions, which can elicit a variety of responses throughout the discussion (Kolb, 2012). Furthermore, unlike in one-on-one interviews, the group setting facilitates the distinction between individual opinions and actual features of the culture (Sackmann, 1991). Focus groups can also provide researchers with the opportunity to confirm certain ideas without asking about them directly (R. Jones & Noble, 2007). To achieve this, researchers must be careful and purposeful in their attempts to uncover implicit perceptions. As with previous methods, the researcher must be mindful of their cultural biases (Taylor, 2005).

In the present study, focus groups will be conducted within the different entities' offices. These sessions will be audio recorded to allow researchers to review and analyze data later. Each focus group will consist of eight to twelve individuals, and discussions will last for one to two hours. Participants will be provided with snacks and beverages during the discussion. One of the main objectives of the focus groups is to identify themes and provide categories as stimuli, allowing participants to reflect on which concepts and perceptions they attach to each category and what they feel is most relevant and important.

Application of the Literature Review

According to Strauss and Corbin (1990), there are two categories of literature: non-technical (such as individual narratives, journals, and testimonies) and technical (such as theoretical and empirical study). Both kinds may be used to compare and support qualitative data and are useful in grounded theory analysis. Without formulating any hypotheses at this stage, the literature review for this study aimed to explore key concepts and current research on the relationship between ambidextrous innovation and organizational culture.

Data Collection Methods

The present research, using qualitative approaches, aims to collect data using tools such as interviews and focus group discussions. The raw data will include key forms such as words, phrases, and sentences. The analysis of words, phrases, and sentences and their meanings is crucial (Miles & Huberman, 1994). NVIVO software will be used for coding data. Several tools can be applied to increase theoretical sensitivity, which is the extent to which categories and links can be accurately identified (Strauss and Corbin, 1990). The following section outlines the strategy of the present research for collecting and analyzing data with the goal of understanding the role organizational culture plays in ambidextrous innovation.

Issue-Focused Investigation

The specific research objectives include:

- Highlighting implicit aspects of organizational culture by investigating insider perception.
- Examining any potential structural elements (such as the presence of subcultures).
- Drawing comparisons between research and non-research settings.

Based on these goals, the optimal tool for data collection was issue-focused qualitative interviews using successive comparisons and a phenomenological approach (Birkinshaw et al., 2011). The analysis of qualitative observations from the focus groups also allowed for triangulation of the findings.

Importantly, because culture plays a central yet subtle role in daily life, it may be challenging for individuals to accurately explain it if asked directly (Dey, 1999). Thus, a stimulus-response approach will be employed to elicit reflective responses from participants based on their own cultural background with minimal influence from the researcher's perspective (Sackmann, 1991). In this context, choosing the appropriate stimulus becomes crucial to the study design, since it should permit free reflection while also being relatively specific to the context (Willis, Jost, and Nilakanta, 2007).

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A key advantage of using a stimulus is that people tend to rely on pre-existing categories in their minds when faced with something unfamiliar, which allows them to interpret and understand the presented information (Denzin and Lincoln, 2011). This is particularly true when using a context-specific stimulus. The implicit parts of culture can subsequently be revealed through the respondents' interpretations and can be compared to distinguish between individual opinions and shared cultural beliefs (Willis et al., 2007). This approach may also assist in uncovering the existence of subcultures within the overall group (Denzin and Lincoln, 2011). An important part of this approach is that the selection of specific stimuli and issues must be relevant to the respondents and their organization.

Moreover, it is crucial for respondents to be somewhat familiar with the given issues and contexts to ensure that they provide their genuine interpretations rather than making statements about things they do not actually know about or believe (Plummer & Young, 2010). Whether a stimulus is relevant to the study participants can be determined objectively in various ways. One way is to evaluate whether the respondent can give three examples that are related to the stimulus or context. Typically, culture-related concepts are based on consensual agreement rather than facts (Bryant, 2009). Accordingly, when individuals encounter an issue that is out of the ordinary, they may interpret it based on a pre-existing image of their organization (Sackmann, 1991). It is therefore important to prevent a scenario in which participants recognize the specific issue that is being studied by researchers because this could lead to biased responses (Patton, 2014). While biases may be acceptable in long-term studies as they may highlight unexpected patterns, they are ill-suited for this current study. Accordingly, the issue selected to achieve the research goals is innovation ambidexterity.

Phenomenological Approach and Theory Building

Using a phenomenological method, the study focuses on the opinions of participants about corporate culture (Goulding, 2005). The investigator will ensure that their opinions do not impact the participants' answers, enabling them to explore and articulate their understandings. An introductory section will precede the flexible, participant-driven conversation portion of the interview. A secure setting and good rapport are necessary for successful interviews. Grounded theory relies heavily on the researcher, whose knowledge and experience may contribute to a study's success (Goulding, 2000). The literature review directs theoretical development based on research findings and acts as a sensitizing tool (Klein & Myers, 1999). While providing guidelines for analysis, grounded theory maintains flexibility with regard to data sources and methods, ensuring that every research study is distinct (Atkinson, 2010; Suddaby, 2006).

The Combination of Issue Focus and Phenomenological Orientation

Combining a phenomenological approach with an issue-focused investigation can lead to unique advantages. For instance, the potentially overly broad nature of the phenomenological approach is balanced by the focused approach of the issue-focused investigation. In addition, the issue-focused investigation helps provide some structure to the relatively unstructured phenomenological approach. Nevertheless, the freedom and explorative features of the phenomenological approach are maintained as participants are the main determinants of which topics are explored in detail (Sackmann, 1991). For example, the researcher asks interviewees to identify the most important aspects of incremental and radical innovation in their organization, and to provide an explanation of why these aspects are important. The researcher subsequently addresses each of the aspects mentioned by the interviewee to allow for a deeper understanding and thorough investigation. It is important to note that another advantage of this approach is that individual responses can be compared to cross-validate data and enhance confidence in the data.

Data Analysis

Data analysis transforms collected data into useful information that is relevant for answering the research questions. The following sections will cover simultaneous data collection concepts and data analysis methods, including grounded theory, coding analysis and content analysis.

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Simultaneous And Concurrent Data Collection

Corbin and Strauss (1990) argued that, in order for research to effectively understand the data, the analysis of the data should occur concurrently with its collection. This approach helps researchers to refine and direct data collection efforts further based on the initial analytical results (Goulding, 1998). Researchers might greatly benefit from quickly analyzing preliminary data to inform subsequent phases (Ibrahim, 2013). According to Boychuk et al. (2004), this approach allows data gathering and analysis to happen concurrently from the outset of the study instead of sequentially.

Constant Comparison Method

The present research has employed the continuous comparative approach by Glaser and Strauss (1967) to organize and sort data according to particular qualities in order to produce a new theory. Simultaneous data coding and analysis are another characteristic that make this approach popular in grounded theory (Taylor & Bogdan, 1998). Thus, to provide a theory that is highly representative of the data and appropriate for directing future research, this approach combines theoretical sampling into data analysis (Scott et al., 1993).

The constant comparison method can be broken down into four separate steps: classifying data and comparing it across categories; integrating categories and their characteristics; defining and fine-tuning the theory with necessary alterations; and, in the end, producing the theory (Glaser & Strauss, 1967). During these phases, researchers go through the data they have gathered, code and analyze it, and conduct theoretical sampling to develop the theory (Kolb, 2012). Corbin and Strauss (2008) claim that this also entails classifying related "incidents" using shared notions. Based on the ideas of grounded theory, this method is especially designed to assist the researcher in developing a theory that faithfully captures the facts and demonstrates high validity (Silverman, 2006).

Content Analysis

Content analysis seemed to be the most suitable method for analyzing data in the form of words, phrases, and sentences. According to Krippendorff and Weber (1987), content analysis guarantees the relevance of the results produced. By analyzing the content's initial condition and related underlying ideas, this method delves deeply into the data. Additionally, it makes it possible to extract significant aspects, which might result in changes to the original framework. Simultaneously, the researcher continuously reanalyzes the initial data to confirm that all pertinent elements have been included and that no misclassifications have occurred (Woodrum, 1984). However, there is a chance that this strategy could result in researcher bias, which needs to be avoided by taking appropriate and targeted precautions.

Coding Procedures

According to Strauss and Corbin (2008), coding is the process of representing data for further analysis. It may be broken down into three steps: open, axial, and selective coding. These processes are outlined in detail below.

Open Coding

The present research, in order to analyze the interview and focus group discussion data, has employed open coding as a content analysis technique. Open coding is very effective in revealing key ideas along with their attributes and dimensions in data collection (Strauss & Corbin, 1998). As a result, data is carefully compared and analyzed to show similarities and differences. "Opening up the inquiry" is the aim of this preliminary phase (Strauss & Corbin, 1998). Along with starting to create categories, another significant activity at this point is breaking up large data into smaller pieces. Creating open categories is one way to do this (Glaser & Strauss, 1967). Additionally, Strauss and Corbin (1998) propose that open coding can be done by line, phrase, or paragraph, or by looking at a particular text as a whole. Open coding helps uncover the dimensions that can fall into a given category (Strauss & Corbin, 1998). Identifying fundamental details like what, where, when, how, who, and why, as well as temporal questions about the frequency and duration of

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a certain phenomenon, are achieved by uncovering such dimensions. Furthermore, we also propose to employ the flip-flop technique, which involves analyzing opposing characteristics and instances where an interviewee asserts that something always or never occurs, requiring the researcher to find potential exceptions (Javadi, 2013).

Axial Coding

Axial coding is the process of connecting themes and concepts based on links between them, usually performed using deductive and inductive reasoning (Strauss and Corbin, 1998). This entails rearranging data using a coding paradigm that takes circumstances, actions, and consequences into consideration (Strauss and Corbin, 1998). However, Glaser (1992) challenges this by using a distinct strategy known as selective coding, which focuses on theoretical coding and identifies a core category. Glaser argues that applying this procedure enables data validation to happen automatically (Stern, 1994). It is noteworthy, nonetheless, that most of the eighteen coding families proposed by Glaser (1978) are incorporated into Strauss and Corbin's paradigm (Dey, 1999). While Glaser contends that theoretical coding comes first, Strauss and Corbin contend that axial coding comes first. Walker and Myrick (2006) speculate that although the rationale for Strauss and Corbin's alteration of the original stage sequence is unclear, their goal may have been to simplify the process—even though doing so made it more complex overall.

Selective Coding

Selective coding entails designating one category as the main idea and then tying the other categories to it. As previously mentioned, Strauss & Corbin (1994) work is grounded in selective coding, whereas Glaser's (1978) work is grounded on theoretical coding. In theoretical coding, the process involves generating a hypothesis about the interconnectivity of the data based on cues, with the aim of developing a theory (Glaser, 1978). Selective coding, on the other hand, involves integrating and refining the theory by coding within a central category. While integration in theoretical coding is less abstract, selective coding shares certain similarities with axial coding (Strauss & Corbin, 1990).

Rigor in Research

The success of a research study, particularly a qualitative study, can be determined by the extent to which it provides the closest representation of the respondent's experiences and perspectives (Padgett, 2008). In contrast, quantitative findings can be evaluated based on their validity, reliability, and statistical significance (Lietz & Zayas, 2010). The generalizability of the data is also important as it indicates the relevance and applicability of the findings (Mason, 1996). These parameters of evaluation are directly linked to the overall quality, rigor, and stringency of the study design.

Mason defines validity as "observing, identifying, or measuring what you say you are" (Mason, 1996, p. 24). Reliability can be categorized into external versus internal reliability (LeCompte & Goetz, 1982). External reliability reflects how well the study can be replicated, a measure that can be affected by many variables but can be controlled to enhance reliability. However, external reliability can be particularly challenging in qualitative research due to generally small study samples (LeCompte & Goetz, 1982). On the other hand, internal reliability is the extent to which multiple researchers agree on interpretations of the data or conclusions generated from it. If there is just one researcher, this measure represents whether they exhibit consistency from one piece of data to the next and agreement regarding the theories generated from the data (Bryman & Bell, 2015). LeCompte and Goetz (1982) argue that internal validity can be maximized in a qualitative study. For instance, in the context of this study, when the researcher spends long periods of time in the research setting, the consistency between the observations and conclusions is higher.

Guba and Lincoln (1994) argued that evaluating validity and reliability alone is insufficient because social or group contexts provide multiple truths with no absolute truth. They, therefore, propose a more comprehensive framework for determining quality and rigor in qualitative research by measuring the following parameters: credibility (internal validity), transferability (external validity), dependability (reliability), and confirmability (objectivity). This approach is more open as it accounts for different social

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realities, where credibility can determine which of these is most acceptable. Validation may therefore stem from the participants themselves. Bryman and Bell (2015) suggest that triangulation of data can also be used to enhance credibility. Liamputtong and Ezzy (2009) outlined various measures that can be applied to enhance the overall rigor of a qualitative research study based on the four elements described above. These criteria are described in Table 4.

Table 2: Rigor in the Research (Liamputtong and Ezzy, 2009)

Rigor-critical	Criteria for Rigor	Research strategy	Techniques to ensure Rigor
Credibility	Truth value	Field notes/ memo Tape recorder Thematic log Auditing transcript	Purposeful/theoretical sampling Negative/deviant case Constant comparison Member checking Triangulation Audit trail
Transferability	Applicability	Data display Simultaneous literature review	Purposeful/theoretical sampling Thick description
Dependability	Consistency	Field notes/ memo Tape recorder Thematic log Auditing transcript Researcher's story Reflexivity	Negative/deviant case Member checking Triangulation Audit trail
Confirmability	Neutrality	Field notes/ memo	Audit trail

Credibility

Credibility refers to the extent to which the researcher's interpretations are accurate representations of the participants' accounts (Drisko, 1997). It is a crucial evaluation criterion in a study since it determines the authority and reliability of the research (Liamputtong & Ezzy, 2009, p. 21). The researcher's description of the phenomenon being investigated should align with the participant's explanation of it (Tobin & Begley, 2004, p. 391). Higher congruency between the participant's and researcher's interpretations of the same account will minimize the risk of bias and reactivity (Padgett, 2008). In this context, reactivity is defined as the extent to which the researcher influences respondents' behavior, which in turn alters the results of the study (Lietz & Zayas, 2010, p. 191). Therefore, one of the reasons why researchers must be conscious of their behavior during the interview is to ensure that reactivity is minimized.

Transferability

Transferability represents how well the findings of a specific study can be applied to other contexts, groups, and settings (Padgett, 2008). It is therefore a measure of whether the conclusions can be generalized. Various parameters contribute to the measure of transferability. For instance, providing an accurate and in-depth description of the study sample, techniques, and basis for all interpretations can help other researchers determine the extent to which the findings may be applicable to their research context of interest (Devers, 1999; Lietz & Zayas, 2010). Nevertheless, focused studies on cultures may be highly specific and should be analyzed on a case-by-case basis.

Once findings reach the later stages of development, additional interviews will be conducted in a similar social environment to further confirm their transferability (Shenton, 2004). It should be noted that the test will be implemented in two additional countries with similar social conditions that are also part of the GCC (Gulf Cooperation Council). The proposed research will interview four participants from two entities, with these interviews being analyzed following a 'close coding' procedure (Strauss & Corbin, 2015). The goal is

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to create a checklist of factors, which will be carefully reviewed during interviews to validate similarity and assess transferability.

Dependability

The dependability of a method can be defined as the degree to which additional researchers can follow the study protocol and utilize it in a different research environment (Padgett, 2008). According to Carpenter & Suto (2008), a high degree of dependability also raises the possibility that the study's conclusions align with the data gathered. While dependability is primarily determined by repetition, it is crucial to remember that qualitative research studies may be intrinsically challenging to replicate in various study sample groups. Despite this drawback, dependability still needs to be considered by implementing rigorous research methods through thorough documentation and openness. Lietz & Zayas (2010) contend that in order to counteract these challenges and enable colleagues to evaluate these procedures, researchers must keep thorough records and an audit trail.

Confirmability

The present research will also incorporate and assess the confirmability and replicability of the research and proposed methodology. Confirmability and replicability are often used interchangeably and can be defined as the degree to which other researchers are able to verify and reproduce the findings of a study (Lincoln & Guba, 1985). Confirmability and replicability measure how well a researcher has drawn scientific conclusions and interpretations (Padgett, 2008). Additionally, they can help assess how much the study's conclusions reflect participants' views rather than the researcher's (Lincoln & Guba, 1985, p. 290). We propose to attain both confirmability and replicability by clearly defining the step-by-step process of data collection, analysis, and interpretation.

Respondent Validation

An essential component of research involving interviews is respondent validation. Reporting back to study participants and informing them about the research findings is part of this procedure. This kind of re-engagement with the participants can ensure a significant correlation between the preliminary data and the final results and support the interpretations made by the researcher (Bryman & Bell, 2015). The researcher can also identify discrepancies during this procedure that may need to be addressed. It is crucial to remember that this stage might be challenging since participants may not agree with the interpretations, especially if the researcher uncovers implicit beliefs and assumptions that the participants might not be aware of.

Triangulation

Triangulation refers to the utilization of different data sources or research techniques while examining phenomena in the social sciences (Webb et al., 1966). Triangulation offers confirmation across several lines of evidence, as it helps to increase confidence in the study's conclusions. To help other researchers gain a thorough understanding, it is advised that researchers create a "thick description" of the particular setting they are studying. This description should include observations, interpretations, implications, and commentary (Bryman & Bell, 2015). Additionally, this can improve generalizability and reliability. In light of this, Guba and Lincoln (1994) contend that well-documented records must be kept throughout the whole study process. Due to the depth of investigations, even from a single one-on-one interview, qualitative research is often accompanied by significant volumes of raw data, which may make this difficult. Denzin (2017) presented four distinct types of triangulation techniques, which were used in this investigation and are described below:

- Methodological triangulation by using a variety of data gathering strategies, such as focus groups, one-on-one interviews, and direct observations, to address the research topic (Padgett, 2008)

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- Investigator triangulation is the process by which many researchers gather information, document findings, and then analyze the information (Winston & Heiko, 1990).

- Data triangulation is the process of gathering information from several sources in multiple contexts and places (carpenter & Suto, 2008; Winston & Heiko, 1990)

- Theoretical triangulation which refers to the process of approaching a research subject through numerous theoretical frameworks in order to account for all possible interpretations (Padgett, 2008).

Inter-Rater Reliability

Inter-rater reliability is defined as a measure of the consistency between observations or interpretations made by two or more independent "raters" (Rashid, 2010). This is frequently used in qualitative research projects in the social, behavioral, and medical sciences (Alkhoraif and McLaughlin, 2021). Following Gwet's (2002) framework and guidelines, an expert assessment or opinion has been used to assess the consistency between observations or interpretations. As argued by both Rashid (2010) and Gwet (2002), we propose to approach two experts in the field of qualitative methods working in innovation. These experts will be requested to judge the consistency between observations or interpretations. This is commonly applied across qualitative research studies in medical, social, and behavioral sciences. In the framework for a reliability experiment put forth by Gwet (2002), two investigators classify participants based on two mutually exclusive responses ("Yes" or "No"). The model for determining the responses across two raters is provided in Table 5.

Table 5. Distribution Of Responders (Gwet, 2002; Adapted from Rashed, (2010)

	Rater A		
Rater B	**Yes**	**No**	**Total**
Yes	A	b	B (Yes) = a + b
No	C	d	B (No) = c + d
Total	A (Yes) = a + c	A (No) = b + d	N

a: Total number of participants categorised as (Yes) response by both raters, b: Total number of participants categorised as (Yes) response by rater B and as (No) response by rater A, c: Total number of participants categorised as (Yes) response by rater A and as (No) units by rater B; and d: Total number of participants categorised as (No) units by both raters.

Furthermore, two quantitative measures are typically used to evaluate inter-rater reliability: Cohen's Kappa method (K coefficient) and the percentage of agreement (Gwet, 2002; Hsu & Field, 2003). The calculations for generating each of these are outlined below. The degrees of agreement represented by different ranges of the Kappa coefficient are listed in Table 6.

Cohen's Kappa Method

$K = (F1 - F2) / (N - F2)$, $K = 0.00$ to 1.00

Where $F1 = a + d$

$F2 = [(a + b)(a + c) + (b + d)(c + d)] / N$

$N = a + b + c + d$

Table 6. The Degree of Agreement Between Raters Based on Kappa Value (Huddleston 2003; Rashed, 2010)

K Value ranges	**Degree of Agreement between raters**
0.08 – 1.00	Almost Perfect

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0.60 - 0.79	Substantial
0.40 - 0.59	Moderate
0.20 - 0.39	Fair
0.00 - 0.19	Slight
≤ 0.00	Poor

Percentage Of Agreement Method

The formula for calculating the percentage of agreement is [(a + d) / N] * 100 %.

Table 7 outlines the level of agreement between raters based on the percentage of agreement.

Table 7. Percentage Of Agreement Between Raters (Huddleston 2003; Rashed, 2010)

Percentage ranges	Level of Agreement between raters
91- 100	Very high
81 – 90	High
71 – 80	Moderate
61 – 70	Fair
51 – 60	Slight
≤ 50	Poor

Research Process

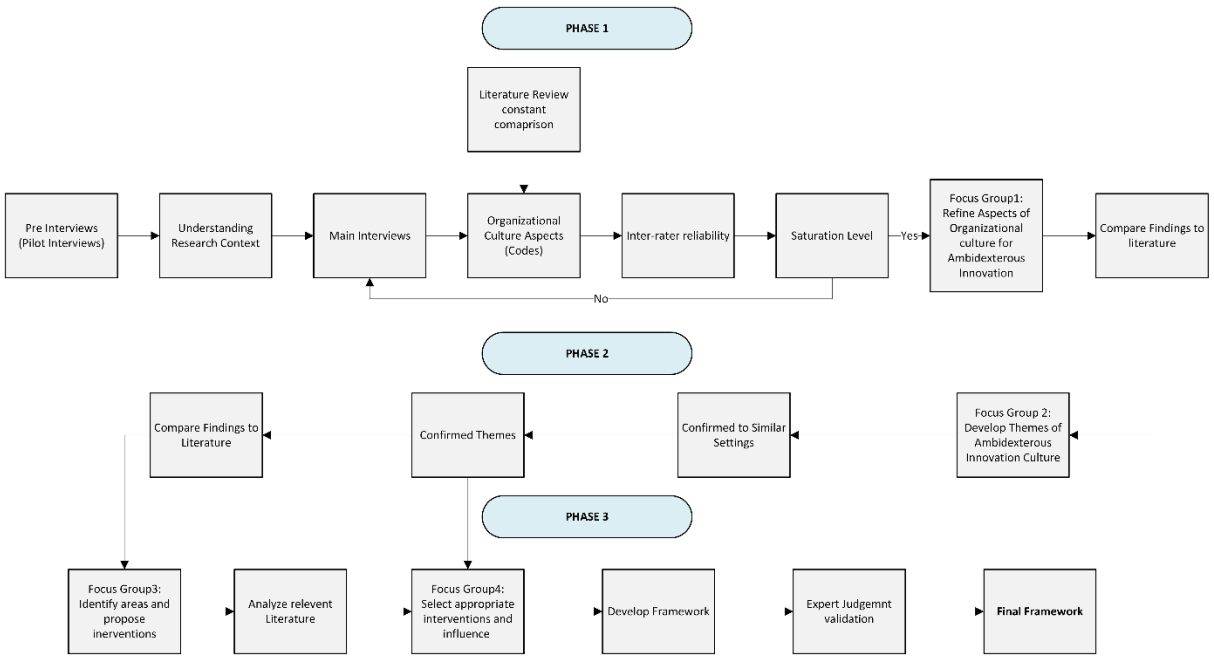

Figure 3 Research Process (Developed by Researcher)

Figure 3 shows the overall process that highlights the step-by-step procedure of data collection, analysis, and interpretation of the results. The research process, in general, consists of three stages and nine different activities or dimensions.

Stage 1

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First, the research process starts with developing the research gap by undertaking a pilot interviews and comprehensive review of existing knowledge and making continuous comparisons. The second step involves active engagement and communication with participants, ensuring that the research environment and ecosystem are considerate of them. The third step of the research process is to discover cultural factors from the participants' perspective to enable a social construction of reality.

Stage 2

The fourth step focuses on developing and constructing themes critical to the research context. These themes will be developed during focus group discussions to minimize potential biases, enhancing confirmability and transferability as essential components of research validity.

Stage 3

After confirming the themes influencing Ambidextrous innovation, The fifth step is to identify and develop the necessary interventions that can be helpful and critical in implementing ambidextrous innovation. In the sixth step, the interventions will be named (developed from interactions with participants and previous literature). The seventh step involves incorporating the interventions to demonstrate the proposed framework, based on the previous results. The eighth step will incorporate the views and analyses of experts for framework validation. Finally, the research will develop an improved and final framework.

Framework Development

The present research proposes to fill the knowledge gap and advance the existing literature by developing a comprehensive theoretical framework. To implement the conceptual framework, a series of managerial interventions will be highly necessary. These interventions will consist of managerial actions, forming a framework that will move the ambidextrous innovation culture closer to the ideal state of a desired ambidextrous innovation culture. Outlining a framework of interventions targeted at creating an organizational culture that encourages and supports ambidextrous innovation is the research's main objective. The generated core idea can serve as the basis for a carefully thought-out and organized framework.

The concluding framework will be highly effective in explaining the relationship between the key variables of ambidextrous innovation and organizational culture. The developed framework helps highlight the important cultural factors crucial for ambidextrous innovation. Therefore, for organizations seeking to balance the innovation paradox of exploratory and exploitative innovation, our framework will suggest that culture as a whole requires appropriate interventions for implementing ambidextrous innovation. Finally, the findings will provide academic researchers with a structured theoretical framework to investigate the social and cultural factors that affect innovation in workplace environments.

Conclusion

Organizations are facing significant and serious challenges to sustain their organizational and business performance over a longer period of time. The constraints that organizations are facing today include a volatile external socio-economic environment, rapid technological change, and hyper-competition in various industries. Thus, sustaining ambitious organizational performance is an important task that needs to be achieved. The literature has suggested that continuous innovation can be an important tool to help organizations sustain their performance over a longer period of time. Furthermore, literature indicates that a dynamic but paradoxical innovation framework—balancing exploratory (radical) and exploitative (incremental) innovation—can be a key framework for implementing innovation within organizations.

Therefore, a comprehensive understanding of, and strategies for, implementing ambidextrous innovation present a significant research problem to be addressed. Although existing empirical research has comprehensively assessed the consequences and antecedents of ambidextrous innovation, insight into how such innovation can be implemented in organizations is lacking in the literature. Thus, comprehensively

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studying and examining how such an innovation framework can be incorporated into organizations needs to be researched. The existing literature suggests that organizational culture plays an important role as an anchor for organizations to change and adopt ambidextrous innovation. This is consistent with the theory that culture is a key component and necessary condition for innovation, and more specifically, ambidextrous innovation. However, specific guidelines, interventions, and key cultural factors that are necessary for ambidextrous innovation are clearly lacking. Therefore, exploratory research is needed to theorize the culture, elements, and interventions required for implementing such cultural elements to balance exploratory and exploitative innovation. In this research paper, we propose a comprehensive and rigorous grounded theory method using both interviews and focus group discussions as data collection methods to collect and analyze data in order to theorize organizational culture as a model to adopt and implement ambidextrous innovation. Organizational culture theoretical models such as the Schein Model and the Competing Values Framework are proposed as the underpinning theoretical models for theorizing the key cultural elements necessary for the adaptation of ambidextrous innovation. The results of the proposed methodological guidelines will help us develop key cultural elements and themes in which interconnected elements can be grouped together. These results will also identify the key interventions needed to implement such themes for ambidextrous innovation. Finally, will provide a structured framework for effective implemntation of social and cultural factors that affect ambidexterous innovation in workplace environments. This methodology will be a key anchor in researching culture and ambidextrous innovation in a rigorous way.

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