

DISSERTATION

TOLERATED ORGANIZATIONAL FORGETTING IN THE U.S. AIR FORCE:
A CASE STUDY ANALYSIS OF KNOWLEDGE LOSS AMONG GOVERNMENT
CIVILIAN EMPLOYEES

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ABSTRACT

TOLERATED ORGANIZATIONAL FORGETTING IN THE U.S. AIR FORCE: A CASE STUDY ANALYSIS OF KNOWLEDGE LOSS AMONG GOVERNMENT CIVILIAN EMPLOYEES

Organizations do not learn well. As a result, they lose valuable knowledge. When knowledge is lost in organizations, workers are forced to spend as much as 25% of their workday looking for information to do their jobs, contributing to workplace frustration, anxiety, and personnel retention challenges (Businesswire, 2022). Numerous studies on knowledge management, organizational memory, and organizational forgetting have expanded organizations' view of knowledge as a valuable organizational resource. The problem of interest in this dissertation is that while prescriptive measures to retain organizational knowledge exist, organizations continue to lose valuable knowledge. Such knowledge loss in the government contributes to performance inefficiencies, unnecessary costs to U.S. taxpayers, and the potential inability of military forces to meet national security requirements.

The purpose of this qualitative case study was to explore the contextual issues that influence how and why forgetting is tolerated within strategic-level organizations of the Air Force as experienced by the civilian workforce. The research questions that guided this study are as follows: Why do Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies? How do Air Force organizations prioritize knowledge loss in

their learning and knowledge management activities? and How are organizational processes, systems, and culture managed to address knowledge loss?

The study expands the existing models of organizational forgetting that focus on intentional and unintentional knowledge loss to include forgetting that is neither of these but is tolerated by organizations. Semi-structured interviews were conducted with 26 mid- to senior-level Air Force civilian employees representing eight strategic-level organizations. Four themes were identified as contributing to tolerated organizational forgetting. First, motivation and values within the organization often relegate knowledge management efforts to other tasks. Second, a culture of acceptance and lack of accountability habituate organizations to knowledge loss. Third, organizational focus on near-term objectives creates strategic blindness. Lastly, undocumented business processes contribute to a loss of governance and ad hoc practices. These findings provide practical considerations to address tolerated forgetting in organizations and provide new avenues for refining organizational forgetting theory.

Keywords: tolerated forgetting, accidental forgetting, organizational forgetting, organizational memory

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Thank you to the friends, colleagues, and counterparts who participated in this study. I hope that my interpretation of your experiences will help others and the Air Force.

DEDICATION

To Jared, Brian, and Abby...

I love you more than you'll ever know.

To Maria...

You have endured far too many days, nights, and weekends while I sequestered myself in my office. Your love and support have meant the world to me. Now that this is done, let's go!

TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	iv
DEDICATION.....	v
LIST OF TABLES.....	ix
LIST OF FIGURES.....	x
CHAPTER ONE: INTRODUCTION.....	1
Problem Statement.....	3
A Description of the Problem.....	4
Human Capital Management.....	4
Workforce Demographic Trends.....	7
Knowledge Management and the Government.....	8
Significance of the Problem.....	9
Purpose of the Study.....	10
Research Questions.....	10
Conceptual Framework.....	10
Study Design Overview.....	12
Definition of Key Terms.....	13
Organization of the Study.....	15
CHAPTER TWO: LITERATURE REVIEW.....	16
Conceptual Framework.....	17
Literature Search Method.....	18
Theoretical Background.....	22
Intellectual Capital Theory.....	23
Human Capital Theory.....	24
Knowledge Management Theory.....	24
Other Theoretical Perspectives.....	26
Organizational Knowledge and Memory.....	26
Organizational Knowledge Types.....	28
Tacit, Explicit, and Implicit Dimensions.....	28
Knowledge Types by Function.....	31
Knowledge Transfer and Flow.....	33
Empirical and Latent Qualities of Knowledge.....	34
Anthropomorphism and Organizational Knowledge.....	35
Organizational Memory.....	36
Structure of Organizational Memory.....	42
Organizational Forgetting.....	46
Dimensions and Descriptors.....	47
Influential Knowledge Loss Factors.....	51
Organizational Intent.....	59

Accidental Forgetting	62
Intentional Forgetting and Unlearning	65
Knowledge Retention Challenges.....	67
Human Resources.....	68
Management Processes.....	69
Technology	70
Structure	71
Tolerated Forgetting: A New Perspective.....	71
Summary	76
CHAPTER THREE: RESEARCH METHOD	78
Theoretical Proposition and Conceptual Framework	78
Research Questions	79
Research Context.....	80
Researcher Position	83
Philosophical Basis of the Study	84
Research Design.....	84
Qualitative Background.....	85
Case Study Justification	86
Research Method	90
Institutional Approval and Ethics.....	93
Preparation.....	96
Data Sources and Participant Selection.....	104
Data Collection.....	110
Reflective Journaling.....	117
Data Coding and Analysis.....	119
Trustworthiness.....	122
Interpretation and Verification	123
Construct Validity	123
Internal Validity.....	124
External Validity	124
Reliability	125
Revisions, Strengths and Limitations	125
Summary.....	126
CHAPTER FOUR: FINDINGS.....	128
Overview of Findings	129
Policy Documentation Analysis.....	131
Primary Policy Motivation: National Security Strategic Objectives.....	132
Policy Document Management	133
Air Force Knowledge Management Policy Documents	135
Policy Document Analysis	136
Interview Findings	139
Theme 1: Motivation and Values	141
Theme 2: Acceptance Culture and Accountability.....	146
Theme 3: Strategic Management.....	151
Theme 4: Organizational Governance.....	158

Embedded Units of Analysis	164
Summary	166
CHAPTER FIVE: DISCUSSION AND CONCLUSIONS	169
Key Conclusions	170
Primary Research Question	170
Secondary Research Questions.....	172
Discussion.....	174
Theme 1: Motivation and Values	174
Theme 2: Acceptance Culture and Accountability.....	180
Theme 3: Strategic Management.....	186
Theme 4: Organizational Governance.....	194
Proposed Conceptualization for Organizational Forgetting.....	200
Recommendations and Implications for Theory, Practice, and Research	203
Contributions to Theory	203
Implications for Practice.....	204
Recommendations for Future Research.....	207
Contribution to Human Resource Development	209
Limitations and Transferability.....	210
Summary	211
References.....	213
Appendix A. Institutional Review Board Approval	261
Appendix B. Informed Consent	264
Appendix C. Participant Recruitment and Consent Email.....	267
Appendix D. Executive Summary	268
Appendix E. Interview Guide	269
Appendix F. Coding and Categorization	273
Appendix G. Knowledge Management Policy Documents	278
List of Abbreviations	281

LIST OF TABLES

Table 1 <i>Summary of the Literature Search</i>	20
Table 2 <i>Organizations Represented by Participants</i>	106
Table 3 <i>Hierarchy of Documentation Sources</i>	110
Table 4 <i>Demographic Summary of Participants</i>	115
Table 5 <i>Comparison of Study Participants to DAF Civilian Population Demographics</i>	116
Table 6 <i>Tolerated Organizational Forgetting Thematic Framework</i>	130
Table 7 <i>Primary Air Force Document Types</i>	134
Table 8 <i>Motivation and Values Codes and Categories</i>	142
Table 9 <i>Acceptance Culture Codes and Categories</i>	147
Table 10 <i>Strategic Management Codes and Categories</i>	152
Table 11 <i>Organizational Governance Codes and Categories</i>	158

LIST OF FIGURES

Figure 1 <i>Modes of Organizational Forgetting</i>	11
Figure 2 <i>Organizational Forgetting Model</i>	18
Figure 3 <i>Antecedents of Organizational Memory</i>	40
Figure 4 <i>Antecedents and Outcomes of Organizational Memory</i>	45
Figure 5 <i>Components of Organizational Tolerance</i>	72
Figure 6 <i>Initial Conceptual Framework of Tolerated Forgetting</i>	79
Figure 7 <i>Basic Air Force Structure</i>	82
Figure 8 <i>Basic Types of Design for Case Studies</i>	87
Figure 9 <i>Tolerated Forgetting Case Study Design</i>	90
Figure 10 <i>Research Process Overview</i>	92
Figure 11 <i>Embedded Units of Analysis</i>	99
Figure 12 <i>Problem-Centered Expert Interview</i>	112
Figure 13 <i>Pilot Interview Process</i>	114
Figure 14 <i>Solicitation vs. Participants vs. DAF Demographics</i>	117
Figure 15 <i>Coding and Analysis Process</i>	120
Figure 16 <i>Data Analysis Process</i>	121
Figure 17 <i>Contextual Themes and Prominent Categories from Findings</i>	141
Figure 18 <i>Proposed Organizational Forgetting Conceptualization</i>	203

CHAPTER ONE: INTRODUCTION

Organizations do not learn well. As a result, they lose valuable knowledge (Levine & Argote, 2020; Kransdorff, 2012; Liebowitz, 2009; Senge, 1990). When knowledge is lost in organizations, workers are forced to spend as much as 25% of their workday looking for information to do their jobs, contributing to workplace frustration, anxiety, and personnel retention challenges (Businesswire, 2022). The knowledge-based view of organizations asserts that knowledge is a resource for organizations, and improved use of knowledge leads to better performance (Eisenhardt & Santos, 2006; Spender, 1996; Teece et al., 1997). This perspective motivates a greater understanding of how to optimize this unique resource (Levine & Argote, 2020; Spender, 1996). Numerous studies on knowledge management, organizational memory, and organizational forgetting have expanded organizations' view of knowledge as an organizational resource (Dalkir, 2017; Mariano et al., 2020a; Walsh & Ungson, 1991). Although existing research has developed several knowledge loss theories, concepts, and prescriptive measures to retain organizational knowledge, organizations continue to lose valuable knowledge (Mariano et al., 2020a; Levy, 2011). This exploratory study examines tolerated organizational forgetting as an emergent aspect of knowledge loss in organizations.

The field of knowledge management emerged in the early 1990s as an approach to capture, retain, and apply knowledge for improved performance (Dalkir, 2017; Senge, 1990; Stankosky, 2005). Organizations began to see knowledge management as a fundamental mechanism to distinguish themselves, and they viewed budding information systems as the way to become more competitive (Dalkir, 2017). Organizations have since pursued knowledge

management strategies and initiatives to optimize what they know, often for fear of falling behind (Davenport & Prusak, 1998).

Studies on knowledge management, information systems, and organizational memory (Walsh & Ungson, 1991) have increasingly examined organizational forgetting or knowledge loss in organizations (Mariano et al., 2020a; Martin de Holan & Phillips, 2004a). Organizations must manage what they know as well as what and how they forget prior knowledge (Mariano et al., 2020a; Martin de Holan & Phillips, 2011). Organizational forgetting is defined as either accidental or purposeful knowledge loss (Mariano et al., 2020a; Martin de Holan & Phillips, 2004b) with popular emphasis on purposeful “unlearning” (Klammer & Gueldenberg, 2019). Purposeful forgetting or unlearning is described as the intentional removal of knowledge that is no longer needed or knowledge that distracts from new ways of doing business (Kluge et al., 2019). Ebbinghaus’ (1913) early studies on memory led to research on accidental knowledge loss and learning curve theory development (Argote, 2013a). Subsequent research on organizational forgetting has largely been influenced by Martin de Holan and Phillips’ (2004b) empirical research. They contrasted research on organizational forgetting with research that predominantly focused on knowledge generation and retention, but they mostly failed to address knowledge loss. Nevertheless, their research defined an organizational forgetting typology where loss is either accidental or purposeful.

Accidental organizational forgetting in the public sector is the focus of the current research to help organizations learn better. The goal is also to improve our understanding of why organizations tolerate knowledge loss and, specifically, how to address the disappearance of expertise. This perspective is valuable considering the lack of knowledge management research in the context of public sector organizations (Alers-Tealdi, 2015; Ellis, 2018; Massaro et al.,

2015). Recent research in the United Kingdom demonstrates the global impact of knowledge loss on performance in the public sector and the need for a deeper understanding of knowledge loss (Stark, 2019).

Problem Statement

A basic problem addressed in this study is the lack of research on organizational forgetting in U.S. government organizations. Such knowledge loss contributes to performance inefficiencies, unnecessary costs to U.S. taxpayers, and the potential inability of military forces to meet national security requirements. The U.S. government has identified knowledge as a strategic asset associated with federal civilian talent management practices (DBB, 2022; Kettl et al., 2017; Werber, 2021). Department of Defense (DoD) guidance emphasizes the importance of effective knowledge management for agile and accurate decision making in highly dynamic environments (CJCS, 2022). However, little research has examined how knowledge is managed in U.S. government organizations (Alers-Tealdi, 2015; Ellis, 2018; Harris, 2013; Lantigua, 2016).

Research on U.S. government organizations include knowledge management (Massaro et al., 2015), human capital management and turnover (Kochanowski, 2011; Rusaw, 2004), knowledge sharing (Lantigua, 2016), and transfer (Alers-Tealdi, 2015; Rivera et al., 2012). However, studies have been limited due to bureaucratic barriers and organizational reluctance to allow data collection from either active-duty military or government civilian personnel (C. Lantigua, personal communication, February 24, 2021; M. Harris, personal communication, February 15, 2021; Q. Ellis, personal communication, April 28, 2021). Examples of research on practical knowledge management activities include NASA (Liebowitz, 2004), Army Center for Lessons Learned (Baird et al., 1997), and the U.S. Navy (Mayo & Nathman, 2003). However,

closer examination and a deeper understanding of organizational forgetting or knowledge loss in the Department of Defense (DoD)¹ is warranted.

The fundamental purpose of this study is to gain a deeper understanding of why public organizations accept forgetting what they have “learned.” As a result, the organizations often need to recreate knowledge or “re-invent the wheel” within the complex dynamics of the organization’s people, processes, and systems. Specifically, this study examines tolerated organizational forgetting to understand how and why U.S. Air Force organizations forget or lose knowledge of what they should know and retain.

A Description of the Problem

The problem of lost knowledge and expertise is fundamentally driven by ineffective human capital management and workforce demographic trends (Leonard et al., 2015). Poor knowledge management exacerbates the negative impacts of ineffective workforce planning and existing trends in the workplace (Corbett et al., 2020; DaValos, 2019; Wettenhall, 2011). A shrinking labor force, retiring personnel, increased worker mobility, and failed general human capital management contribute to knowledge gaps that challenge organizations’ performance in increasingly competitive environments (DeLong, 2004; DaValos, 2019; Dewah & Mutula, 2016; Eriksson & Karamehmedovic, 2016; Evans, 2003; GAO, 2019; Liebowitz, 2009). The resulting knowledge gaps are reflected in an organization’s memory and what is being lost or forgotten.

Human Capital Management

For many years, private industry and the U.S. federal government have identified strategic human capital management and lost intellectual capital as significant issues for organizations (DeLong, 2004; Evans, 2003; GAO, 2019; Kettl et al., 2018; Liebowitz, 2009;

¹ The “Department of Defense” will be referred to as “DoD” in the remainder of the document as it is the more commonly used vernacular.

Toosi, 2013). Over 20 years ago, GAO (2001) highlighted the need to attract, retain, and motivate employees at the federal level, and identified strategic human capital management as the most critical management challenge. Subsequent analysis reveals that the human capital issues presented more than two decades ago have not significantly improved and have even regressed in some cases (DBB, 2022; GAO, 2021; Kettl et al., 2018).

Although the private sector has tended to manage knowledge workers more effectively for performance, the government has often treated personnel as costs rather than valuable assets (GAO, 2001). Evidence from current and past civil servants suggests that the DoD often accepts human capital losses and the associated loss of expertise by adopting a “next man up” mindset to personnel management (M. Harris, personal communication, February 15, 2021). The “next man up” approach to human capital management, with little attention to future workforce needs, is a risk to effective governance and the DoD’s ability to meet national security demands (DBB, 2022; GAO, 2019; Kettl et al., 2017).

The DoD workforce is composed of uniformed active or reserve personnel, federal government civilian employees, and private sector (corporate) support contractors. Government civilian employees constitute approximately one-third of the total DoD workforce (DMDC, 2022). Nearly half of all DoD civilian employees are military veterans who bring unique operational experience to the workforce, further illustrating the significance of their contributions to DoD missions (OPM, 2022) at a lower total cost. They often fill roles that do not require uniformed service members, and they provide military departments (i.e., Army, Navy, and Air Force) with a stable workforce that is not prone to routine reassignments (DBB, 2022; OPM, 2022).

In the context of this study, the purpose of retaining the knowledge and skills of DoD civilian employees is to ensure the military's ability and capacity to meet its functional roles rather than providing direct support and services to the general populace. The knowledge and skills of DoD civilian employees may have significant consequences for uniformed military personnel who would potentially be in harm's way if support is not timely, systems are poorly designed, or ineffective personnel management distracts warfighting members. Thus, the *2022 National Defense Strategy (NDS)* emphasized the need to build an enduring advantage of the defense enterprise through increased investments in both military and civilian personnel. Upon the release of the document, Secretary of Defense Lloyd Austin said, "Above all, the NDS demands even deeper investments in our people. They will always be this department's most valuable resource and the bedrock of American security" (DoD, 2022).

The human capital management system for the federal government is based on 19th and 20th century models making it increasingly challenging to address present-day requirements (Kettl et al., 2017). Specifically, the increasingly complex nature of government responsibilities requires more adaptive, agile, and innovative public sector organizations (Kettl et al., 2017; Liebowitz, 2004). However, bureaucratic processes and declining trust in the government have complicated recruiting and retaining high-performing talent in government service (Kettl et al., 2017; Liebowitz, 2004; Rainie et al., 2019). The DoD is no less challenged than other federal organizations to address knowledge gaps, but it faces the added urgency of the rapidly changing threats to U.S. national security (DBB, 2022). Therefore, understanding organizational forgetting in a DoD organization could help support uniformed warfighters and remedy performance risks through better knowledge retention.

Workforce Demographic Trends

DoD work often requires collaboration between dispersed functional experts. Compared to lower-level units, collaboration and coordination are more important at the strategic level of a DoD organization with a broader span of organizational control. While the government is commonly regarded as a monolithic bureaucracy with well-defined roles and highly regimented structures, the actual work is often performed by highly knowledgeable individuals who form “collabocracies” (Davenport, 2005; Tchurovsky, 2015) within a knowledge collectivity (Lindkvist, 2002). In other words, the work involves dynamic processes of interaction among experienced individuals (Davenport, 2005) who are internal and external to their organization.

An increasingly mobile workforce exacerbates the challenges of human capital management including personnel losses, frequent restructuring, realignments, disrupted social networks, and the associated loss of organizational knowledge (GAO, 2019; Leonard et al., 2015; Liebowitz, 2009; Stark, 2019). Employees change jobs an average of 11 times in the course of their professional lives, which means that they have shortened organizational tenure and potentially less loyalty, which creates more volatile organizational memory (Geisler, 2007; Kransdorff & Williams, 2000). This workforce mobility has continued to change as a result of COVID-19 including workplace adjustments to accommodate new hybrid environments (Vyas, 2022).

The public sector workforce may be even more unpredictable due to changes in leadership, political appointments, organizational churn, and “job hopping” for promotions (Stark, 2019; T. Wilson, personal communication, January 6, 2021). DoD civilian employees may remain in a position for many years and become “subject matter experts” or they may “job hop” to get a promotion (S. Brien, personal communication, April 12, 2021). Civilian employees

who often move between positions and organizations could be described as transient generalists (Pollitt, 2000) compared to semi-permanent subject matter experts. These characterizations are supported by the proportion of civilians whose careers start in the military, and then they often develop a restlessness to move to another job every couple of years to seek promotions (Jans & Frazer-Jans, 2004). The combination of transient and semi-permanent employees challenges the organization to keep track of who knows what and how to perform the work without “reinventing the wheel” (Leonard et al., 2015), or what has been described as team cognition (Salas & Fiore, 2004) and transactive memory systems (Argote & Guo, 2016; Human, 2020).

Knowledge Management and the Government

Guidance emphasizes the importance of effective knowledge management to address the complex challenges of today’s operating environments (CJCS, 2022). However, many times the organizations fail to follow the guidance or achieve the objectives (E. Puffer, personal communication, April 4, 2023; J. Coats, personal communication, June 22, 2023; T. Wilson, personal communication, December 8, 2020). The reason for this dissonance is unclear, but DoD civilians anecdotally identify influential factors as limited leadership advocacy, accountability, the organizational culture, poor process management, and competing priorities. Many DoD leaders also interpret knowledge management as information systems management, which is likely a carry-over from the origins of the field. Thus, they fail to prioritize a holistic approach to achieve potential gains from effective implementation (E. Puffer, personal communication, April 4, 2023). The DoD’s knowledge management efforts are complicated due to the need for complex network cybersecurity and access protocols that create digital “Towers of Babel.” Although the U.S. government has promoted knowledge management to mitigate lost knowledge due to human capital challenges and demographic trends, examinations of knowledge

management in the U.S. government are limited and warrant additional study (Alers-Tealdi, 2015).

Significance of the Problem

Knowledge loss or forgetting affects U.S. national security as government organizations are expected to resolve many of the complex challenges facing society such as global cybersecurity threats, economic stability, and healthcare (Kettl et al., 2017). Developing the requisite knowledge and expertise to effectively perform this work involves complex processes of learning at the individual, group, and organizational levels (Levine & Argote, 2020). The need to retain organizational knowledge and create organizational memory in federal organizations is further exemplified by the fact that nearly half of the functional areas identified as “high-risk” to the government have significant gaps between the skills personnel must perform to succeed in their work and the skills they need to acquire (GAO, 2019). Improving organizational knowledge retention moderates the impacts of skills gaps in the workforce (Alers-Tealdi, 2015; Liebowitz, 2004).

Within the federal government, the U.S. DoD is charged with ensuring national security against highly complex, diverse, and rapidly changing global influences (CJCS, 2022). The acronym VUCA refers to today’s volatile, uncertain, complex, and ambiguous environments (Bennett & Lemoine, 2014). Volatile and unpredictable environments challenge individuals and organizations to effectively apply past experience and develop new skills to address the demands presented to them (Lindkvist, 2002; Sinha & Sinha, 2020). This “know how” has been described as an organization’s tacit knowledge (Kransdorff, 2006), competence (Lindkvist, 2002), expertise (Heavey & Simsek, 2017) or “deep smarts” (Leonard et al., 2015), and it is retained in organizational memory (Jain, 2020). The immutable and unique knowledge of the combined

workforce often provides organizational advantages such as innovation, agility, absorptive capacity, and decision making (Jain, 2020; Salas & Fiore, 2004). Thus, while recognizing the value of organizational knowledge to accomplish national security objectives, it is unclear why U.S. DoD organizations appear to tolerate knowledge loss and often forget what should be known.

Purpose of the Study

The purpose of this study was to gain a deeper understanding of organizational forgetting in the U.S. government civilian workforce. The ultimate goal of this research is to improve organizational knowledge management and overall performance within the DoD given the current human capital, workforce, and national security challenges. A qualitative case study method is used to capture the contextual elements that influence how organizations manage what they know and why losing valuable knowledge is accepted as the norm. The results shed new light on how to remedy the current and anticipated intellectual capital challenges through more effective knowledge management in the public sector and particularly in the DoD.

Research Questions

The central research question that guided this study is: (RQ) Why do Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies? Two sub-questions were also used: (SQ1) How do Air Force organizations prioritize knowledge loss in their learning and knowledge management activities? and (SQ2) How are organizational processes, systems, and culture managed to address knowledge loss?

Conceptual Framework

Abundant literature has focused on organizational learning, knowledge, and knowledge management (Levine & Argote, 2020; Dalkir, 2017; Leonard et al., 2015; Torraco, 2000).

However, much less research has focused on organizational forgetting (Klammer & Gueldenberg, 2019) and even less has been conducted in government organizations. Thus, an examination of the relevant literature and organizational forgetting is needed to deepen our understanding of forgetting or knowledge loss that affects organizational performance.

This study takes a holistic perspective to better understand the dynamics of forgetting or knowledge loss as an outcome of organizational learning and knowledge management. Martin de Holan and Phillips (2004b) introduced a conceptual model of organizational forgetting, which remains prominent in research, and is the point of departure for this study on organizational forgetting in the public sector. An adapted model of their original work is illustrated in Figure 1. This section describes purposeful and accidental forgetting to explore tolerated organizational forgetting as a type of knowledge loss.

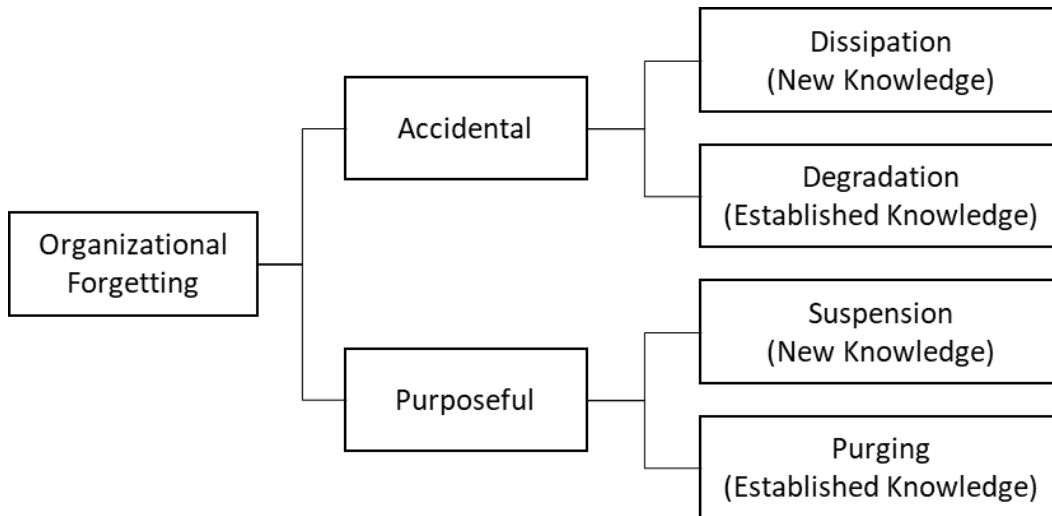


Figure 1 *Modes of Organizational Forgetting*

Note. Adapted from “Remembrance of things past? The dynamics of organizational forgetting,” P. Martin de Holan, & N. Phillips, 2004, *Management Science*, 50(11), p. 1606 (<https://doi.org/10.1287/mnsc.1040.0273>). Copyright 2004 INFORMS.

Martin de Holan and Phillips (2004b) defined organizational forgetting as “the loss, voluntary or otherwise, of organizational knowledge” (p. 1606). In subsequent work, the authors slightly modified the phrase “voluntary or otherwise” to be “purposeful” or “accidental” (Martin de Holan & Phillips, 2011). Purposeful (or voluntary) forgetting is the intentional discarding or “unlearning” processes by organizations to improve learning capacity, innovativeness, and disrupt inertia (Easterby-Smith & Lyles, 2011a; Mariano et al., 2020a). Accidental forgetting is unintentional knowledge loss or depreciation that occurs due to organizational factors like personnel turnover, organizational churn, poor knowledge management processes, and information systems failure (Mariano et al., 2020a). This fundamental model of purposeful and accidental organizational forgetting is the basis for research on the phenomenon (Mariano et al., 2020a). This study explores another type of forgetting that is neither purposeful nor accidental but is tolerated by organizations.

Study Design Overview

Due to the unique nature of organizations, researchers and practitioners are challenged to clearly describe the complex elements and dimensions of knowledge management (DeLong, 2004). The U.S. Air Force is a large, complex organization with numerous responsibilities and sub-organizations. Thus, they must make many decisions related to knowledge management involving personnel, processes, and systems at different levels of information security and classification.

The workforce consists of three types of personnel: uniformed officers and enlisted ranks, government civilian employees, and commercial contracted support personnel. Structurally, the U.S. military is managed at three interdependent organizational levels: tactical, operational, and strategic. These levels are defined by the scope of responsibility and span of control within the

military. The tactical level of warfare is the most specific level. The strategic level is the broadest level connecting national security objectives with military capabilities. This study investigates the phenomenon of tolerated organizational forgetting at the strategic headquarters level, including major command organizations. The aim is to better understand why organizations seemingly acknowledge the importance of knowledge but fail to address the phenomenon of forgetting. Air Force civilian employees are the sample of this study due to the relative stability of this population compared to the uniformed military personnel who are frequently reassigned in accordance with uniformed personnel management plans. The ultimate aim of this research is to highlight practical interventions to address knowledge loss and help Air Force units perform more effectively as they become better learning organizations.

Considering the scarce research on organizational forgetting in this context, the author has employed a qualitative method and case study approach from a social constructionist perspective to explore and interpret the “how and why” experiences of Air Force civilian employees. The participants’ thick, rich descriptions provide insights to understand the nature, context, and meaning of organizational forgetting (Merriam & Tisdell, 2016; Yin, 2018). Thus, this single case study provides an in-depth examination of organizational forgetting in the context of U.S. Air Force headquarters organizations.

Definition of Key Terms

The key terms used in this study are (a) organizational knowledge, (b) organizational memory, and (c) organizational forgetting.

Organizational knowledge is difficult to define concisely due to the multiple perspectives, interpretations, and representations of this concept (Bolisani & Bratianu, 2018). Dalkir (2011) defined organizational knowledge as “knowledge that an individual can access,

use, and reuse because they are part of that organization— often referred to as corporate or organizational memory” (p. 383). Leonard and Sensiper (1998) defined knowledge as “information that is relevant, actionable, and based at least partially on experience” (p. 113). These definitions encapsulate the experience-based collection of tangible and intangible knowledge objects, processes, and organizational norms (i.e., social, cultural, and political) that guide and influence how an organization behaves and how organizational members act.

Organizational memory is knowledge that an individual can access, use, and reuse in the organization because knowledge is part of the organization (Casey & Olivera, 2011; Kransdorff & Williams, 2000; Walsh & Ungson, 1991). This supra-individual knowledge may be retained through organizational routines, processes, tools, social networks, and culture (Argote & Ingram, 2000). It is also stored information, which is part of an “organization’s history that can be brought to bear on present decisions” (Walsh & Ungson, 1991, p. 61).

Organizational forgetting refers to “the loss, voluntary or otherwise, of organizational knowledge” (Martin de Holan & Phillips, 2004b, p. 1606). Organizational forgetting is usually described as accidental or purposeful forgetting based on the intent of the organization (Mariano et al., 2020a; Martin de Holan & Phillips, 2004b). Terms such as unintentional and intentional forgetting (Huang et al., 2018; Jalonon, 2023; Manning et al, 2021) have been used since Martin de Holan and Phillips’ (2004b) initial typology.

Accidental forgetting is unintentional knowledge loss or depreciation due to organizational factors such as personnel turnover, organizational churn, poor knowledge management processes, and information systems failure (Mariano et al., 2020a).

Purposeful (or voluntary) forgetting is organizations’ intentional discarding or “unlearning” processes to improve learning capacity and innovativeness, and to disrupt inertia

(Easterby-Smith & Lyles, 2011a; Mariano et al., 2020a). “Unlearning” is a common synonym for intentional forgetting (Akgün et al., 2007; Becker, 2019; Nguyen, 2017).

Tolerated forgetting is an organization’s willingness to allow knowledge loss or depreciation through practices that are neither intentional nor accidental but inconsistent with espoused protocols for knowledge management.

Organization of the Study

Chapter One introduces the nature and significance of the problem to be addressed, relevance of the study to remedy the problem, research questions, and definitions. Chapter Two is an analysis and synthesis of existing literature on organizational forgetting to identify the knowledge gaps, refine the research questions, and define the focus of this study. Chapter Three discusses the method of study, providing details on the case study design, sample group, data collection, and analysis. Chapter Four presents the findings of the study. Chapter Five interprets the findings to develop conclusions, a conceptual framework, implications for organizational forgetting theory, practice, and recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

Employees are often frustrated with the time they must spend trying to find information, and they feel that they are repeatedly reinventing the wheel (Businesswire, 2022). Similarly, they are frustrated when they attend meetings where a previously addressed issue is revisited, but few recall the outcome, resulting in another deliberation of the “new” problem (Othman & Hashim, 2004). The common experience of lost organizational memory and organizational forgetting is the focus of this research. This chapter reviews and synthesizes scholarly literature (Torraco, 2016; Tranfield et al., 2003) related to organizational forgetting. The objective and significance of this review is to identify the gaps in the literature on the public sector and, more specifically, federal government organizations. The basis for this review is a perceived dissonance between organizations’ espoused value of knowledge and their efforts to manage their intellectual capital. Analysis of the literature reveals substantial work describing the phenomenon, impacts, and interventions. However, no research was found suggesting why forgetting is tolerated by organizations.

The chapter is arranged into five sections to introduce the theoretical bases, describe the interdependent elements of organizational knowledge and memory (the definitive “what” and “how” knowledge is retained), forgetting (the descriptive “why” knowledge is lost), and knowledge retention challenges for organizations. The last section introduces a new perspective on organizational forgetting: tolerated forgetting. This study uses the conceptual framework introduced by Martin de Holan and Phillips (2004b) and further refined by Mariano et al. (2020a) to identify and bound the relevant literature (Roberts & Hyatt, 2019). The chapter synthesizes the

literature on accidental forgetting in the public sector to develop the concept of tolerated organizational forgetting.

Conceptual Framework

The concept of organizational forgetting is fundamentally based on early learning theory and memory research by Ebbinghaus (1913). Scholars later identified learning curve theories to describe the effects of experience on workplace productivity in manufacturing environments, primarily focused on economics (Hirsch, 1952; Wright, 1936). The associated research that modeled and quantified knowledge gained through experience also revealed limits to knowledge gains, as well as depreciation of knowledge (Argote, 2013a; Benkard, 2000). These studies and subsequent research analyzed the effects of experiential learning and introduced the loss of knowledge through processes of decay, depreciation, and degradation (Argote et al., 1990; Mariano et al., 2018). Forgetting research has continued to expand in scope from the early quantitative efforts on individual learning and memory to organizational studies (Levine & Argote, 2020).

Organizational forgetting research was expanded through an additional lexicon to clarify the dimensions and considerations of the phenomenon. The conceptual framework introduced by Martin de Holan and Phillips (2004b) has been the prominent basis for the literature on organizational forgetting. Subsequent literature on organizational forgetting used similar language to describe the fundamental elements, as illustrated in the organizational forgetting model in Figure 2.

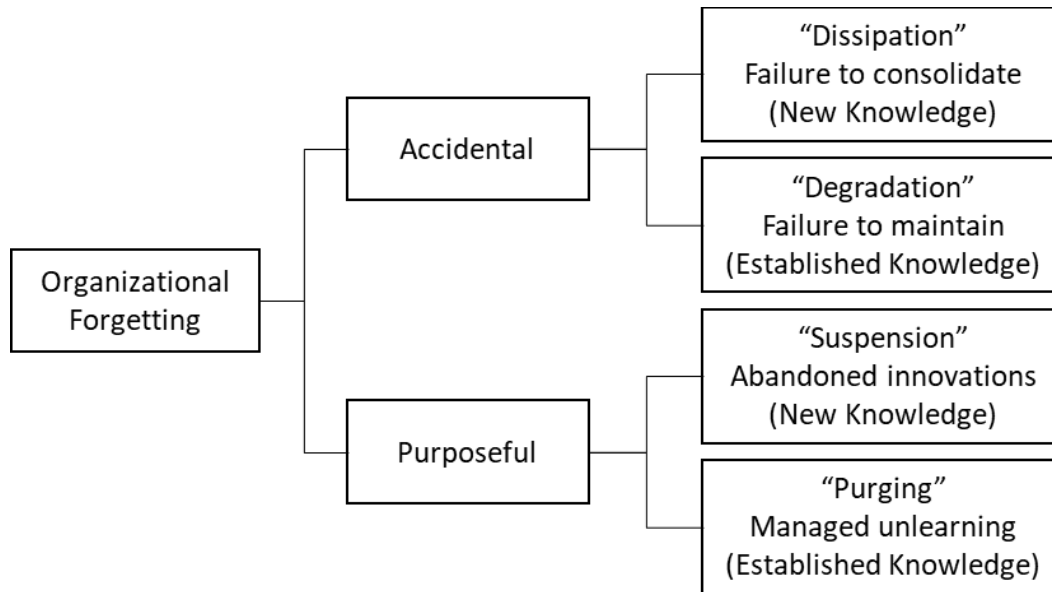


Figure 2 *Organizational Forgetting Model*

Note. Adapted from “Remembrance of things past? The dynamics of organizational forgetting,” P. Martin de Holan, & N. Phillips, 2004, *Management Science*, 50(11), p. 1606 (<https://doi.org/10.1287/mnsc.1040.0273>). Copyright 2004 INFORMS.

Literature Search Method

The process used to identify the main sources of relevant literature consisted of three elements. First, recent reviews dedicated to organizational forgetting and knowledge loss were examined and compared (Daghfous et al., 2023; Eryilmaz, 2016; Klammer & Gueldenberg, 2019; Liaquat & Hassan, 2021; Mariano et al., 2020a; Mariano et al., 2020b). This process developed an awareness of the state of current research. Second, iterative database searches were supported by “snowball” reference investigations to identify additional contributions and variations. Third, the catalog of articles was reinforced by bibliometric citation analysis (JCR, 2023) to evaluate the most relevant and reliable sources. This hybrid search strategy identified a comprehensive collection of published sources representing multiple perspectives from which organizational forgetting is researched (Galvan & Galvan, 2017; Wohlin et al., 2022).

Articles were identified through broad online searches of Google Scholar and ProQuest databases, and the Colorado State University library search engines using the primary terms *organizational forgetting*, *organizational knowledge loss*, and *organizational memory loss*. The search included relevant terms anywhere in the text, title, abstract, or references. Search criteria included peer-reviewed with full text articles available in English. An exception to this filtering process was relevant government studies and publications, which are not necessarily peer reviewed. Additional conceptual terms were paired with the basic terms to refine the results in subsequent searches. Martin de Holan and Phillips (2004b, 2011), previous literature reviews, and database searches revealed several terms related to forgetting: *unintentional*, *accidental*, *depreciation*, *decay*, *dissipation*, *degradation*, and *evaporation*. Articles that focused on intentional forgetting or unlearning were reviewed, but they were only included in the final review if they provided relevance to this research. Follow-on searches were limited to articles published since 2000 given that the topic emerged after 1995 and increased the diversity and specialization (Easterby-Smith & Lyles, 2011b). Cited reviews, in aggregate, sufficiently represent the emergent topic prior to 2000. Table 1 presents a summary of the search results pairing either “unintentional” or “accidental” with prominent additional descriptors. For example, “organizational forgetting” results were paired with “unintentional,” revealing 197 articles. These results were then paired with “depreciation” to identify 56 articles. This process was repeated using similar terms derived from the literature, as shown in the last column of Table 1.

Table 1*Summary of the Literature Search*

Initial Search Terms	Result	Refined Search (2000-2023)	Results	Final Refined Search (2000-2023)	Result
"Organizational forgetting"	2600	"Unlearning"	681	--	--
		"Unintentional"	197	"Unintentional" and "Depreciation"	56
		"Accidental"	245	"Unintentional" and "Decay"	68
		"Depreciation"	488	"Unintentional" and "Dissipation"	8
		"Decay"	368	"Unintentional" and "Degradation"	38
		"Dissipation"	55	"Unintentional" and "Evaporation"	4
		"Degradation"	169	"Unintentional" and "Amnesia"	36
		"Evaporation"	9	---	--
		"Amnesia"	172	"Accidental" and "Depreciation"	46
				"Accidental" and "Decay"	87
				"Accidental" and "Dissipation"	29
		"Accidental" and "Degradation"	46		
		"Accidental" and "Evaporation"	3		
		"Accidental" and "Amnesia"	42		
"Organizational knowledge loss"	209	"Unlearning"	18	--	--
		"Unintentional"	19	"Unintentional" and "Depreciation"	4
		"Accidental"	12	"Unintentional" and "Decay"	4
		"Depreciation"	10	"Unintentional" and "Dissipation"	1
		"Decay"	12	"Unintentional" and "Degradation"	3
		"Dissipation"	7	"Unintentional" and "Evaporation"	10
		"Degradation"	14	"Unintentional" and "Amnesia"	4
		"Evaporation"	2	---	--
		"Amnesia"	8	"Accidental" and "Depreciation"	2
				"Accidental" and "Decay"	3
				"Accidental" and "Dissipation"	2
		"Accidental" and "Degradation"	2		

Initial Search Terms	Result	Refined Search (2000-2023)	Results	Final Refined Search (2000-2023)	Result
				"Accidental" and "Evaporation"	0
				"Accidental" and "Amnesia"	1
"Organizational memory loss"	172	"Unlearning"	10	--	--
		"Unintentional"	11	"Unintentional" and "Depreciation"	1
		"Accidental"	8	"Unintentional" and "Decay"	4
		"Depreciation"	4	"Unintentional" and "Dissipation"	0
		"Decay"	14	"Unintentional" and "Degradation"	2
		"Dissipation"	5	"Unintentional" and "Evaporation"	0
		"Degradation"	7	"Unintentional" and "Amnesia"	0
		"Evaporation"	2	---	--
		"Amnesia"	14	"Accidental" and "Depreciation"	0
				"Accidental" and "Decay"	3
				"Accidental" and "Dissipation"	0
				"Accidental" and "Degradation"	0
				"Accidental" and "Evaporation"	1
				"Accidental" and "Amnesia"	0

A total of 510 articles were initially identified in this process. First, duplicate citations were removed. Second, articles were removed if they did not include accidental or unintentional organizational forgetting or knowledge loss as a primary focus. Third, articles were categorized using the Chartered Association of Business Schools Academic Journal Guide (AJG, 2021) to classify the source journals and identify contextual influences on the research. Seventy-five U.S. and international journals were identified, representing the diverse fields of management, business, economics, strategy, engineering, and technology. As a supplemental element, the lead author's H-index for each article was assessed using Web of Science citation analysis. Content analysis and review were conducted through multiple iterations of data reduction, display, and verification (Miles et al., 2020), which resulted in 93 articles for detailed assessment and synthesis.

Theoretical Background

Organizational memory and forgetting, as a recursive relationship, are associated with several knowledge and learning theories. The underlying theories include intellectual capital management (Bontis, 1998; Edvinsson & Malone, 1997; Stewart, 1997; Wexler, 2002), human capital management (Baron & Armstrong, 2007; Liebowitz, 2009), knowledge management (Kransdorff, 2012; Stankosky, 2005; Torraco, 2000), organizational learning (Argote & Miron-Spektor, 2011; Argyris & Schön, 1978), and information systems (Stein & Zwass, 1995). These theoretical constructs have been applied from several perspectives including individual, team, group, organization, and institutional perspectives to conceptualize organizational memory (Argote & Miron-Spektor, 2011; Argyris & Schön, 1978; Cyert & March, 1963; Kransdorff, 2012; Senge, 1990) and forgetting (Mariano et al., 2020a; Martin de Holan & Phillips, 2011). This section relates organizational memory and forgetting to three prominent theories: 1)

intellectual capital theory, 2) human capital theory, and 3) knowledge management theory.

Intellectual and human capital theories are the conceptual basis for asserting the importance of knowledge management in an organization. Other theories have been associated with the forgetting literature but to a lesser extent. These other theories are briefly introduced.

Intellectual Capital Theory

Among management theorists and practitioners, Stewart (1991) has often been credited with popularizing the phrase “intellectual capital” to describe the value of an organization’s knowledge assets, despite earlier and similar assertions (Becker, 1962; Pigou, 1928; Schultz, 1961). Stewart (1997) presents intellectual capital as “intellectual material—knowledge, information, intellectual property, experience—that can be put to use to create wealth” (p. X). This definition is closely aligned with many other definitions of organizational memory that emphasize value creation for the organization (Walsh & Ungson, 1991).

Intellectual capital theory is based on three organizational elements: human capital, social or relational capital, and organizational capital (Baron & Armstrong, 2007; Edvinsson & Malone, 1997; Fitz-enj, 2009). Intellectual capital promotes organizational performance when each of these elements mutually support the other elements. The human capital process involves individuals learning, creating new knowledge, and applying what they know. When individuals share their knowledge with others, their knowledge is not exhausted but contributes to both parties’ expanded understanding and learning (Levine & Argote, 2020). Thus, knowledge sharing represents the social or relational capital of the organization (Cohen & Prusak, 2001). The third element, organizational capital, is realized when organizational members’ knowledge becomes embedded or institutionalized in the organization (Wiseman, 2008). As a result, organizational capital remains when employees go home or leave the organization (Fitz-enj,

2009). Thus, the value of intellectual capital (i.e., human, social, and organizational capital) is realized through organizational memory, which reduces the risk of knowledge being forgotten or lost.

Human Capital Theory

Human capital is often presented as one aspect of an organization's intellectual capital in the context of organizational knowledge management (Magrassi, 2002). Schultz (1961) and Becker (1962) popularized the term "human capital" as a resource to be managed and expanded, and as the value of the intangible contributions of individuals to the organization. Human capital theory posits that as organizations invest in the education and training of their members, individuals become more productive (Baron & Armstrong, 2007; Davenport, 1999). They also add value to the organization through their unique skills, competencies, experiences, and knowledge to give the organization a competitive advantage (Levine & Argote, 2020; Baron & Armstrong, 2007; Stewart, 1997). Individuals expand knowledge in organizations by sharing and building social networks for collaboration (Nonaka et al., 2008). Thus, as individuals become more educated and trained and develop unique skills, they build the organization's human capital, which, in turn, contributes to organizational memory through personal interactions with other members of the organization. When members depart or their responsibilities change, the organization may be vulnerable to losing valuable knowledge.

Knowledge Management Theory

Whereas intellectual capital and human capital theories address *what* an organization values, knowledge management theories include *how* knowledge is to be used for organizational purposes (Beazley et al., 2003; Dalkir, 2017; Stankosky, 2005). Academics and practitioners are motivated to better understand how to manage the organization's knowledge-based resources

because these resources help organizations create (Nonaka & Takeuchi, 1995), acquire (Davenport & Prusak, 1998), retain, and deliver knowledge (Ackerman, 1998; Dalkir, 2017) to improve corporate competitiveness (Bontis, 1998; Dalkir, 2017).

Direct outcomes of an organization's knowledge management activities include organizational memory development, management, and application (Ackerman & Halverson, 2000; Dalkir, 2017). Knowledge management is generally defined as the processes of creating, storing, and managing organizational knowledge assets or stocks to improve organizational performance (Dalkir, 2017; Torraco, 2000; Wiig, 1993). These processes and knowledge assets contribute to the development of organizational memories (Dalkir, 2017). Memories, in turn, help the organization recognize situations and scenarios confronting the organization, provide guideposts based on previous actions or responses, assist with problem solving, and support improved decision making (Dunham & Burt, 2014; Kransdorff & Williams, 2000; Moorman & Miner, 1997). Thus, knowledge management provides a framework to develop and maintain organizational memory, and mitigate potential loss from forgetting.

These theoretical bases illustrate the multidimensionality and complexities associated with understanding and managing organizational memory (Jain, 2020; Walsh & Ungson, 1991). Effectively managing the knowledge assets of an organization is fundamental to managing an organization's intellectual capital and human capital assets. However, knowledge management is frequently associated with technology and information systems rather than the complex processes related to employees' tacit knowledge (Cross & Baird, 2000). This association affects the practical implementation of knowledge management initiatives when leadership perceives them as decisions related to what systems to finance or use in their organizations.

Other Theoretical Perspectives

Several less prominent theoretical perspectives are also relevant and may offer avenues for future research, including trace decay theory, interference theory, and critical theory. The trace decay theory of forgetting explains how individuals' neurochemistry enables short-term memory but, if not rehearsed, the memory decays (Brown, 1958). Some memories last longer than others, which may be associated with the novelty or impact of the experience. Similarly, as an organization experiences and learns, if the knowledge is not captured and reused, it will decay. Interference theory asserts that memories will contradict or conflict with others causing lost memories (Cherry, 2021). This loss could occur as different groups recall or interpret knowledge differently, resulting in a contradiction. Memories that are lost can lead to incorrect recollection and improper decision making at the organizational level (Jain, 2020). Critical theory also introduces influences of power and cultural influence on how decisions are made, what is retained, and how it is applied (Casey & Olivera, 2011; Marabelli & Newell, 2014; Pollitt, 2000).

Organizational Knowledge and Memory

The immutable and unique knowledge of the combined workforce provides competitive advantages (Jain, 2020; Salas & Fiore, 2004). Scholars and practitioners have long recognized that human capital is one of the most important strategic resources of an organization (DeLong, 2004; Evans, 2003; GAO, 2019; Grant, 1996; von Krogh et al., 1998). Human and intellectual capital management involves managing organizational knowledge at all levels. The broad field of knowledge management includes effectively generating new knowledge, retaining existing knowledge, and applying what has been learned (Dalkir, 2017). The knowledge-based view of the organization affirms the value of individuals' intellectual capabilities and contributions as a

resource of the organization (Spender, 1996). This view has motivated considerable study on how individuals, groups, and organizations learn and manage knowledge (Levine & Argote, 2020). Creating a competitive advantage may be the primary motivator in the private sector; however, the U.S. government's "competitive advantage" is measured by the stability and security of the nation. Thus, understanding and managing the knowledge of U.S. government employees contributes to effective performance at work and, ultimately, to national security.

Describing organizational learning and knowledge is to open a Pandora's Box of perspectives, characterizations, definitions, metaphors, and adjectives. Numerous researchers have attempted to define and characterize knowledge (Bolisani & Bratianu, 2018; Venzin et al., 1998). However, a thorough discussion of the complex dynamics of knowledge creation, organizational learning, and management of existing knowledge in the organization is not feasible and is outside the scope of this research. Nevertheless, it is important to note the frequently intermixed and fundamental perspectives of organizational knowledge as both something to possess, a content view (Casey, 1994; Dalkir, 2017), and the sociocultural processes of learning (Chiva & Allegre, 2005; Nonaka et al., 2008) or a "process of knowing" (Sveiby, 1996). These perspectives represent the conceptual development from information technology (Ackerman & Malone, 1990) and organizational sociology (Cyert & March, 1963). Discussions on knowledge content versus knowledge processes have presented knowledge as "hard" or "soft," to describe the explicit and tacit knowledge in an organization (Shin, 2004). Polanyi (1966) described knowledge as a human activity of "knowing" entities, and constantly processing what is already known and what is perceived. Organizational knowledge is fundamentally the result of human interaction (Nonaka & Takeuchi, 1995). This section

summarizes the prominent characterizations of knowledge that are relevant to organizational forgetting.

Organizational Knowledge Types

Organizational knowledge encapsulates the experiences and perspectives of individuals within the social framework of the workplace that guides behavior in the form of accepted practices or common cognition (Treleaven & Sykes, 2005). Defining types of knowledge in an organization is based on each researcher's perspective and is replete with conceptualizations. In this study, knowledge is defined as "information that is relevant, actionable and at least partially based on experience" (Leonard & Sensiper, 1998, p. 113). Conceptualizations have increasingly reflected the trend toward collective learning and memory in organizations (Antunes & Pinheiro, 2020). The following characterizations illustrate the diversity of the nomenclature and complexity as it applies to organizational forgetting.

Tacit, Explicit, and Implicit Dimensions

A common characterization of organizational knowledge and memory is whether the knowledge is explicit or tacit (Nonaka & Takeuchi, 1995; Polanyi, 1966). Although it is often characterized as either explicit or tacit in the literature, knowledge is a spectrum of tacit, implicit, and explicit types (Leonard & Sensiper, 1998). These dimensions of knowledge are often described pragmatically as "know what" and "know how" to help explain their contributions to the organization (Leonard et al., 2015).

Researchers have examined interactions in organizations to support the creation, management, and distribution of organizational memory from either a behavioral or cognitive perspective (Cohen & Prusak, 2001; Lam, 2000). These behavioral and cognitive levels of knowledge held in an organization's human capital are often represented by two types of

knowledge that contribute to organizational memory: explicit knowledge and tacit knowledge (Nonaka & Takeuchi, 1995; Polanyi, 1966). Explicit knowledge is the knowledge that can be captured, codified, categorized, or documented (Nonaka & Takeuchi, 1995) or the “know what” that can be taught in an organization (Leonard et al., 2015). Tacit or personal knowledge is far more elusive and difficult to replace as it is shaped by an individual’s experiences, biases, attitudes, and intellect that are unique to every individual (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Polanyi, 1966). Lam (2000) noted that “a large part of human knowledge, such as skills, techniques and know-how, and ‘routines,’ cannot be easily articulated or communicated in codified forms” (p. 489). Tacit knowledge may also be described as *embodied* in individuals as expertise or *embedded* in the organizational culture, identity, or routines (Argote, 2013b; Fitzpatrick, 2003).

Explicit elements of human capital knowledge may be captured in documents, systems, routines, and processes (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995). In contrast, personal or tacit knowledge, which may represent more than half of the knowledge held by the organization (Girard, 2005), is far more elusive than explicit knowledge as it represents the composite experiences, biases, and perspectives that are unique to each individual (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Polanyi, 1966). Many organizations recognize the value of each individual’s tacit knowledge (Nonaka & Takeuchi, 1995; Polanyi, 1966) to improve productivity and performance. However, organizations find it challenging to effectively capture that knowledge in some form of organizational memory and to encourage individuals to share their tacit knowledge, so it is not forgotten (Argote et al., 2000; Davenport & Prusak, 1998; DeLong, 2004; von Krogh et al., 1998).

Jennex (2008) further characterized knowledge beyond explicitness (tacit or explicit) to include the reach (individual or collective), abstraction level (specific or general), and propositionality (declarative or procedural) of knowledge. First, the reach of knowledge refers to whether knowledge is held by an individual or collectively as a group, team, or organization. Specifically, the reach may indicate the level of institutionalization or distribution of knowledge within an organization. Second, the abstraction level influences how easily knowledge may be shared. Increased specificity provides easier transmission in that it accommodates synthesis within existing mental models of other individuals' understanding, making it easier to align specific knowledge with what is already known or what helps them "connect the dots."

The propositionality distinguishes the "know what" or declarative knowledge from the "know how" or procedural knowledge (Jennex, 2008). This last classification is frequently equated with both explicit and tacit knowledge, but it is important to recognize that procedural knowledge is different from tacit knowledge. For example, while specific steps of a procedure may be very explicit, additional richer, experience-based knowledge may contribute to the procedural knowledge of how something is to be accomplished (Jennex, 2008; Leonard et al., 2015). Tacit knowledge adds intangible substance or a "magic sauce" to procedural knowledge, which is often associated with innovative and performance-oriented organizations (Jain, 2020; Moorman & Miner, 1997; Nonaka & Takeuchi, 1995).

The tacit-explicit binary construct dominates discussions on knowledge; however, implicit knowledge is an intermediary type of knowledge between tacit and explicit (Klammer & Gueldenberg, 2020; Leonard et al., 2015). Tacit knowledge is described by Polanyi's locus classicus as "we can know more than we can tell" (Polanyi, 1966, p. 4). In contrast, implicit knowledge is that which can be told or made explicit given appropriate circumstances and time.

Implicit knowledge is embedded in the organization as collective knowledge (Levallet & Chan, 2019) or “folk knowledge” (Martin de Holan et al., 2004a, p. 48). As individuals, groups, and organizations learn, they often perform routine functions with little thought. However, if asked how something was accomplished, they would likely be able to provide a detailed, explicit description of the work. This implicit knowledge could be externalized and shared with others when elicited. Leonard et al. (2015) identified implicit knowledge as “yet unarticulated and unwritten” (p. 20) knowledge or existing knowledge that is available to be made explicit. Implicit knowledge may also be situated and informal between individuals within the organization. It is associated with how to get work done but it is not documented or has little visibility to the organization’s leadership (Huysman & de Wit, 2003). Habitual individual and organizational routines are an example of implicit knowledge developed through experience, repetition, and practice, but these routines lack codification or documentation (Makowski, 2021). Thus, this knowledge is in the organization but is not necessarily available to all members of the organization and are vulnerable to loss without management (Frappaolo, 2008).

Knowledge Types by Function

Knowledge retained in organizational memory is described from the function or role to which it applies in the organization. DeLong (2004) described four types of knowledge within an organization: human, social, cultural, and structured. This typology describes what people know, who they know (human knowledge), acceptable organizational behavior and beliefs (social and cultural knowledge), and the content (structured knowledge) maintained by the organization. Shin (2004) also described organizational knowledge as instrumental, social, and codified. These types describe what an individual knows (instrumental), how that knowledge is embedded within the fabric of an organization (social), and then captured or made explicit (codified). Shin’s

(2004) descriptors were similar to Nonaka and Takeuchi's (1995) seminal model of socialization, externalization, combination, and internalization (SECI) to describe the tacit-explicit translation of knowledge between an individual and the group.

Antunes and Pinheiro (2020) summarized knowledge retained in organizational memory as transactional, procedural, and declarative. Transactional knowledge is the individual and group knowledge developed through interactions. Procedural knowledge describes how things are or may be done. Transactional and procedural knowledge aligns with the empirical and behavioral knowledge discussed above. Declarative knowledge is the known facts that form the basis for organizational improvisation, which is similar to latent and cognitive knowledge.

Other researchers have defined types of knowledge in less abstract ways. Raudeliuniene et al. (2018) classified knowledge that is vulnerable to loss as human, organizational, functional, technological and technical knowledge. Human knowledge includes the contributions of individuals. Organizational knowledge includes the structure and arrangement of the organization and is associated with the informal social networks created or disrupted by the organization. Functional knowledge is the basis of work processes. Finally, technical and technological knowledge is defined by the information systems and databases of the organization.

In the military context, Singh and Gupta (2021) defined various types of critical knowledge that are at risk when a military member departs including operational, technical, locational, successes and failures, process, collateral duties, and administrative knowledge. Operational knowledge encompasses the detailed knowledge required to conduct military operations including plans, policies, intelligence, logistics, and maintenance. This type of knowledge is the most critical and potentially advantageous knowledge when confronting an

adversary. Technical knowledge is the detailed and specific knowledge required to operate and maintain systems. Locational knowledge is the specific contextual knowledge developed by deployed organizations. Knowledge of successes and failures, often referred to as “lessons learned,” provides the historical knowledge of what worked, what did not work, and why. This knowledge can be significantly influenced by an organization’s culture based on how bad news may be received, limiting the learning value for others. Process knowledge is the explicit understanding of how things are accomplished. Well-documented processes and experience enhance efficiency in the organization. Individuals are often assigned collateral or additional duties to their primary responsibilities. These duties are often viewed as secondary priorities and are independent in terms of their importance to the organization. Collateral duty knowledge may not directly affect warfighting abilities, but it can help the organization perform more effectively. Many collateral duties involve knowledge that may also be perceived as administrative or how the organization is generally managed and supported.

Knowledge Transfer and Flow

An extension of the tacit/implicit/explicit typology is defining organizational knowledge as “sticky” (Szulanski, 2000) or “leaky” (Durst & Ferenhof, 2014). “Sticky” knowledge refers to the difficulties associated with inter-organizational knowledge sharing or transfer. “Leaky” knowledge could be spilled outside of the organization and possibly reduce competitive advantages in the marketplace. The notion of “sticky” or “leaky” knowledge implies how well the knowledge flows within the organization and to external entities (Brown & Duguid; 2001; Nonaka et al., 2008). Although the government in the broadest sense is much like a monopoly, inter-organizational rivalries still exist. Thus, knowledge leaks could be perceived as an organizational knowledge risk that needs to be managed.

A prominent debate in the literature is when and how existing knowledge improves performance or becomes a barrier by creating organizational inertia (Jain, 2020). This introduces additional complexity to an organization's knowledge calculus related to leadership (Antonacopoulou, 2018; Schoemaker et al., 2018), organizational structure (Casey, 1994; Chen & Chang, 2012; Fiedler & Welp, 2010), context (Ackerman, 1994; Bratianu et al., 2020), and culture (Kmieciak, 2019; Schein & Schein, 2017). These factors have also been prominent in the literature on organizational memory and forgetting given the recursive relationship between the two phenomena. They have subsequently been discussed in greater detail as influential factors.

Empirical and Latent Qualities of Knowledge

Organizational knowledge is often investigated from the perspective of empirical or latent qualities (Hargadon & Fanelli, 2002). An empirical perspective focuses on how organizations use social and physical elements to capture, store, process, and apply existing knowledge (Jain, 2020). The latent perspective highlights how organizations create new knowledge and innovate (Nonaka & Takeuchi, 1995). These primary qualities align with the behavioral (Cyert & March, 1963; Walsh & Ungson, 1991) and cognitive perspectives of knowledge (Easterby-Smith & Lyles, 2011a; Huber, 1991). The empirical and behavioral qualities of knowledge focus on the management of existing knowledge to guide actions. The latent and cognitive qualities of knowledge emphasize creating new ideas and innovative ideas through recombination and transformation (Joseph et al., 2022; Nonaka & Takeuchi, 1995). The empirical and behavioral perspective is reflected in DeLong's (2004) definition of knowledge loss emphasizing the "decreased capacity for effective action or decision making in a specific organizational context" (p. 21).

Research has increasingly addressed the dynamic interplay between existing organizational knowledge and emergent challenges to create new innovative ideas (Bratianu, 2015; Nonaka & von Krogh, 2009) from the latent and cognitive perspectives. This interplay is illustrated by studies on organizational absorptive capacity or the ability of an organization to recognize the value of new information when combined with existing knowledge (Anatoliivna, 2013; Benhayoun-Sadafiyine et al., 2017; Bessant & Trifilova, 2017; Cohen & Levinthal, 1990). This trend is associated with research on intentional forgetting or unlearning to create cognitive space for innovation (Huang et al., 2018).

The development of information technologies for knowledge management originally focused on knowledge as content (Dalkir, 2017; Stein & Zwass, 1995; Stewart, 1991). Collaborative technologies provide support for sharing organizational processes and developing new knowledge. The implementation of technologies in organizations supports both perspectives of knowledge as content and routines or processes to achieve organizational objectives. Information systems have also increasingly blurred the lines between the empirical/behavioral and latent/cognitive views of knowledge with the expansion of business intelligence and artificial intelligence. These considerations are acknowledged in this study, but they are mostly left for future research inquiries.

Anthropomorphism and Organizational Knowledge

Discussions on institutionalized knowledge and organizational memory have introduced debates about anthropomorphism (Shepherd & Sutcliffe, 2015). The literature has revealed a continuum of diverse perspectives on the organization which has led to further ambiguity on how organizations learn and remember (Walsh & Ungson, 1991). Organizational memory has been described using numerous images including a metaphor (Argyris & Schön, 1978), an information

processing system that is functionally like an individual (Cyert & March, 1963; Stein, 1995), reflected by a collective group mind (Erden et al., 2008; Wegner, 1987; Weick & Roberts, 1993), and as an organizational mental state (Sandelands & Stablein, 1987). Research on transactive memory systems (Argote & Guo, 2016), organizational absorptive capacity (Cohen & Levinthal, 1990; Tortoriello, 2015), and team cognition (Salas & Fiore, 2004) illustrate the dependencies of personal interactions for organizational learning and memory development. Considering these representations, the current study embraces the notion that organizational knowledge and memory are socially constructed and shared interpretations by individuals in the group (Argyris & Schön, 1978; Halbwachs & Coser, 1992; Nonaka & Takeuchi, 1995; Walsh & Ungson, 1991). Thus, while organizations may exhibit similar characteristics to a living organism, knowledge, memory, and forgetting in organizations are reflected by the culture, accepted routines, and processes.

Organizational Memory

The accumulation and sharing of individual knowledge in an organization contributes to corporate or organizational memory (Walsh & Ungson, 1991). Dalkir (2011) defined organizational knowledge as “knowledge that an individual can access, use, and reuse because they are part of that organization— often referred to as corporate or organizational memory” (p. 383). Organizational memory is both individually and organizationally constructed (Walsh & Ungson, 1991). Individuals contribute the unique knowledge they have gained through experiential learning and the organization brings knowledge together through its social processes (Kozlowski & Bell, 2020) or information and communication technologies (Dewah & Mutula, 2016; Sveiby, 1996). Organizational memory is also reflected in routines, culture, transformations, ecology, structures, and knowledge repositories (Jain, 2020). In contrast, tacit

knowledge is shaped by an individual's lifelong learning experiences and is difficult to fully transfer to organizational memory (Argote et al., 2000; Davenport & Prusak, 1998; von Krogh et al., 1998). Through this complex interplay, individuals' tacit and explicit knowledge becomes part of the intellectual capital of the organization (Stewart, 1991). Thus, organizational memory is developed and maintained through individuals, groups, and the organization.

Antecedents of Organizational Memory

A complete discussion of memory neuroscience is beyond the scope of this paper. However, it is important to identify the fundamental antecedents that contribute to organizational memory, particularly as they influence the forgetting phenomenon. Memory and learning function together and build on the other. Learning involves acquisition, creation, and retention of knowledge at the individual, group, and organizational levels (Antunes & Pinheiro, 2020). Knowledge that is created, combined, and shared within and across these levels is retained as memories at all levels (Argote, 2013b; Crossan et al., 1999; Jain, 2020). However, knowledge is learned only when information is stored as organizational memory and is retrievable for tasks or cognitive purposes (Hinsz et al., 2020). This element of the organizational learning process is described as institutionalization of knowledge (Crossan et al., 1999).

Individuals learn through their experiences, which create personal memories, and those memories develop mental models from which an individual can learn more (Jones et al., 2011; Kim, 1998). Learning and experiences are retained in the form of declarative and procedural memories, which may be shared with other group or organization members (Antunes & Pinheiro, 2020). Declarative or explicit memory captures facts and figures that may be either episodic (associated with events) or semantic (context-free knowledge) (Kransdorff & Williams, 2000; Tulving, 1972). Procedural or implicit memory retains how something is accomplished

(Baddeley, 2013). Within an organizational framework, an individual's memory may contain knowledge of their specific job, the socio-political environment, the industry, external factors, and historical elements (Dunham & Burt, 2014) in addition to their personal experiences (Kransdorff & Williams, 2000).

Individual learning and memories may be combined at the group level through processes of knowledge conversion (Nonaka & Takeuchi, 1995) and transfer (Dalkir, 2017). The processes of sharing, combining, and transferring knowledge within groups create transactive memory systems that enable members to create mental directories of knowledgeable counterparts within the group or organization (Argote & Guo, 2016; Heavey & Simsek, 2017). A group may combine their personal memories and knowledge to create shared mental models or cognitive representations of their environment (Hinsz, 2009). This process is noteworthy given that the congruence between individuals' models (Hinsz, 2009), absorptive capacity (Sun & Anderson, 2010), and acceptance of information influence the group's or organization's interpretation of reality through their memories (Jain, 2020) and performance of transactive memory systems (Argote & Guo, 2016; Wegner, 1987).

Antecedents of organizational memory from groups and teams to the organization are not distinct and may be associated with either or both organizational levels. When individuals learn and share their knowledge within the organization, it helps develop a learning organization (Senge, 1990). Their collective knowledge may be reflected in the organization's culture (Stoyko, 2009), identity and politics (Rowlinson et al., 2010), structures (Bowersox, 2009; Walsh & Ungson, 1991), and ability to absorb and apply new knowledge (Cohen & Levinthal, 1990; Jansen et al., 2005). These elements also help set an environment for organizational memory

development and maintenance when combined with individual and group antecedents, as illustrated in Figure 3.

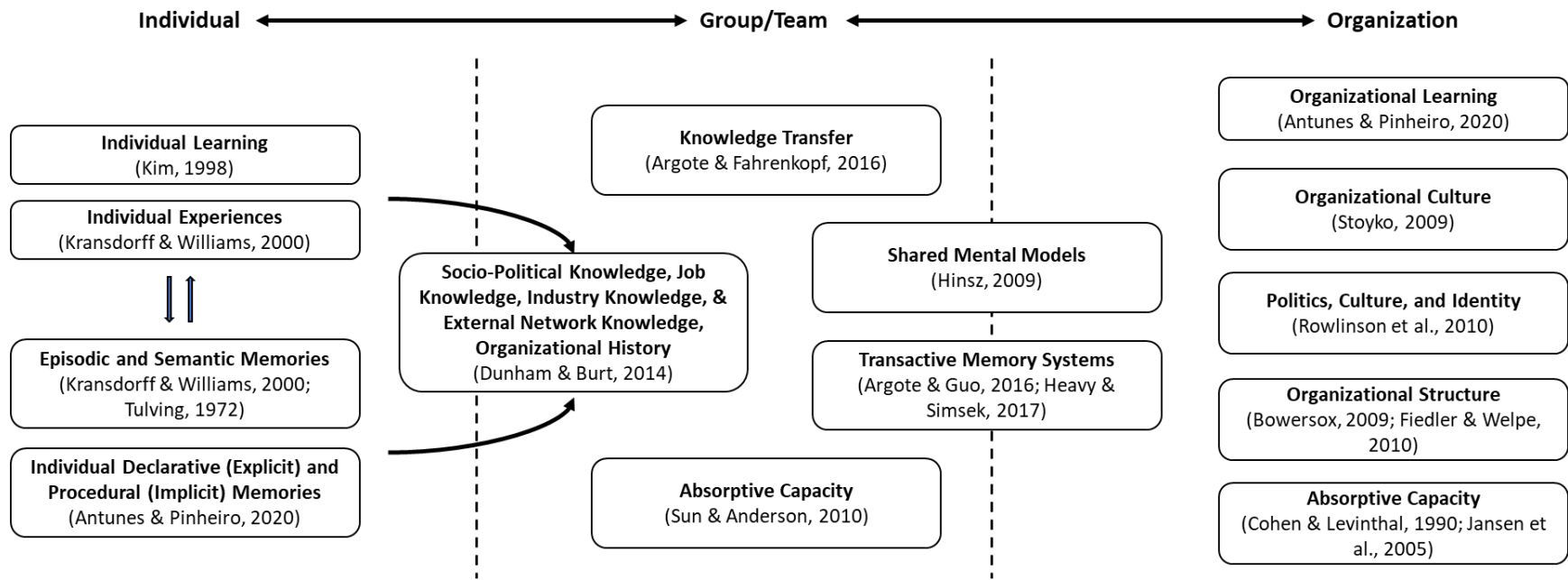


Figure 3 *Antecedents of Organizational Memory*

Integrating the types of knowledge, form, and structure with the outcomes of a multilevel phenomenon such as organizational memory has helped to expand the topic from earlier research that only emphasized content (i.e., substance or records) and location (i.e., database or information system) (Casey & Olivera, 2003). The functional and structural framework presented by Morgeson and Hofmann (1999) has also improved our understanding of the dynamic nature of organizational memory in contrast to earlier, more static conceptualizations (Bratianu, 2015; Casey & Olivera, 2011). The forms and structure of organizational memory are presented in greater detail next.

Forms of Organizational Memory

Organizational memory is retained in many forms such as in individuals (i.e., personal tacit knowledge), documents and records, policies, procedures, and culture (Corbett et al., 2020; Kransdorff, 2012; Walsh & Ungson, 1991). These forms may be concrete or abstract (Jennex & Olfman, 2004), and static or dynamic (Casey & Olivera, 2011; Corbett et al., 2020). Content-centric, concrete, or static memory is frequently associated with knowledge repositories, databases, or physical artifacts that are available for organizational use (Jennex & Olfman, 2004). This formal-institutional view has been the prevalent perspective of organizational memory (Stark, 2019). Abstract, dynamic memory is more process-centric and reflects the fluid knowledge flows and processes among individuals or the complex aggregation of their subjective personal memories (Bratianu, 2015; Corbett et al., 2018; Nonaka et al., 2008). Nonaka et al. (2008) acknowledged that, “the most prominent feature of knowledge, compared with physical resources and information, is that it is born of human interaction. It is not a self-contained substance waiting to be discovered and collected. Knowledge is created by people in their interactions with each other and the environment” (p. 7).

After earlier attention to managing static content, the dynamic nature of organizational knowledge has become more prominent in the literature (Bratianu, 2015). Organizational memory research has more recently included agential and contextual elements to provide a more holistic understanding of the phenomenon (Stark, 2019). In particular, the dynamic forms of organizational memory have been associated with transactive memory of an organization (Wegner, 1987) or team cognition (Rentsch & Woehr, 2009), which enables organizational members to recognize who knows what and to create a collective awareness for the organization (Anand et al., 1998). Thus, team cognition is exemplified when team members have a shared understanding of how to perform together (Rentsch & Woehr, 2009).

Structure of Organizational Memory

The second fundamental perspective is the structural element of organizational memory or how memories are formed (Casey & Olivera, 2003; Dalkir, 2017). Similar to the other forms of organizational memory, the structure may be viewed from a static or dynamic perspective (Casey & Olivera, 2003). Morgeson and Hofmann (1999) asserted that from a dynamic perspective, “the structure of any given collective (e.g., a work team) can be viewed as a series of ongoing events, and event cycles between the component parts (e.g., individuals)” (p. 252). They described “event cycles” as the dynamic interactions between organization members within a discrete time, space, and context for collective action.

Organizational memories are also formed through collective awareness among team members (Rentsch & Woehr, 2009). This awareness in an organization includes both internal and external elements (Wagner, 2003; Wegner, 1987). Internal elements include the personal knowledge held by individuals, while the external elements or “directories” include the shared mental models between organizational members of both past and present situations the

organization has faced (Rentsch & Woehr, 2009). Transactive memory systems enable the co-mingling of personal, tacit knowledge with the processes of the organization (Argote & Guo, 2016; Wegner, 1987). This co-mingling of knowledge is primarily accomplished through mechanisms for knowledge sharing within the culture of the organization, which, in turn, contributes to the collective organizational knowledge base and memory (Argote et al., 2000).

Walsh and Ungson (1991) presented a slightly different perspective on organizational structures by focusing on roles and responsibilities within an organization. They described how the position held by an individual within the organizational environment could affect the resultant interactions. For example, a student's interaction with a professor is likely much different than the same student's behavior with peers. Each of these interactions is influenced by the individual's social roles and the structure within which they function, which contributes to the larger collective (Walsh & Ungson, 1991).

Another structural perspective is represented by a substantial body of literature related to knowledge management that discusses information systems theories and capabilities as the solution to capturing the knowledge of the organization (Ackerman, 1998; Alavi & Leidner, 1999; Dalkir, 2017). For example, as individuals and the organization learn from experience, the processes of the organization are refined and become part of the organizational culture (Levitt & March, 1988), or a system of shared interpretations that guides organizational behavior (Walsh & Ungson, 1991). This routinized form of organizational memory may be sustained despite personnel changes, but it is also subject to losses when the organization can no longer recognize why certain processes are used (Argote & Guo, 2016) or when politics drive changes (Rowlinson et al., 2010). This form of organizational memory is more unstructured and dynamic as it reflects the social structures and interpersonal relationships of the organization (Levitt & March, 1988).

Outcomes of Organizational Memory

The outcomes of organizational memory have been associated with numerous organizational phenomena (Jain, 2020). Outcome elements have been presented as both prescriptive and normative in guiding activities and behaviors in an organization (Antunes & Pinheiro, 2020; Stein, 1995). The outcomes of organizational memory are very similar to many of the antecedents discussed above because of the complex interrelationship between learning and memory. For example, as individuals gain experience in an organization, their learning experiences shape their personal declarative (explicit) memories and influence the routines they use to perform work. These changes are reflected in both the antecedents and outcomes of organizational memory. This process is presented in Figure 4.

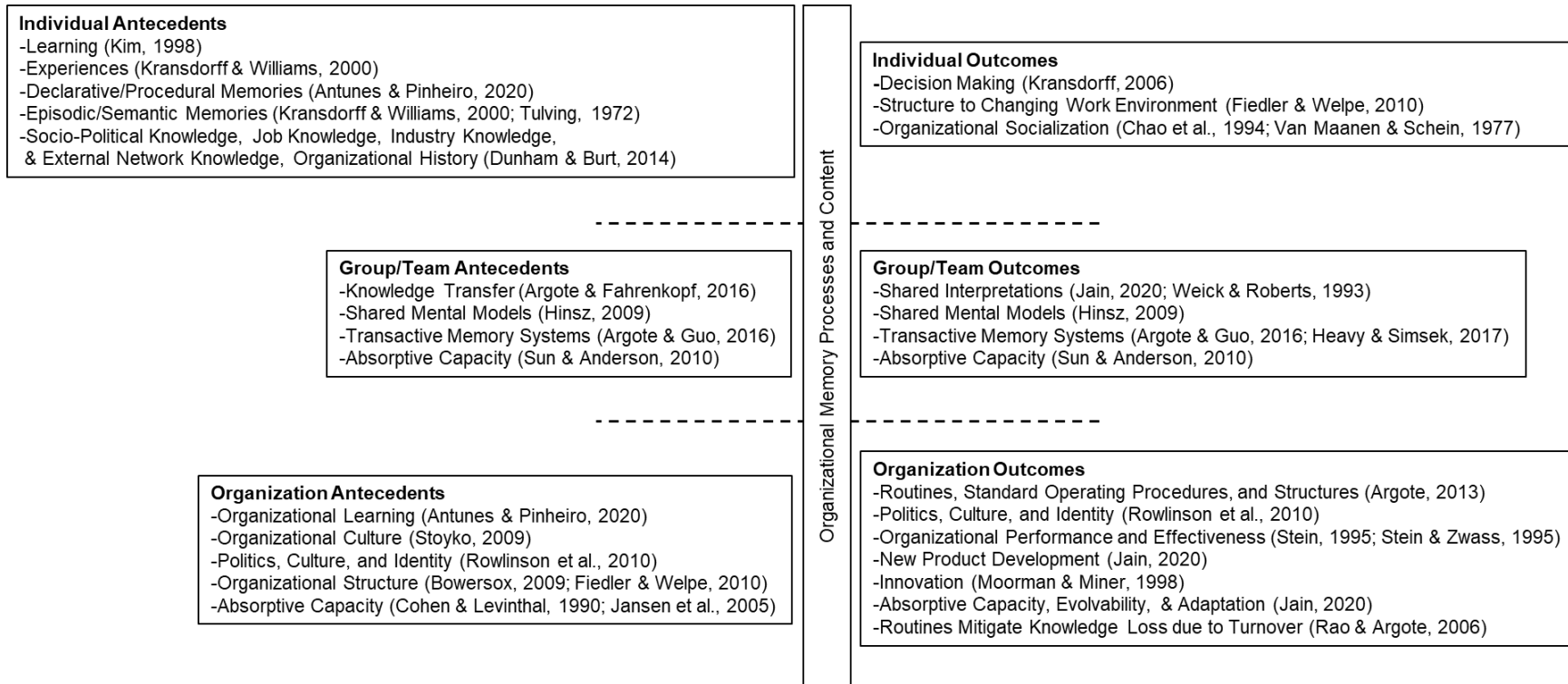


Figure 4 *Antecedents and Outcomes of Organizational Memory*

At an individual level, organizational memory has been associated with improved and accelerated decision making by allowing the individual to leverage past experiences and lessons learned (Kransdorff, 2006). Similarly, the translation of unstructured, tacit knowledge into organizational memory by explicit routines or procedures enables individuals to better manage or resolve changing work environments by giving them structure (Fiedler & Welp, 2010). Given the benefits of this structure, organizational standards facilitate more rapid socialization of new members into the organization (Chao et al., 1994; Van Maanen & Schein, 1977).

In summary, the positive outcomes and impacts of organizational memory outweigh the negative aspects attributed to inertia (Jain, 2020). Thus, maintaining memory or avoiding knowledge loss supports organizational performance.

Organizational Forgetting

Early notions of organizational forgetting originated from psychology studies focusing on individuals' memory (Ebbinghaus, 1913). This early memory research and subsequent development of learning curve theory focused on how productivity changed as individuals gained more experience (Argote, 2013a). The research has implied that productivity could improve ad infinitum with more experience. However, additional research has shown limits to learning curves, and, in fact, there is deterioration of knowledge over time (Argote, 2013a; Benkard, 2000). The research that originally focused on individual learning and knowledge loss in production settings has since broadened to organizational contexts resulting in the term *organizational forgetting* (Argote, 2013c).

Organizational forgetting is the loss of knowledge that is present in an organization's memory (Klammer & Gueldenberg, 2019; Mariano et al., 2020a; Martin de Holan & Phillips, 2004b). The loss of knowledge may be accidental or purposeful (Daghfous et al., 2013; Mariano

et al., 2020a; Martin de Holan & Phillips, 2011). Organizational forgetting is defined as “the loss, voluntary or otherwise, of organizational knowledge” (Martin de Holan and Phillips, 2004b, p. 1606). In subsequent writings, the authors modified the phrase “voluntary or otherwise” to be “purposeful” or “unintentional,” respectively (Martin de Holan & Phillips, 2011). This definition is the most prominent in the literature, and asserts that knowledge loss can be managed (Mariano et al., 2018).

Dimensions and Descriptors

A wide variety of adjectives, dimensions, and perspectives are used to define loss of organizational memory or knowledge that is available for use. Available knowledge for organizational use includes transitory, newly learned, deeply embedded, and permanent elements (Argote, 2013c). New knowledge is available to the organization from internal and external sources, and is borne out of knowledge creation, development, acquisition, and innovation processes (Huang et al., 2018; Nonaka & Takeuchi, 1995). New knowledge may also be developed through intra- or inter-organizational collaboration (Azmi, 2008; Barao et al., 2017). Existing knowledge is what is held by an organization within its organizational memory (i.e., its people, processes, or systems). The availability and accessibility of knowledge is affected by the integration of these elements (Argote & Fahrenkopf, 2016). Thus, new and existing knowledge may be at risk of being lost if not managed for retention (Durst & Zieba, 2018).

Researchers have used the terms *knowledge loss*, *amnesia*, and *forgetting* inconsistently to characterize the phenomenon, impacts, contextual elements, and prescriptive solutions to minimize the impact of losing organizational memories. This inconsistency is not surprising due to the complexity of defining knowledge and learning in organizations (Bolisani & Bratianu,

2018; Torraco, 2000). However, considering the similar and different interpretations, the terms should be better explained to ensure appropriate use of the concepts.

Knowledge enables organizations to understand and act effectively (Wiig, 2000). Thus, changes in an organization's knowledge can affect performance. Knowledge loss is the most general term used to describe changes in an organization's cognitive, behavioral, or sociocultural capabilities to solve problems and make decisions (Easterby-Smith & Lyles, 2011a; Kransdorff, 2006). Knowledge is lost when there are inherent changes in an organization and the processes that influence learning and memory development (Treleaven & Sykes, 2005). As a result of these changes, not all organizational knowledge is retained. From this perspective, Mariano et al. (2020a) described knowledge loss as a type of accidental forgetting.

Daghfous et al. (2013) defined knowledge loss as the “intentional or unintentional evaporation of knowledge” (p. 620). This explicit definition, attributed to Perrott (2007), has been cited by numerous researchers (Galan, 2023; Mancilla, 2022; Nath et al., 2018; Shah & Hussin, 2018; Singh & Gupta, 2021), but Perrott (2007) gave no such definition. Instead, it is a reference to corporate memory loss from retiring executives based on Lahaie (2005). Nevertheless, despite the lack of scrutiny, the definition by Daghfous et al. (2013) emphasizes the intentionality of the organization as the primary dimension of memory loss (Martin de Holan & Phillips, 2004b).

Amnesia has also been used to explain organizations' inability or unwillingness to apply available knowledge. Amnesia has been presented as a type of learning disorder for organizations (Snyder & Cummings, 1998), including in corporate (Kransdorff, 1998), institutional, government (Pollitt, 2000; Stark, 2019; Wettenhall, 2011), and organizational contexts (Othman & Hashim, 2004). Corporate amnesia occurs when an organization becomes

disconnected from historical lessons or lessons are not shared across the organization (Kransdorff, 1998). Institutional amnesia is affected by the same factors but is applied more specifically within public sector organizations. For example, the public sector may be influenced by government politics, bureaucracy, and policy management, which may not be present in corporate settings (Pollitt, 2000; Stark, 2019). Organizational amnesia is the most common term used in the literature based on the fundamental characteristics initially presented by Kransdorff (1998) as “corporate amnesia” (Erben & Dogantemur, 2019; Othman & Hashim, 2004; Sadat & Lin, 2018).

Amnesia in each of these contexts represents an organization’s failure to maintain organizational memory. Organizational memory from this perspective primarily focuses on the experience-based, historical lessons organizations could use to make decisions (Kransdorff, 1998). Corporate amnesia is defined as “when companies and other business concerns lose their ‘Organizational Memory’ (OM), the institutional-specific knowledge accrued from experience that is more prosaically – and dismissively – called corporate history” (Kransdorff (1998, p. xiii). Losing organizational memory is the failure to maintain a historical perspective and the ability to reflect on the lessons of the past (Kransdorff, 1998). Amnesia also prevents the cognitive connection between experiences of the past and the challenges of the present that enable learning (Pollitt, 2000; Snyder & Cummings, 1998; Stark, 2019). This type of amnesia is evident in popular trends to incessantly restructure or reorganize to become more agile or innovative under the guise of “new public management” or government attempts to implement commercial approaches (Pollitt, 2000; Wettenhall, 2011).

Extending the definition of amnesia to the public sector, Pollitt (2000) incorporated a declining ability and willingness by government institutions to use their relevant, historical

experiences. Organizations may experience a declining ability to leverage historical knowledge due to technical or structural changes that limit access to knowledge resources. Pollitt's (2000) definition also includes an organization's willingness to remember, which introduces a dimension of motivation for the organization and individuals. Organizations may have past experiences that are best forgotten, selectively recalled to minimize public embarrassment (Stark, 2019), or imperfectly remembered (Jain, 2020). Organizations and individuals tend to reflect on successes instead of failures, reducing the learning value of mistakes (Levinthal & March, 1993). This may be motivated by political expediency, accountability, or scrutiny avoidance (Stark, 2019).

Othman and Hashim (2004) defined organizational amnesia as a failure to adapt or apply what an organization has learned. They also emphasized the failure to leverage historical knowledge and the organization's inability to share lessons across the organization, which is consistent with Kransdorff (1998). Othman and Hashim (2004) labeled these types of forgetting as "time-based" and "space-based" amnesia, respectively. The latter introduces a dimension of organizational structure and information flow to avoid information "stovepipes" that prevent knowledge exchange. Examining organizational knowledge from the perspective of content and flow or process is consistent with organizational forgetting research (Fernandez & Sune, 2009). Additionally, knowledge loss and amnesia research has affirmed the influence of organizational intent and structure on organizational memory loss, which is evident and consistent with research on organizational forgetting (Mariano et al., 2020a). Thus, organizational forgetting encompasses amnesia based on the dominant focus on forgetting what an organization should know from experience.

Influential Knowledge Loss Factors

Knowledge loss and forgetting research has identified four influential factors: individuals, processes, tools, and the organizational context (Mariano et al., 2020a). Daghfous et al. (2023) similarly grouped the drivers of knowledge loss as employee turnover, ineffective knowledge management systems and processes, and poor information technology systems. These descriptions represent variations in the fundamental organizational design components of human resources, management processes, technology, and structure (Cummings & Worley, 2015). Galbraith (2008) built on the seminal work of Leavitt (1965) in his prominent “Star Model” to identify the critical organizational elements of people, processes, structure, strategy, and rewards. These elements are the interacting subsystems of an organization that influence how it functions (Morgan, 2006). The factors presented by Mariano et al. (2020a) include multiple organizational design considerations that contribute to the complex dynamics of how organizations forget. These factors have also been the subject of in-depth studies, which are summarized below.

The first influential knowledge loss factor is individuals. The influence of individuals on organizational forgetting has predominantly focused on the impacts of turnover and management (Mariano et al., 2020a). Turnover includes retirements, layoffs, and personnel turnover (Massingham, 2018). Personnel turnover is associated with changes in knowledge resources, individual psychological contracts within the organization, learning capacity, the ability to manage risks from knowledge resources, and organizational challenges presented by new employees, potential competency gaps, and overall decreased performance (Massingham, 2018). Personnel turnover also breaks down the social networks in an organization (Droege & Hoobler, 2003; Lin et al., 2016; Shaw et al., 2005) and changes the organizational culture of those who remain in the organization (Massingham, 2018; Calo, 2008). Workforce agility and mobility

comprise another contributing dynamic related to employee turnover and knowledge loss (Al-Faouri et al., 2014). Liebowitz (2009) described knowledge loss from turnover as the result of failing to capture what employees know before they leave the organization, which is addressed in knowledge retention studies as a breakdown in an organization's institutionalization processes (Crossan et al., 1999).

From a social constructivist approach, institutionalization of knowledge is the translation of individual tacit knowledge into explicit knowledge for organizational use (Crossan et al., 1999; Dalkir, 2017; Huysman & de Wit, 2002; Nonaka & Takeuchi, 1995; Wiseman, 2008). The institutionalization of knowledge may also be described as appropriation, where the narrative knowledge of a departing individual is adopted by the remaining employees, thus keeping the stories alive (Linde, 2009; Stark, 2019). Although turnover is often assumed to have a negative effect on organizations, it can have positive effects on performance by introducing new ideas or removing underperforming individuals (Lee, 2018; Wynen et al., 2019).

The term "management" is used to encapsulate several other people-related knowledge loss factors (Mariano et al., 2018; Mariano et al., 2020a). Managerial agency influences knowledge loss from a perspective of what decisions and actions are made to retain or intentionally discard knowledge that is deemed to be irrelevant or unnecessary (Carty & Walsh, 2007; Martin de Holan, 2011; Wettenhall, 2011). This perspective emphasizes how managers behave in complex and dynamic environments (Antonacopoulou, 2018; Schoemaker et al., 2018). Specifically, managerial skills are demonstrated by how a manager interprets and applies the knowledge of the group (DeLong, 2004). For example, management and leadership may contribute to knowledge loss when conducting meetings with ineffective record keeping, support constant restructuring, implement short-term contracts, and embrace continuous change in

pursuit of innovativeness (Pollitt, 2009). Unplanned staff movement and poor records management also contribute to systematic deterioration of organizational knowledge (Zakaria & Mamman, 2015).

Power, politics, and organizational culture established by management also influence how organizations remember (Pollitt, 2000; Stark, 2019). Managerial agency has also been associated with using selective corporate history to shape the organization's identity (Nissley & Casey, 2002). Although managerial agency has been prominent in the forgetting literature, individuals' cumulative personal knowledge management practices have been shown to influence knowledge retention in organizations (Evans & Price, 2018). Knowledge loss is also influenced by human forgetfulness (Argote et al., 2021). Thus, people are a critical factor in the retention calculus given that organizational knowledge is socially constructed.

The second influential knowledge loss factor is processes. Processes in the organization reflect an organization's memory and contribute to mutual understanding or shared interpretation of what and how tasks are to be done (Jain, 2020). Organizational processes shape both behavior and how members think (Mariano et al., 2020a). Practical work processes enable members to effectively apply organizational memory (Jennex & Olfman, 2004). These processes affect how the organization manages knowledge in creating, maintaining, and applying what is known (Dalkir, 2017). While knowledge has often been presented from a content or process perspective, Geisler (2007) highlighted the value of knowledge processes over content management systems to preserve knowledge in the organization. Organizational processes are the routines that guide the organization (Mariano & Casey, 2016) including the mechanisms used to assess and retain knowledge of departing employees (Jennex, 2014). Work processes include both managing the explicit content through information management systems as well as the social dynamics of work

responsibilities (Olivera, 2000). Organizational processes may deteriorate or decay over time due to lack of documentation, disuse, or loss of context (Treleaven & Sykes, 2005). Knowledge loss and depreciation accelerate when processes are not formalized (Oliva, 2014).

Social and interpersonal knowledge processes relate to personnel when organizations undergo constant restructuring, reorganization, or “organizational churn,” resulting in deterioration of social networks (Foroughi & Al-Amoudi, 2020; Pollitt, 2009; Stark, 2019). Knowledge is lost as roles and responsibilities change and people’s mental directories of who is whom and overall team cognition are disrupted (Salas & Fiore, 2004). The influence of social processes on knowledge sharing is highlighted and relates to organizational changes (Abili et al., 2011; Alers-Tealdi, 2015). A breakdown of social processes may be the most damaging cause of knowledge loss as management often underappreciates the informal social networks that support and maintain functional knowledge in the organization (Burt, 2002; Ferenhof et al., 2015; Mariano et al., 2018; Massingham, 2018). As knowledge development is a social activity (Nonaka & Takeuchi, 1995), the social processes are more valuable than content management systems to preserve knowledge in the organization (Geisler, 2007).

An organizational element associated with both management and processes is governance. Governance establishes standard operating procedures for consistent behavior across the organization and protocols for maintaining content to ensure usability (Jennex, 2008). Data and analytics governance enables systematic valuation of organizational content (J. Slezak, personal communication, July 28, 2023). Governance is part of defining business processes including how supporting information systems are used (Jennex & Olfman, 2004). Knowledge is lost when organizations do not establish governing processes and policies for how to operate, which leads to becoming reliant on ad hoc approaches to function (Holmes, 2006). Governance

and management structures may also be weakened by rapid changes without understanding the organization's past processes (Wettenhall, 2011). Without recognized processes, individuals apply their own approaches to knowledge management. While an individual's action may have limited impact on the broader organization, the cumulative effect of multiple employees on the organization can be substantial (Evans & Price, 2018).

The third influential factor is organizational tools, including the physical repositories and information management systems used to capture what the organization knows. Organizational tools enable information sharing, discovery, aggregation, visualization, and collaboration (Dalkir, 2017). Hard copy materials and physical repositories are increasingly being replaced by digital versions to reduce storage costs, improve accessibility, and avoid decay (Khan, 2015). However, in addition to physical decay of paper documents or other analog media, knowledge may be lost in the process of digitizing physical artifacts. For example, when a document is digitized, handwritten notes and highlighted sections may not be captured from the original. Thus, the organization experiences a loss of knowledge.

Knowledge artifacts are also lost due to poor records management and governance when placed in an organization's digital landfills (Mancini, 2014). Digitized content may also become detached from the contextual elements that made the original content valuable (Pollitt, 2000). For example, a new employee may find multiple directories and files left behind by a predecessor, but the value of the content is significantly diminished without an explanation of why something was retained.

Knowledge may be lost due to technical system failures, outdated software, and human error (Pollitt, 2009). A popular example of technical loss is that the U.S. National Aeronautics and Space Administration (NASA) forgot how to put a man on the moon after inadvertently

destroying the records and losing its knowledgeable workforce (DeLong, 2004). Although this situation represents a massive system failure, the reliability and capabilities of modern information systems reduce the technical risks due to malfunctions (DeLone & McLean, 2003; Tworek, 2019). However, organizations face increasingly complex cybersecurity risks and threats to knowledge management systems (KMS), which may deny system access or information availability (Jennex & Durcikova, 2020).

Digital organizational tools are the information technology that support acquisition and information processing (Tworek, 2019). Technical organizational systems include the hardware and software capabilities to capture, store, share, and apply knowledge (Jennex & Durcikova, 2020). Knowledge management is also associated with information technology development, providing the means to store and distribute information more efficiently across organizations (Dalkir, 2017; Huysman & de Wit, 2002). Organizational systems have been described as organizational memory systems (OMS) (Cuffa et al., 2020), organizational memory information systems (OMIS) (Barros et al., 2015), and knowledge management systems (KMS) (Ellis, 2018). However, for a holistic understanding, each of these descriptors may be viewed more broadly beyond the information technology including organizational knowledge processes and management support (DeLone & McLean, 2003; Jennex, 2020).

Another perspective on how technology influences knowledge loss is the rapid growth and implementation of technical capabilities that create “digital Towers of Babel” (Mancini, 2014). These “towers” are the digital siloes of capabilities for knowledge sharing, collaboration, and storage that proliferate in organizations without management. Digital transformation at an enterprise level leverages newer technologies to replace older maintenance-intensive legacy architectures (Schneider & Kokshagina, 2021). However, the rapid fielding of new collaborative

tools in the workplace makes it difficult for employees to keep pace and effectively apply the capabilities (Laumer & Eckhardt, 2010). Introducing new information technologies to unprepared employees often leads to resistance to implementing the technologies resulting in employees using what they know despite the potential benefits of the new technology (Burchell, 2011). This unpredictable approach to knowledge management diminishes accessibility and discoverability across the organization and thus reduces the availability of content and knowledge for other members (Mancini, 2014). Organizational guidance, business processes, policies, and governance also lag behind the new capabilities, which further exacerbates “adhocracy” (Aspray & Doty, 2023).

The fourth influential factor is the organizational context (Mariano et al., 2020a). Argote et al. (2021) defined organizational context as the conditions that create an environment for learning. Context includes both active and latent elements that are differentiated as the members and tools that actively interact with the organizational tasks and structure of the organization, respectively (Argote & Miron-Spektor, 2011). The active contextual elements (people, processes, and tools) have been discussed above. This discussion focuses on the structural, latent context of an organization or the culture and environment where work is done.

Mariano et al. (2020a) highlighted the importance of the contextual elements of time and space based on Martin de Holan and Phillips (2004b), noting that “the impact of forgetting on organizations is contingent on its context” (p. 425). However, in an odd twist, Mariano et al. (2020a) seemed to take the quote out of context and shifted the focus to organizational structures. Martin de Holan and Phillips (2004b) asserted that the type of knowledge lost (new or existing) and associated intent (accidental or purposeful) are the contextual factors that impact the strategic importance of forgetting. However, Mariano et al. (2020a) and others (Daghfous et al.,

2013; Foroughi & Al-Amoudi, 2020) have more recently focused on the active and latent contextual factors. These factors influence forgetting and have an impact on the organization from an organizational design fundamentals perspective (Galbraith, 2008).

Organizational structures today have been developed based on two prominent archetypes: mechanistic and organic (Galbraith, 2008). Mechanistic structures are hierarchical with robust roles and responsibilities while organic structures are more flexible with fewer layers and cross-organizational information flow (Morgan, 2006). Organizational structure includes the workforce arrangement, complexity, and cultural influences (Farooq, 2023; Fiedler & Welppe, 2010; Mariano et al., 2020a). The structure of an organization is both formal in defining interdependencies, roles, and responsibilities, and informal to reflect the interpersonal interactions that are defined by individuals' values and beliefs (Puranam & Maciejovsky, 2020).

In terms of the interaction between the latent and active contextual elements, the organizational structure influences knowledge flow and the ability to develop a collective memory (Fiedler & Welppe, 2010). The structure provides a behavioral framework and sustains what the organization values (Martin de Holan & Phillips, 2011). It is also the “stable pattern of interactions between individuals or groups of individuals in an organization, where an interaction is a transfer of information or material” (Puranam & Maciejovsky, 2020, p. 522). Thus, the arrangement of the workforce affects the routines and interactions that influence knowledge transfer, retention, and maintenance of organizational memories.

As subsystems of the organization, information technology and networks must be aligned with the structure and processes that enable the organization to function (Galbraith, 2008). Structures may be function-centric, product-centric, cost-centric, or a combination of these types of structures (Galbraith 2008). Thus, it logically follows that as an organization's structural

complexity grows with increasingly dynamic environments, coordination must also become more sophisticated (Bolman & Deal, 2017). If coordination across the organization breaks down, knowledge transfer is impacted, creating knowledge loss (Leonard et al., 2015). Coordination between systems and processes is another example of the interdependencies between the latent structure and other active organizational elements and their impact on organizational forgetting.

More predictable tasks in well-defined environments are best supported by more mechanistic arrangements, while uncertainty and dynamic environments tend to be addressed by organic structures (Galbraith, 2008). Research on the influence of standard operating procedures (SOP) and routines on organizational memory has also introduced standardization (Becker, 2020; Fiedler & Welppe, 2010). Standardization is associated with governance and provides predictable interactions and improved collective understanding.

Organizational culture is related to organizational context and structure. The culture of an organization includes the values, assumptions, and expectations that guide how members interact with each other (Cameron, 2008). The organizational culture provides structure, so employees understand acceptable behaviors, where decisions are made and by whom, and how these decisions are communicated (Semmer & Tschan, 2020). Common examples of how organizational culture affects forgetting are knowledge control and hoarding. Controlling the distribution of knowledge and hoarding prevents others from using the knowledge and leads to the risk of knowledge loss (Bratianu, 2018). Thus, how knowledge is controlled or shared reflects an organization's culture regarding knowledge management (Morgan, 2006).

Organizational Intent

Organizational intent conceptually categorizes the characteristics of loss as accidental or purposeful and links forgetting to organizational objectives (Mariano et al., 2020a; Martin de

Holan & Phillips, 2004b). Accidental forgetting is unintentional knowledge loss or degradation that occurs due to organizational factors such as personnel turnover, organizational churn, poor knowledge management processes, and information systems failure (Mariano et al., 2020a). Purposeful (or voluntary) forgetting is the intentional discarding or “unlearning” processes by organizations to improve learning capacity, and innovativeness, and to disrupt inertia (Easterby-Smith & Lyles, 2011a; Mariano et al., 2020a; Martin de Holan & Phillips, 2011).

Fernandez and Sune (2009) applied two criteria to discriminate organizational intentionality: existence of agency and clear decision-making processes. The first criteria of agency indicates that the organization can influence the management of knowledge or voluntary control of its intellectual resources (Steup, 2012). Agency provides the framework by which the organization recognizes the available tacit and explicit knowledge and applies what it knows. The criterion of intentionality addresses how organizational members think and behave (Mariano et al, 2020a) and includes antecedents such as individual power, politics, influence, accountability, and motivation (Casey & Olivera, 2011; Hatch & Schultz, 2017). The antecedents of agency reflect the organizational routines, culture and belief in an ability to affect change (Mariano & Casey, 2016). Intentionality is also the executional control of the organization or the ability to act (Steup, 2012).

The second criterion is that conscious decisions are made based on decision-making protocols (Pollitt, 2009; Stark, 2019). Decision-making processes enable organizations to consider what is known compared to what is unknown so they can achieve the desired outcome. Effective decision-making processes are systematic and replicable. They also provide consistent learning and remove dependencies on any one individual (Calo, 2008; Kransdorff, 2006). The means by which organizations make decisions is closely tied to the issue of agency and reveals

the influence of key individuals on how the organization actually functions (Mariano et al., 2020a).

Leadership in military organizations is often judged by the ability to aggregate copious amounts of information and by decisiveness for operational expediency. Uniformed and civilian personnel receive leadership and management training, which may include studying a formal process called the Military Decision-Making Process (MDMP) or variations of MDMP. MDMP involves the following systematic steps: receive a mission, analyze the mission, develop alternative courses of action (COAs), analyze the COAs, compare the alternatives, solicit approval or decide, and promulgate orders for execution (USA, 2019; USA, 2021). This formal process is often employed for major military actions, but it also influences routine day-to-day organizational decisions in a less formal way. The process is predominantly based on experience-based learning of involved individuals. Official guidance documents and instructions provide governing frameworks for decisions, but the complexities of reality cannot be fully addressed in a directive manual. Thus, routine decision making is dependent on the decision maker and is often less systematic. Organizational intent is determined based on these criteria of agency and decision-making protocols.

While organizational intent is a common discriminator in defining knowledge loss, the basic term *forgetting* has been used as an alternative expression for both unintentional knowledge loss (Argote, 2013c; Martin de Holan & Phillips, 2011) and intentional knowledge loss (Kluge et al., 2019; Turi et al., 2019). Some researchers have used *unlearning* to represent intentional loss and *forgetting* to represent unintentional loss (Durst, et al., 2020; Rucic, 2020). However, using two different terms could lead to a misinterpretation of the concept. Researchers have also comingled unlearning and forgetting to represent the same objective of purposefully

discarding knowledge (Turi et al., 2019), which further challenges the clarity of the fundamental phenomena. To ensure clarity in this study, *forgetting* is used synonymously with the overarching term *organizational forgetting* and does not imply any intentionality unless specified (Klammer & Gueldenberg, 2019).

Accidental Forgetting

Accidental forgetting is the unintentional loss of organizational knowledge (Mariano et al., 2020a). Research has used several terms including decay, depreciation, dissipation, and degradation to describe the unintended or natural processes of knowledge loss (Argote et al., 1990; Mariano & Casey, 2018). However, the literature has presented few clear distinctions among knowledge decay, depreciation, degradation, or deterioration. An exception is Mariano et al. (2020a) who inductively distinguished knowledge depreciation from knowledge loss by tracing the history of the literature. Their distinction originated from three primary lines of investigation: knowledge depreciation (Argote, 2013c; Benkard, 2000; Darr et al., 1995), knowledge loss (Daghfous et al., 2013; Massingham, 2018), and unlearning (Hedberg, 1981; Tsang & Zahra, 2008). Mariano et al. (2020a) differentiated depreciation originating from the early manufacturing learning processes (Argote, 2013a) and knowledge loss studies from social, organizational perspectives (Massingham, 2018) as two types of accidental organizational forgetting.

Researchers have also used other terms to describe forgetting without explicit definitions, so the meaning must be inferred from the context of the writing. This lack of clarity contributes to ambiguities in organizational forgetting theory development (Eryilmaz, 2016). For example, depreciation of knowledge is often used in the context of learning curve analysis, “learning by doing,” and production settings (Argote, 2013a; Benkard, 2000; Darr et al., 1995). It has also

been used in the context of turnover or human capital depreciation in the service industry (David & Brachet, 2011). Studies have also used depreciation as a synonym for knowledge loss (Daghfous et al., 2013) while other research has identified the terms as two distinct processes (Mariano et al., 2020a). Similarly, knowledge loss has been associated with the decay of social networks (Burt, 2002) and decay of skills (David & Brachet, 2011) described as knowledge degradation over time (Martin de Holan & Phillips, 2004b).

Existing knowledge accidentally degrades while new knowledge dissipates if not embedded in the organization (Martin de Holan & Phillips, 2011) or institutionalized (Crossan et al., 1999; Wiseman, 2008). Degradation of organizational knowledge occurs when an organization's procedural (how to do something), transactional (who knows what), and declarative (general substance) knowledge atrophies (Antunes & Pinheiro, 2020). Degradation also refers to tacit knowledge that is lost when individuals take their personal knowledge with them when they leave, which is often characterized as turnover (Massingham, 2018). Explicit knowledge is also lost when records are destroyed or information management systems are ineffective (Foroughi & Al-Amoudi, 2020).

Degradation of organizational memory may be caused by organizational restructuring, which tends to break down social networks (Argote et al., 2018) or when the reasons and contextual factors for past decisions become disconnected from present situations (Jain, 2020). Degradation is also described as a type of organizational amnesia (Kransdorff, 1998; Pollitt, 2000). Similarly, the accidental decay or degradation of knowledge has been defined as depreciation (Argote, 2013c; Darr et al., 1995; Mariano et al., 2020a). Depreciation is often associated with quantitative analysis of knowledge loss in production environments based on learning curve theory (Benkard, 2000; Meschi & Metais, 2013; Thompson, 2007). Each of these

characterizations reflects existing knowledge within organizational memory that is vulnerable to degradation if not maintained (Durst & Zieba, 2018). Organizational knowledge degradation may simply reflect the significance or value placed on retaining what is known in contrast to competing priorities (Wettenhall, 2011).

Dissipation is the accidental loss of new knowledge or a “failure to consolidate” (Martin de Holan & Phillips, 2004b). Dissipation may be attributed to an organization’s limited absorptive capacity or the inability to recognize value and combine it with existing knowledge (Cohen & Levinthal, 1990). New knowledge may be lost in the institutionalization process of embedding the knowledge into organizational processes and structures (Crossan et al., 1999; Wiseman, 2008). It is interesting to note that “dissipation” appears to be a primary element of Martin de Holan and Phillips’ (2004b) organizational forgetting model, yet the term was used only twice in their article associated with new knowledge. Knowledge dissipation, however, has been used in accounting research to characterize a loss of existing knowledge and familiarity with customers making costly errors in budgeting (Causholli, 2016) with reference to Martin de Holan and Phillips (2004b). In subsequent writing, Martin de Holan (2011) abandoned the term “dissipation” and instead used “failure to consolidate.” However, the rationale for the change is unclear. Thus, the terms used to describe accidental forgetting have been used interchangeably with the noted exception, further complicating clear differentiation. Inductive analysis points to depreciation as a value-based loss process, decay as the atrophy of skills or process discipline, degradation as the loss of contextual factors that maintain organizational memories, and dissipation as the loss of knowledge from a failure to apply, share, or institutionalize knowledge.

Intentional Forgetting and Unlearning

Intentional or purposeful loss of knowledge is commonly described as *unlearning* and defined as “the act of eliminating or discarding knowledge voluntarily” (Martin de Holan & Phillips, 2011, p. 439). Newstrom (1983) originally described unlearning as removing organizational barriers to learning. More recently, Rupcic (2020) contended that unlearning is a conscious process of discarding existing knowledge to facilitate organizational change. Existing knowledge encompasses explicit content but also the beliefs, cultures, values, habits, and processes of the organization (Klammer et al., 2019).

The prevailing unlearning theory asserts that an organization must remove obsolete information to obtain new knowledge (Becker, 2005; Hedberg, 1981). Unlearning is conceptually based on the premise of a “clean slate” in that an organization’s existing knowledge or “dominant logic” must be discarded before it can learn new knowledge (Bettis & Prahalad, 1995). This concept has become popular as organizations seek to be more innovative and agile by adopting a mindset that old ideas are irrelevant or inhibit creativity in today’s workplace (Pollitt, 2009). Intentional forgetting has also been presented across broad cultural landscapes such as repressive elimination by totalitarian leadership, organizational forgetting to create a new identity, or politically motivated “humiliated silence” (Connerton, 2008). Unlearning has also been related to organizational ignorance by selectively deciding what is to be ignored, learned, or considered (Thiel & Grabher, 2023).

Despite the popularity of the notion of unlearning, there is substantial disagreement on whether unlearning is a distinct process or merely part of organizational learning (Argote, 2013c; Becker, 2005; Howells & Scholderer, 2016). Proponents of the concept as a distinct process assert that it is required to make room for new ideas and behaviors, using the analogy of cleaning

out the garage. Contrary perspectives posit that existing knowledge is not discarded but is replaced with new interpretations on how to react or behave based on the new knowledge (Becker, 2005). Advocates of this learning perspective note that the unlearning concept is based on a weak interpretation of Hedberg (1981), endorsed by Nystrom and Starbuck (1984b), and subsequently accepted without scrutiny (Howells & Scholderer, 2016).

The latter perspective is consistent with how organizations learn (Argote, 2013c) and mental models are formed to adjust to changing circumstances (Hinsz, 2009). They argued that although an organization may discard a process or content, individuals will retain embodied memories of the past that may or may not be applied (Fitzpatrick, 2003). Ebbinghaus (1913, p. 1) wrote that “Mental states of every kind—sensations, feelings, ideas—which were at one time present in consciousness and then have disappeared from it, have not with their disappearance absolutely ceased to exist...Nevertheless they have not been utterly destroyed and annulled, but in a certain manner they continue to exist, stored up, so to speak, in memory.”

A critical assumption in the unlearning literature is that organizations are able to assess the value of knowledge to identify irrelevant or unneeded knowledge. Given the complexity and uncertainty of future demands on the organization, such an assumption would seem unreasonable in many environments (Bennett & Lemoine, 2014; Sinha & Sinha, 2020). Additionally, in practice, digital memory is cheap, and many individuals seem unable or unwilling to discard documents and files, so they save them “just in case.” Anecdotally, when everything is important, then nothing is (Lencioni, 2006). This hoarding approach to retaining organizational content creates digital landfills across the various information management systems (Mancini, 2014). Bloated directories of content become divorced from the original context and the reasons

the information was important to retain. The information becomes unusable for new members without the expertise of longer tenured workers (Jennex & Olfman, 2003).

As the volume of content expands, organizations are increasingly challenged to appreciate the value of what they have without expertise, wisdom, or “deep smarts” (Leonard & Swap, 2005). Thus, it is difficult to fully accept this value judgement premise when organizations have demonstrated that they often do not know what they know (O’Dell et al., 1998), making it impossible to determine the potential future contributions of the knowledge that is available to the organization.

The popularity of unlearning to facilitate agility and innovation reflects an historical tension between organizational forces for flexibility and others for standardization (Wettenhall, 2011). Flexibility is associated with greater independence across the organization, while standardization brings increased integration, stability, and predictability. The tension results in inherent changes in organizations, contributing to intentional and accidental knowledge loss (Pollitt, 2009; Stark, 2019; Wettenhall, 2011).

Knowledge Retention Challenges

Considerable literature has focused on prescriptive approaches and challenges to retaining knowledge in organizations (Daghfous et al., 2013; Dalkir, 2017; DeLong, 2004; Levy, 2011; Levallet & Chan, 2019; Liebowitz, 2009; Martins & Meyer, 2012). As a sociotechnical system, the interdependent organizational subsystems of human resources, management processes, technology, and structure influence how an organization functions (Morgan, 2006) but also present challenges to knowledge retention (DeLong, 2004). These subsystems are used to illustrate the challenges in this section.

Human Resources

Knowledge retention in an organization relies on its human resources. Simplistically, employees join an organization and bring their unique knowledge to the collective. The integration of this knowledge into organizational memory is accomplished through knowledge transfer and sharing by prominent contributors to knowledge retention (Abili et al., 2011). Sharing also builds organizational commitment and interpersonal trust (Abili et al., 2011; Hsu & Chang, 2014). An organization's culture and climate establish the basis for employee interaction and social fabric (Suppiah & Sandhu, 2011), and these relationships, social networks, and communications enable the organization to minimize accidental knowledge loss due to turnover, employee departures, and reorganizations (Argote et al., 2018; Droege & Hoobler, 2003; Mariano et al., 2018). An associated issue is the assumption that the shared knowledge is integrated or diffused across organizational levels (i.e., individual, group/team, organization) (Antonacopoulou, 2018; Droege & Hoobler, 2003). However, a challenge for organizations is to create the environment and motivation for employees to collaborate and share what they know (Alers-Tealdi, 2015; Amayah, 2013; Hsu & Chang, 2014). Employees may be reluctant to share their knowledge due to fear of losing influence (Ellis, 2018), lack of trust (Hsu & Chang, 2014), a sense of appreciation, or incentives to share (DeLong, 2004). In contrast, some employees may want to be recognized for sharing behavior (Liebowitz, 2009). Another factor is the difference in perspectives on knowledge between older experts and younger novices (DeLong, 2004; Lantigua, 2016). Thus, managed approaches to building this social fabric and an organizational culture that promotes knowledge sharing are critical to knowledge retention. Thus, the key challenge is for an organization to establish and foster a culture of sharing and social interaction to create a basis for knowledge retention.

Management Processes

Given that personnel turnover is common, many organizations have implemented succession planning schemes to address anticipated knowledge loss (Rothwell, 2016). Succession planning involves intentional efforts to develop others or replace people to ensure continued organizational performance (Rothwell, 2016). Scholars have also used continuity management to describe planned approaches to mitigate knowledge loss due to personnel changes (Beazley et al., 2002).

An approach to remediating knowledge loss in succession planning is initiating dialogue and job shadowing between the departing employee and an understudy in the weeks or months prior to a departure (Daghfous et al., 2013; Galan, 2023). Companies could also interview departing employees to capture their knowledge (Daghfous et al., 2013; Massingham & Massingham, 2014). This externalization process may prove effective in some instances, but it is unrealistic to presume that organizations know when key employees are leaving and that organizations are prepared to orchestrate a knowledge handover (Liebowitz, 2009). A sudden departure results in a fitful or reactive response to the vacancy without a plan for knowledge succession (Rothwell, 2016). The psychological contract between an organization and employees has also changed with shorter tenures in today's workplace (Calo, 2008). A more effective approach is an ongoing exchange of knowledge across the organization throughout an employee's tenure to diffuse expertise across organizational levels and to mitigate solitary knowledge keepers. This is a continuous, systematic approach to succession planning that integrates individual development plans with the objectives of the organization (Rothwell, 2016).

Knowledge retention approaches are frequently presented in a specific context but are appropriate for broader consideration. For example, Manning et al. (2021) discussed developing

internal procedures for knowledge retention for food safety to include refresher training and staff engagement to reinforce organizational memories. Establishing internal routines sets the stage for ongoing learning and knowledge retention (Finnstrom & Gustafson, 2020; Tranfield et al., 2000). In this case, knowledge retention occurs through interpersonal contact. However, the challenge is how to implement intentional, systematic, and continuous processes to facilitate knowledge transfer across the organization to remediate knowledge loss due to personnel changes.

Technology

A common approach to knowledge retention is the use of technology (Dalkir, 2017). However, organizations are faced with an onslaught of technical capabilities to aid communication, collaboration, and decision making. Technical system capabilities to store, transmit, and use information are seen as a panacea or “silver bullet” to resolve an organization’s knowledge retention challenges. The development of information technologies brought about the concept of knowledge management, but many see the two as one and fail to see them as part of the larger sociotechnical system (Ellis, 2018). Unfortunately, many organizations have poorly implemented knowledge management systems due to inconsistent applications, inadequate policies, inaccurate or incomplete knowledge mapping, and overwhelming volume of content (Shin, 2004). Advocates for knowledge retention face strong headwinds to convince leadership of the value without demonstrable return on investments (DeLong, 2004; Massingham & Massingham, 2014), which is particularly problematic due to the difficulty of expressing financial and non-financial benefits (DeLong, 2004; Tiwana, 2001). The key challenge is that the technical solutions are not aligned with organizational objectives resulting in ad hoc implementation and lost knowledge.

Structure

The formal and informal structures within an organization facilitate information flow and interactions. Knowledge is process-relational where human interactions exhibit both interdependencies and influences through the division of labor and working relationships (Nonaka et al., 2008; Puranam & Maciejovsky, 2020). Documented formal interactions establish how decisions are made, the roles and responsibilities of employees, and the reporting relationships (Puranam & Maciejovsky, 2020). However, the documented structure of an organization provides only an operating framework. An informal structure is based on individuals' experiences, values, and beliefs including the dynamics of power, influence, and status (Puranam & Maciejovsky, 2020). The formal structure can be expressed in an organizational chart to illustrate organizational relationships to a new employee, but understanding the informal structure must be developed through personal experience or by another employee. This understanding of how things are done is often lost when it is not institutionalized or incorporated into the formal structure of the organization (Levallet & Chan, 2019; Wiseman, 2008). Organizational processes may also deteriorate or decay over time due to the lack of documentation, disuse, or loss of context (Treleaven & Sykes, 2005). Thus, the challenge is that organizational structures lack sufficient fidelity to support information flow, resulting in ad hoc interactions to accomplish the work.

Tolerated Forgetting: A New Perspective

Mariano et al. (2020a) presented knowledge loss as one of two foci of accidental organizational forgetting rather than as a descriptor of the broader phenomenon. Their basis for this conceptual alignment was identifying turnover and organizational change as it impacts the loss of organizational knowledge (Eckardt et al., 2014; Treleaven & Sykes, 2005). This author

asserts that although knowledge loss occurs in these circumstances, it may be neither intentional nor accidental; it is simply tolerated by the organization. Tolerated forgetting is an organization's willingness to allow knowledge loss or depreciation through practices that are neither intentional nor accidental, but they are inconsistent with espoused protocols for knowledge management.

The philosophical basis for tolerance is characterized by three components (Forst, 2017; King, 1976). First, an *objection* component reveals a contradiction between what is or is not acceptable. The objection component differentiates tolerance from indifference by establishing boundaries for behavior. Second, the *acceptance* component is the voluntary willingness to ignore the contradiction in favor of other rationale. Third, the *rejection* component is realized when the reasons for acceptance no longer exist or are justified. Thus, organizational tolerance is the voluntary willingness to accept behaviors until the reasons for acceptance are outweighed by the rationale to reject. These components are illustrated in the context of this study in Figure 5.

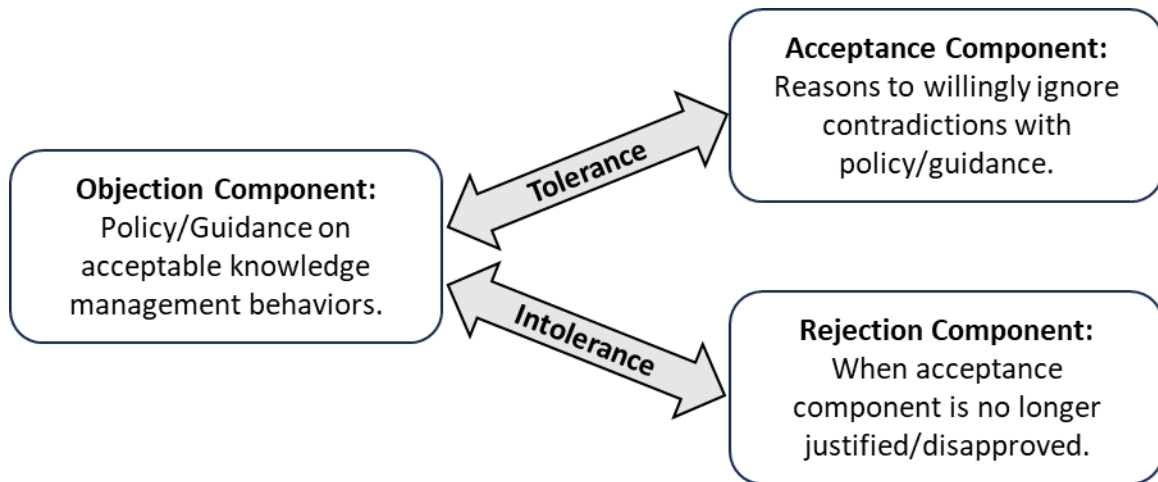


Figure 5 *Components of Organizational Tolerance*

Organizations exhibit both official or espoused theories of action and theories of use (Argyris & Schön, 1978; Probst & Buchel, 1997), which include what an organization says they

do versus what actually happens. These are the formal and informal frameworks or cultures that guide how organizations behave, and they are relevant to how organizations use their intellectual and human capital (Puranam & Maciejovsky, 2020).

The highly bureaucratic and structured DoD manages an extensive library of official documents to establish policy, organize actions, and delineate roles and responsibilities. These documents are hierarchically defined by doctrine as directives, instructions, publications, and manuals (WHS, 2024). The Department of the Air Force, a component of the DoD, manages nearly 2,000 official guidance documents spanning 40 different functional areas (DAF, 2024). Many of these publications, such as the DoD Human Capital Operating Plan (HCOP) and the U.S. Air Force Strategic Master Plan (SMP), describe intellectual capital in terms of knowledge, human resources, and talent management. Other documents, such as Air Force Manual 33-396, present guidance for operationalizing knowledge management. These documents provide substantial strategic, operational, and tactical guidance on effectively managing knowledge in the U.S. Air Force. The guidance establishes acceptable organizational behaviors or, philosophically, the objection component to tolerated forgetting.

Without unduly expanding the discussion on command-and-control philosophies of the U.S. military services, it is important to illustrate how organizational culture influences routine operations and implements guidance. The following characterizations of military service cultures are based solely on the author's three decades of experience with each of the services and acknowledged as broad generalities. In the Air Force culture, if a process or action is not specifically delineated by directive or policy, it should not be done or is not allowed. By comparison, the Navy generally embraces a culture of delineating what must not be done, and then allows latitude or flexibility to adjust to situations. The Navy's perspective can be attributed

to a long history of sending ships to sea with limited communications and uncertain challenges ahead. The Army culture falls somewhere between the other two branches of military service on this spectrum of conformity. In reality, no military organization can always “go by the book” to accomplish the mission within bureaucratic constraints because official guidance cannot match the pace of changing requirements.

This operational flexibility is illustrated by an unattributed quote from a former Soviet military officer, “One of the serious problems in planning against American doctrine is that the Americans do not read their manuals nor do they feel any obligations to follow their doctrine” (Farr, 2006, p. 23). Some military leaders would assert that this flexibility is justified to maintain unpredictability during conflict; however, it becomes more damaging in routine day-to-day operations and management. Wong and Gerras (2015) critically illustrated a systemic culture of misrepresenting what the military espouses, particularly when established guidance becomes so onerous to force individuals and units to misrepresent reality. The result is a large bureaucracy that functions as an adhocracy (Mintzberg & McHugh, 1985), which illustrates the existence of espoused mandates in contrast to what actually occurs. This approach is particularly relevant as Air Force policy and directives highlight the importance of managing organizational knowledge resources, yet appears to accept superficial efforts to do so (M. Harris, personal communication, February 15, 2021). This condition is not unique to the Air Force. Stark (2019) reported that, “Amnesia was simply ‘there’ as a perpetual institutional norm: a necessary part of the everyday ebb and flow of executive life” (p. 153). The organizational willingness to ignore contradictions with what is known to be correct behaviors is the acceptance component. Thus, forgetting becomes accepted or tolerated in organizations.

It is important to highlight that some government organizations embrace knowledge management and effectively implement knowledge retention measures to minimize organizational forgetting. Two examples of organizations that are often recognized for knowledge management efforts and maturity are the National Aeronautics and Space Administration (NASA) (Alers-Tealdi, 2015; Liebowitz, 2009) and the U.S. Army (Van Laar & Kitchens, 2020). These large organizations are motivated to retain what is learned and known so they can safely conduct operations and prevent loss of life.

Most organizations do not face life or death decisions. However, organizations that do face significant consequences should be motivated to learn well. Unfortunately, they may not learn well as a recent safety report from the International Civil Aviation Organization (ICAO) reported. After a steady decline of accident rates from 2008 to 2017, there was a spike in fatal aviation incidents in 2018 (ICAO, 2019). Preventable accidents have occurred even with robust safety protocols and learning processes (Stemn et al., 2018). Sieberichs and Kluge (2021) also discussed how the commercial aviation industry does not always learn from incidents, and they identified contributing issues. The issues can be summarized as the value placed on the experiential knowledge, synthesis of details that contribute to learning, and opportunities and motivation to share knowledge. Organizations that address these elements are likely to learn better and retain more knowledge.

A review of the literature reveals few attempts to investigate organizational memory or forgetting in the U.S. federal workforce. One early exception is Wagner (1998), who gathered secondary data to assess the effects of manpower reduction on U.S. Air Force intellectual capital within the ranks of active-duty personnel. More recently, Rusaw (2004) investigated the effects of downsizing on organizational memory in government organizations highlighting the

increasingly shorter tenures, increased reliance on transient contractor support, and loss of mentors. Harris (2013) also conducted a qualitative analysis of knowledge management practices through a convenience sampling of knowledge management professionals from public and commercial sectors to develop a guidebook for knowledge management in public sector organizations. Alers-Tealdi (2015) used a mixed-method approach to examine the institutionalization of knowledge sharing in U.S. federal agencies. Ellis (2018) conducted a similar study of private and public sector knowledge managers highlighting the potential impact of personnel losses on organizations' institutional knowledge. Lantigua (2016) also examined factors that influence knowledge sharing in the federal government using a mixed-method approach. However, no dedicated examination of organizational forgetting in the U.S. federal workforce was found.

Summary

Organizational forgetting research has focused on the conceptual foundation described by Martin de Holan and Phillips (2004b) as either an intentional or accidental phenomenon. The dynamic interactions between individuals, organizational processes, and technologies associated with the phenomenon are primarily described by theories related to intellectual capital, human capital, and knowledge management. Various organizational antecedents and outcomes have been examined from these ontological bases. The research has affirmed the value of a knowledgeable workforce to provide a sustainable, competitive advantage, and has provided practical solutions to optimize this unique capital. The literature has also revealed significant and ongoing efforts to understand the creation and maintenance of organizational knowledge as a valuable resource. In addition, practical solutions to knowledge management challenges have been developed. However, despite the abundance of descriptive, normative, and prescriptive

literature on knowledge management and retention, no studies were found to address why organizations seem unable or unwilling to remediate organizational forgetting.

There appears to be a dissonance between what organizations assert as their most valuable resource (i.e., knowledgeable human capital) and efforts to nurture it. Performant organizations have made substantial investments to create and retain a knowledgeable workforce. However, knowledge loss undermines organizations' investments due to ineffective management processes, knowledge curation policies, and inadequate technical approaches. Organizations should be able to implement changes to address these challenges considering the plethora of practical options available. Although organizations frequently describe the value of their workforce and signal their intent to maximize this resource, they will not or cannot follow through. This assertion is the basis for the current study.

Why is forgetting tolerated if knowledge is such a valuable organizational resource? The question introduces considerations of awareness, priorities, effort, governance, accountability, and agency. Organizational culture is the basis for how these considerations are addressed, but changing organizational culture is difficult. Although organizations face challenging circumstances, they need to mitigate forgetting. Former President Eisenhower and business educator Stephen Covey asserted that there are urgent issues and important issues, but too often, organizations confuse the two as the same thing. Rarely are urgent issues important and rarely are important issues urgent, until they become both when critical knowledge is gone.

CHAPTER THREE: RESEARCH METHOD

This chapter describes the preparation and method used in this study to investigate tolerated forgetting in a DoD organization. First, the current conceptualization is challenged, and questions are reviewed based on the literature and personal experience (Booth et al., 2016; Yin, 2018). Second, the qualitative research design is described, including the state of research on organizational forgetting and the ontological and epistemological perspectives of the researcher (Creswell & Creswell, 2018; Crotty, 2015; Gray, 2014; Yin, 2018). Third, the case study method used to conduct the research is presented, including planning, preparation, the case, data sources, sampling, collection, and analysis (Yin, 2018). Specialized DoD terminology or military jargon are also defined as needed. The chapter concludes with how the author addressed validity and reliability concerns.

Theoretical Proposition and Conceptual Framework

Organizational forgetting has been conceptualized from a binary view as either accidental or purposeful (Daghfous et al., 2023; Eryilmaz, 2016; Klammer & Gueldenberg, 2019; Liaquat & Hassan, 2021; Mariano et al., 2020a; Martin de Holan & Phillips, 2004b), indicating that the organization's intent is the prominent differentiator. This study introduces another type of organizational forgetting that is neither accidental nor purposeful: *tolerated* forgetting. Tolerated forgetting occurs when an organization espouses the value or importance of maintaining its knowledge yet fails to plan or apply measures to minimize forgetting or lost knowledge. Tolerated forgetting is a type of organizational dissonance (Latheef & Werner, 2013). This dissonance is the disparity between an organization's espoused theories of action, and realized theory-in-use (Argyris & Schön, 1978). An organization may signal intent to retain knowledge

through statements or official documents. However, if it does not implement processes or systems to address knowledge loss, is that accidental or purposeful?

Decisions are made based on factors such as objectives, available resources, and competing priorities. These factors indicate conscious consideration and outcomes, and therefore the decisions are not accidental. Conversely, organizations may need to intentionally discard old ways of business or unlearn previous processes, but this perspective fails to address the loss of knowledge caused by organizational restructuring, turnover, employee departures, willful ignorance, or poor system management. The initial conceptual framework of tolerated forgetting is illustrated in Figure 6.

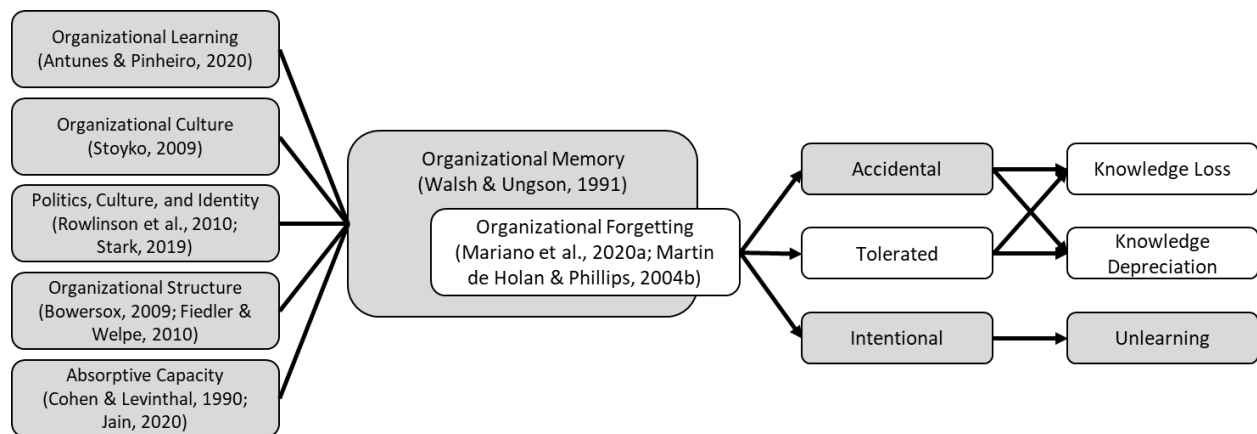


Figure 6 *Initial Conceptual Framework of Tolerated Forgetting*

Tolerated forgetting is an organization’s willingness to allow knowledge loss or depreciation through practices that are neither intentional nor accidental, but they are inconsistent with espoused protocols for knowledge management.

Research Questions

The extant literature describes the complex, multifaceted dynamics of organizational knowledge. Although organizational knowledge loss or forgetting research has become more prominent, scholars lack a clear understanding of why organizations accept or tolerate forgetting,

particularly in the context of the Air Force. Organizational tolerance of forgetting is the central phenomenon of interest (Creswell & Creswell, 2018). Thus, the central question and associated sub-questions for this study are as follows:

- *Research Question 1 (RQ):* Why do Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies?
 - *Sub-Question 1 (SQ1):* How do Air Force organizations address knowledge loss in their learning and knowledge management activities?
 - *Sub-Question 2 (SQ2):* How are organizational processes, systems, and culture managed to address knowledge loss?

The outcomes of the research contribute to a deeper practical and theoretical understanding of organizational forgetting, particularly in the public sector. A practical outcome is greater awareness that organizational forgetting needs to be addressed rather than tolerated to improve knowledge management across the organization. A theoretical result is the introduction of a new perspective on organizational forgetting, specifically shifting the focus from the prominence of intentionality (Eisenhardt, 1989; Yin, 2018). While this study is set within the context of a large government organization, the phenomenon is sufficiently commonplace for findings to be applied in other contexts and introduce a new perspective for further research.

Research Context

The main objective of this study was to understand why U.S. military organizations tolerate forgetting despite multiple prescriptive retention approaches. Organizational forgetting or knowledge loss has been studied in the context of private sector organizations (Mariano et al., 2020a), but previous knowledge management studies have provided limited inferences for federal government organizations (Alers-Tealdi, 2015; Ellis, 2018; Harris, 2013; Lantigua,

2016). The selected context of this study is the government civilian employee population in the Air Force, one of the six military services of the DoD. In particular, this research fills a need to examine organizational forgetting in different contexts (Mariano et al., 2020b) and the lack of related research in the DoD.

The focus of this study was further narrowed to strategic (i.e., staff) organizations based on the heavy reliance on civilian employees and the organization's span of control in the Air Force hierarchy. Strategic intellectual capital is more subjective and complex than at lower organizational levels (Dalkir, 2017). The Air Force defines strategic-level organizations as the Headquarters Air Staff (HAF), Secretary of the Air Force (SAF), Major Commands (MAJCOMs), Direct Reporting Units (DRUs), and Field Operating Agencies (FOAs) (DAF, 2019). The staff in these headquarters provide oversight of subordinate operations and support organizations (e.g., operational and tactical levels) in accordance with joint doctrine (JCS, 2019). The Department of the Air Force (DAF) manages two functional components; the Air Force and the Space Force. This study only addresses the Air Force component of the department. The Air Force structure is illustrated in Figure 7.

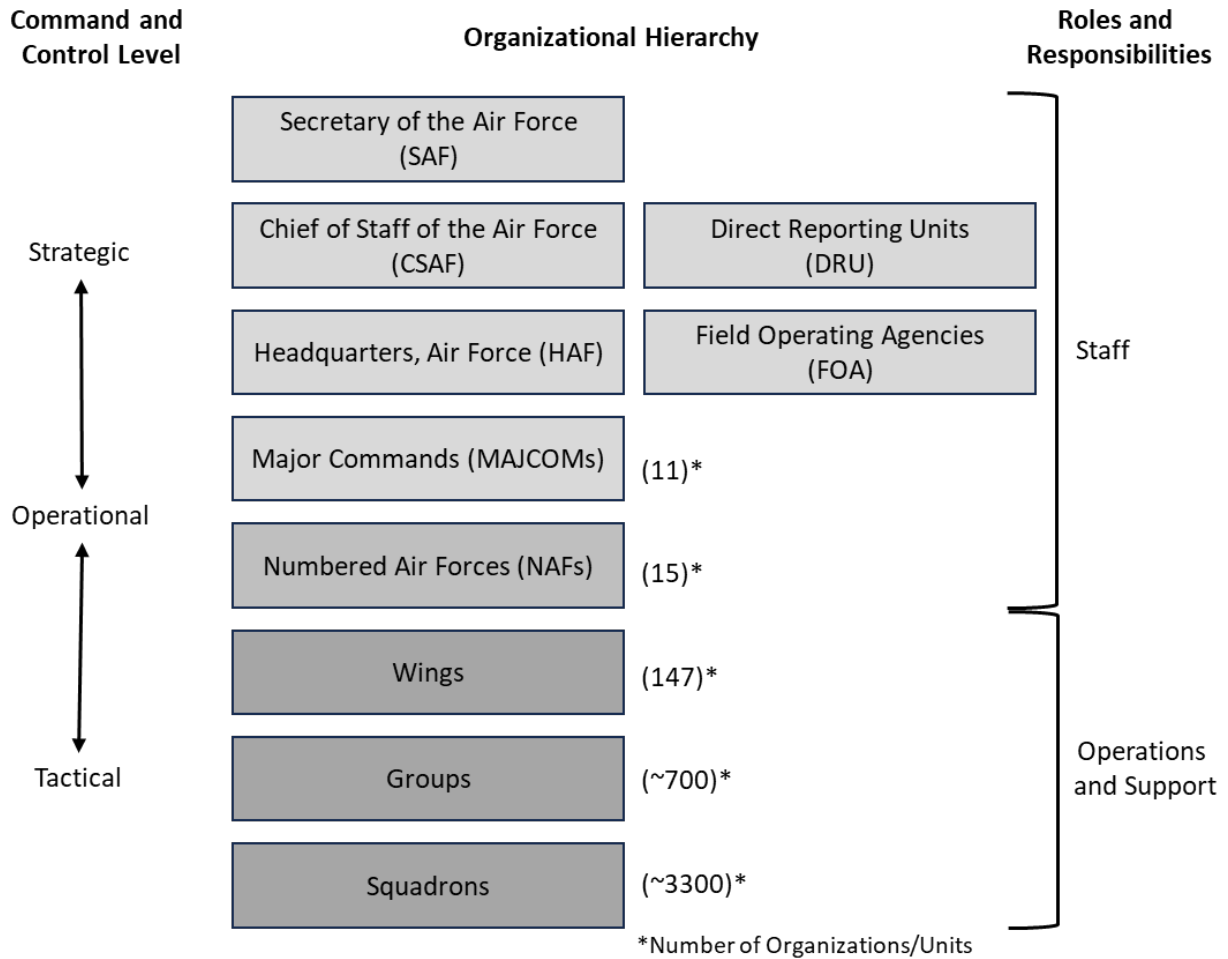


Figure 7 Basic Air Force Structure

Note. Adapted from “Structure of the Air Force.” (2019, June). *Air and Space Forces Magazine*. Retrieved from https://www.airandspaceforces.com/PDF/MagazineArchive/Magazine%20Documents/2019/June%202019/0619_Structure%20and%20People.pdf

Oversight is described in military parlance as command and control or authority and direction. This oversight is meant to motivate and direct people and organizations to accomplish the work. Strategic organizations focus on longer-term objectives and establishing plans and policies to achieve the envisioned future. These broad oversight responsibilities directly influence the organizing, training, equipping, manning, and employing the force, as outlined in the National Defense Strategy (NDS) and National Military Strategy (NMS).

A deeper understanding of organizational forgetting helps Air Force organizations and the DoD address practical issues that contribute to performance inefficiencies, unnecessary costs to U.S. taxpayers, and degraded capabilities to meet national security requirements.

Researcher Position

Qualitative research is interpretive, making it necessary to introduce the researcher's perspectives and lived experiences (Creswell & Creswell, 2018). Researchers' decisions and approaches are influenced by their ontological, epistemological, and theoretical perspectives (Crotty, 2015). Decisions and methods are also shaped by the intended outcome of the research such as to expand knowledge about a phenomenon (i.e., basic research) or to develop practical solutions (i.e., applied research) (Merriam & Tisdell, 2016).

This study is based on the author's experience, which is reflected in the design and method of this research (Gray, 2014). Specifically, the author is a retired military officer with more than 35 years of service engaged in a variety of tactical, operational, and strategic responsibilities associated with information systems and knowledge management. The author is currently employed by the Air Force, responsible for information systems, knowledge management, and other related duties. He has academic degrees in engineering and systems management that could influence his perspectives toward post-positivist interpretations of reality. However, the author recognizes the contextual nature of the phenomenon and that social influences require a subjective view. Thus, the author approached this case study from a social constructionist posture using a logical, systematic approach to develop trustworthiness (Yin, 2018).

The author's approach to research is primarily as a career practitioner. However, the author also examined the gaps in the literature and employed theoretical development to explain

real-world experiences. These gaps and practical experiences motivated the author to conduct an in-depth study to facilitate practical change while contributing to theoretical development, which reduced the separation between his practitioner and researcher roles.

Philosophical Basis of the Study

This study applied a social constructionist epistemology, representing both a sense of realism and relativism, to investigate and interpret organizational forgetting (Crotty, 2015). Organizational knowledge and memory rely on social interactions for creation, maintenance, and use (Nonaka & Takeuchi, 1995; Walsh & Ungson, 1991). That is, knowledge is constructed by humans and their interactions to shape a meaningful reality (Berger & Luckmann, 1966; Creswell & Creswell, 2018; Crotty, 2015). A constructivist philosophy asserts that as knowledge is constructed by human interaction, the social or cultural factors can also be influenced to change perceptions of reality (Mallon, 2019). Thus, understanding the contextual elements of an organization that influence behaviors and interactions is critical to explicating organizational forgetting.

Research Design

This section explains the study's qualitative case study approach to investigate organizational forgetting and reflects a logical plan to move from the research questions through data collection and analysis to conclusion (Yin, 2018). This strategy begins with the research interest and is influenced by the author's philosophical assumptions (Creswell & Creswell, 2018; Gray, 2014). The nature of the research questions and the author's objectives indicated that a qualitative case study was the most appropriate research method (Booth et al., 2016; Creswell & Creswell, 2018; Yin, 2018). Thus, this section provides the qualitative background and

justification for using a case study method to address the objectives that are consistent with the author's epistemological stance.

Qualitative Background

Qualitative methods tend to be exploratory and interpretive, and the researcher seeks to understand the nature, context, and meaning of a phenomenon (Merriam & Tisdell, 2016). Understanding the phenomenon of organizational forgetting was developed inductively through interaction between the author and individuals in the focal organization (Gray, 2014). This interaction allowed the author to explore an insider's perspective, and thus better understand the context as it relates to the phenomenon of organizational forgetting (Hancock & Algozzine, 2017). This information revealed themes and patterns for comparison with the current conceptualizations and further develop forgetting theory (Creswell & Creswell, 2018; Eisenhardt, 1989).

The limitations of qualitative research are acknowledged. Qualitative methods require researchers to be attentive to their biases and influence in the environment (Creswell & Creswell, 2018). This point is particularly salient considering the author's career association with the DoD. Biases were minimized through well designed questions, fair analysis, active listening, and an adaptive posture to new ideas and opportunities (Yin, 2018). Biases were also addressed by maintaining a clear focus on the research objective, applying ethical processes, and using multiple sources of data for triangulation (Yin, 2018). Professional biases introduced by the author are considered to have limited influence due to the prevalence of organizational forgetting in other organizations (Merriam & Tisdell, 2016).

Another critique of qualitative methods is the lack of generalizability of the findings. Although rich descriptive findings may provide a generalizable application to other related

studies and contexts, the findings reveal concepts or variables for theory development or testing due to the highly subjective and contextual nature of quantitative methods (Gray, 2014). This study was primarily exploratory in nature to develop an initial understanding of tolerated forgetting and reveal influential, contextual elements (Merriam & Tisdell, 2016). Nevertheless, the themes, patterns, and findings provide analytic generalizations that extend beyond this case (Yin, 2018).

Case Study Justification

Yin (2018) explained that exploratory and explanatory studies may be supported by experimentation, survey, archival analysis, history, and a case study. The chosen method should be based on the research questions, control of events, and focus on contemporary events (Yin, 2018). This study's research questions focus on the dynamics of *how* and *why* of contemporary Air Force organizational forgetting. These questions are best addressed through a qualitative study because they involve complexities of structural and social dynamics that are too complex for experimentation or a survey (Creswell & Creswell, 2018; Crotty, 2015; Yin, 2018).

The author had no control over the organizational dynamics required for experimentation. The need to understand contemporary contextual considerations for practical application in the Air Force also eliminated analyses of archival information and organizational history. Case studies help researchers focus on the context of a phenomenon in a confined sample space or bounded problem (Gray, 2014; Yin, 2018). Although forgetting in the DoD is likely widespread, this study is defined and bounded by civilian employees in the strategic organizational components of the Air Force. Thus, qualitative case study research was the most appropriate to explore the contextual elements of tolerated forgetting in a contemporary setting of the Air Force.

Yin (2018) described four types of case study designs, which are distinguished as either single- or multiple-case designs and then identified based on the unit or analysis. Examples of Types 1 and 3 are first summarized before discussing the Type 2 design used for this study. The author found no organizational forgetting research that used the Type 4 design of multiple cases with multiple embedded units of analysis. A Type 4 design would require a considerable investment in time and resources that are often not available to researchers (Yin, 2018). The four research designs described by Yin (2018) are illustrated in Figure 8.

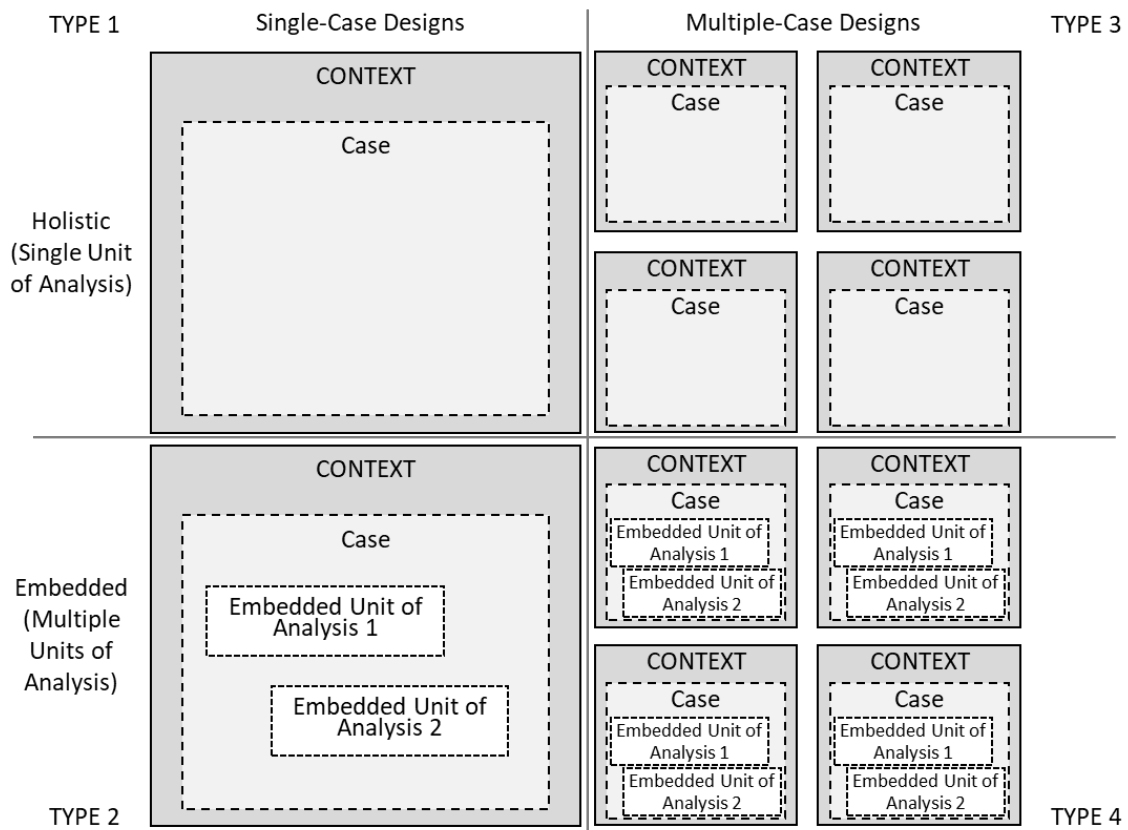


Figure 8 *Basic Types of Design for Case Studies*

Note. Adapted from *Case Study Research and Applications* (6th ed., p. 48), by R. K. Yin, 2018, Sage. Copyright 2018 by Robert Yin.

Massingham (2008) used Type 1 design to examine whether and how knowledge loss caused by the exit of valuable employees affected the organization and remaining employees (i.e., “survivors”) in a small Australian government naval engineering team. The rationale for using a single-case design is to examine critical, unusual, common, revelatory, or longitudinal cases (Yin, 2018). Massingham’s (2008) longitudinal case study applied multiple elements of design to improve the overall quality, reliability, and validity of the findings. These elements include multiple sources of information to support construct validity, explanation building for internal validity, close association to established theory (e.g., human capital) for external validity, and a systematic protocol for greater reliability (Yin, 2018). The organization Massingham (2008) used in his single case study was a reasonable example to investigate the impact of knowledge loss over an extended period in a relatively insular and homogenous group of government employees.

Fernandez and Sune (2009) conducted Type 3 design, multiple-case study to examine the impact of forgetting on organizations. Their study was similar to Massingham (2008), but also included details on the processes that cause knowledge degradation and destruction. Their eight-year exploratory case study included two cases of required engineering courses in a European university. The overall research design was based on access to faculty participants and anticipated availability of secondary data. Fernandez and Sune’s rationale for conducting multiple-case analysis was the need for robustness toward theory development.

The design for the current study was a single case using different embedded units of analysis (Type 2) to examine strategic-level Air Force organizations to understand contextual issues of organizational forgetting. Embedded units of analysis were used to improve the overall reliability (Yin, 2018). The rationale for this design was two-fold. First, the theoretical

proposition challenges the existing conceptualizations that are solely based on intentionality and introduces an alternative explanation for organizational forgetting. This critical rationale is one justification for a single-case design (Yin, 2018). Second, organizational forgetting is common in organizations based on the literature and the author's experience. The approach used in the current study illustrates the contextual elements, which may offer analytic generalizations and contribute to broader theoretical development (Eisenhardt, 1989; Yin, 2018).

The holistic (single case) approach (Type 1) may be too abstract to establish clear findings and is vulnerable to unsuspected shifts in the research focus during the study (Yin, 2018). Thus, the author used embedded sub-units of analysis for contrast and comparison to address possible changes from the research objectives. Using a case approach also presents multiple contextual facets, such as workforce demographics and organizational responsibilities, that are better examined through an embedded design. Thus, a single-case study approach with embedded units of analysis was appropriate based on the research questions and critical examination of existing organizational forgetting typologies (Merriam & Tisdell, 2016; Yin, 2018). These elements are presented in the research design (Type 2) in Figure 9.



Figure 9 *Tolerated Forgetting Case Study Design*

This illustrative research was intended to expand practical understanding of organizational forgetting in a public sector organization. It also supports the need for more studies to understand the influence of the contextual elements associated with accidental forgetting in organizations (Mariano et al., 2020b) and advances the development of organizational forgetting theory.

Research Method

This section describes the method used to conduct this study and achieve the research objectives. The primary objective of this section is to address concerns related to the proper conduct of the study including academic rigor, consistency with research case study protocols, analytic generalizability, appropriate level of effort, and demonstrated understanding of case study advantages (Yin, 2018). Elements of the method are presented including institutional approval and ethics, preparation, data sources, collection, analysis, and reporting. The section

concludes with a discussion of the study's trustworthiness, validity, and reliability measures to meet logic standards. The general research process of the study is illustrated in Figure 10.

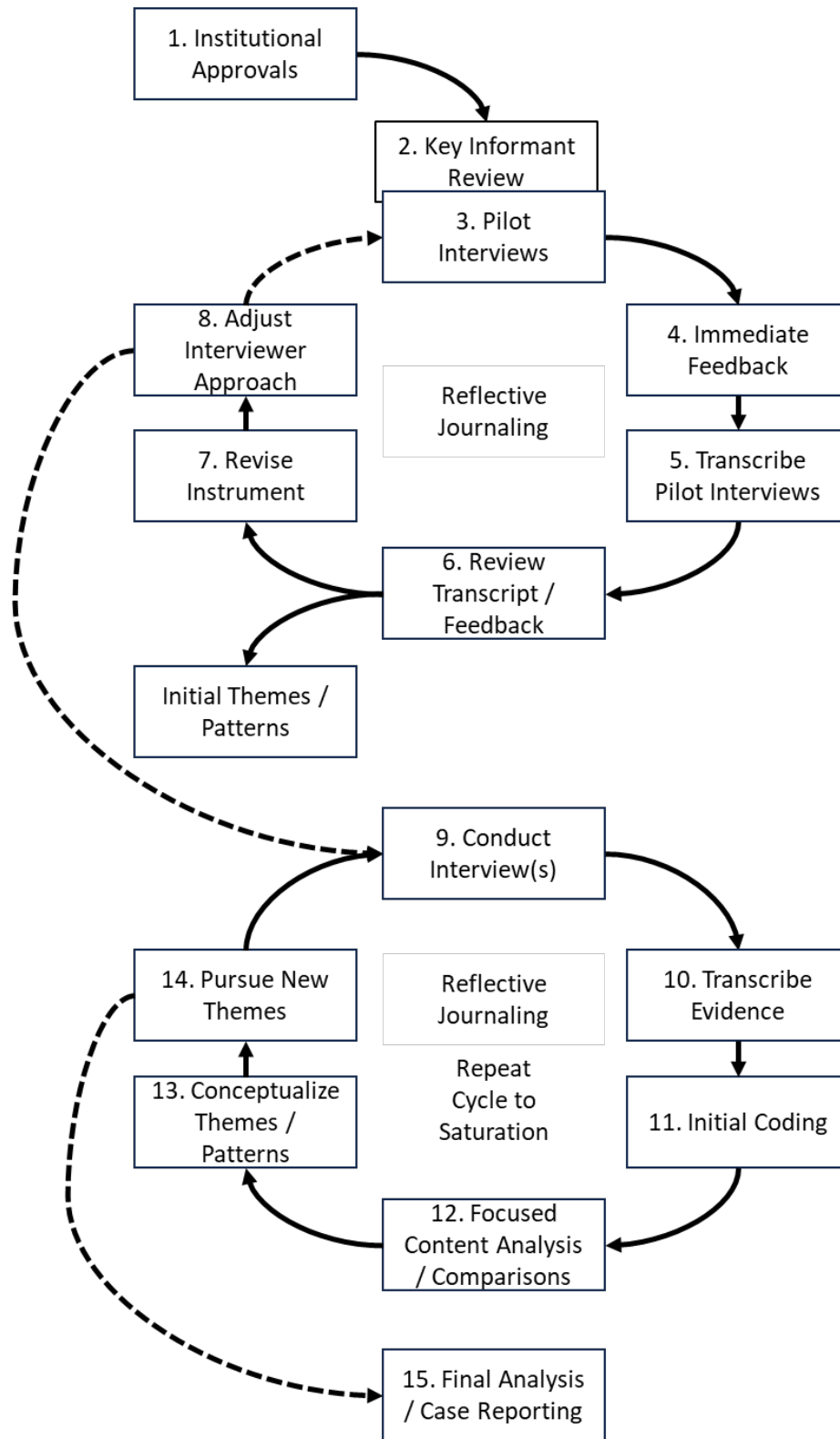


Figure 10 *Research Process Overview*

Institutional Approval and Ethics

The study was formally initiated following approval from the Graduate Committee and Institutional Review Board (IRB). Approval required detailed written and oral presentations on the intended research design and procedures to ensure compliance with established academic policy and research protocols. The author reviewed the Colorado State University IRB guidance to ensure compliance and prepare for these reviews. The author maintained a current training certification for Human Subjects Research Training from the CITI program as directed by Colorado State University through the completion of this study. The IRB guidance highlighted areas that require specific attention (e.g., deception or misinformation, Internet research, Native American research, human specimens, drugs, or medical clinical trials). The study did not involve any of these issues.

The IRB concluded that the study presented no more than minimal risk to participants and involved research “on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies” (HHS, 2023). No participants were included from a protected class such as children or prisoners. Thus, the study qualified for expedited review under U.S. Federal Law 45 CFR 46 §46.110. A copy of the IRB approval is in Appendix A.

The IRB application identified Dr. Thomas Chermack as the principal investigator (PI) and the author as the co-principal investigator (Co-PI). Additional details for the IRB approval included recruitment material, survey/questionnaire/interview questions, consent material, methodology chapter, and other documents or communication with participants. Informed

consent is a fundamental requirement under U.S. Federal Law 45 CFR 46 §46.116 and supports the ethical principles of respect for the individual, beneficence, and justice. A copy of the informed consent agreement that was used for this study is in Appendix B.

Ethical conduct is paramount to protect participants, promote research integrity, and develop trustworthy findings (Creswell & Creswell, 2018). Several potential issues with research may occur at any or all phases of a study. Creswell and Creswell (2018) presented a comprehensive list (Table 4.1) of considerations such as adherence to standards, respect for cultural norms, power imbalances, and confidentiality of participants. The author used ongoing open, honest, respectful, and transparent dialogue and conduct to remediate potential issues or conflicts during the study. This professional posture was established with participants at the outset through a package consisting of the informed consent agreement, an executive summary of the research, basic demographic questions, and primary interview questions. The information was clearly presented to help individuals decide if they wished to participate in the study. The information package can be found in Appendices B through D.

Adherence to Standards

This research was conducted within established standards of the Colorado State University Human Research Protection Program (HRPP) and U.S. federal law (45 CFR 46, 2018 Requirements aka “2018 Common Rule”). Informed consent (45 CFR 46.116 and 45 CFR 46.117) was established and maintained through an ongoing and open dialogue between the participants and the author. The participant recruitment and consent email are in Appendix C.

Respect for Cultural Norms

The author is an Air Force civilian employee and maintained the culturally accepted protocols and processes for engagement. These protocols are the appropriate courtesies and

professional respect that are expected between counterparts. Government restrictions on collecting data from personnel incur substantial bureaucratic and administrative coordination. The study was conducted outside official DoD or U.S. Air Force oversight due to time and resource constraints. The study did not require formal government approval, but the author provided an executive summary of the study for his government leadership as a courtesy. These leaders' endorsement, while helpful, was not necessary to meet the research objectives. A copy of the executive summary is in Appendix D.

Power Imbalances

The author is in a top-level technical position on the General Schedule (GS) pay scale. An individual's pay grade in government service is not the same as military rank but culturally confers some deference. Participants in the study were other Air Force civilians who were in lower and higher pay grades (i.e., GS-10 to GS-15). Perceptions of power or influence may have caused participants to provide an answer they believed the author wanted. More senior personnel may have attempted to use the research to promote a preferred position or misrepresent organizational realities. However, participants and the author were from different work units and supervisory oversight to mitigate any conflicts of interest. Potential imbalances were also eliminated through the data collection instrument design, establishing mutual respect during participant recruiting, and collegial dialogue during data collection.

Confidentiality of Participants

Participant confidentiality was a paramount concern for the author as questions could reveal uncomplimentary aspects of management, organizational processes, or system utilization. The association of an individual with an organization and their perspectives contradicts the intent

of the study and could compromise their professional position. A de-identification plan was used to ensure the confidentiality of participants and their organizational affiliation.

Data Retention and Safeguards

Administrative and participant data were digitally stored in a cloud-based database and local storage drive on the author's computer. These storage locations were configured with multi-factor authentication to limit access to only the author and the PI per the IRB requirements. Multiple locations were used to provide redundancy and were password-protected to ensure controlled access to participant information. The participant coding key was deleted from both locations at the conclusion of the study. Any association of the data with a specific participant cannot be established. However, response data will be retained for future analysis.

Preparation

Previous literature has presented a variety of epistemologies, theoretical perspectives, methodologies, and methods in the study of organizational forgetting. An analysis of research methods used to examine organizational forgetting in public organizations included the research problem, the central purpose or focus of the study, the research design, participants, variables, procedures, and key results (Creswell & Creswell, 2018; Gray, 2014). The author evaluated the tools used to find, collect, analyze, and interpret the information, as well as research findings to assess potential technical and methodological issues. Several factors were considered to assess the research including logical consistency, rigor or trustworthiness, validity and reliability, coherence, and congruence within the philosophical "world views" or paradigms of the researcher(s) (Creswell & Creswell, 2018). A representative sample of these methods was critically evaluated to identify a suitable approach for this study.

Mariano et al. (2020a) conducted a literature review of 29 empirical articles from 2004 to 2019 with direct or tangential references to unintentional or accidental organizational forgetting. More than half of the reviewed articles applied qualitative methods (n=17) to examine the phenomenon, and 14 studies applied case study analysis. Of the three qualitative studies that did not use a case study approach, one used critical discourse analysis (e.g., Treleaven & Sykes, 2005) and two conducted ethnographic studies (e.g., Ciuk & Kostera, 2010; Foroughi & Al-Amoudi, 2020). Critical discourse analysis would not support the research objectives of this study due to its focus on the language and power dynamics associated with marginalized individuals (Merriam & Tisdell, 2016; Marshall et al., 2021). An ethnographic study was also not feasible or appropriate considering the geographically dispersed and dynamically unique organizations in this study. The prominence of case study research on the phenomenon further confirms the selected method.

Case Definition and Units of Analysis

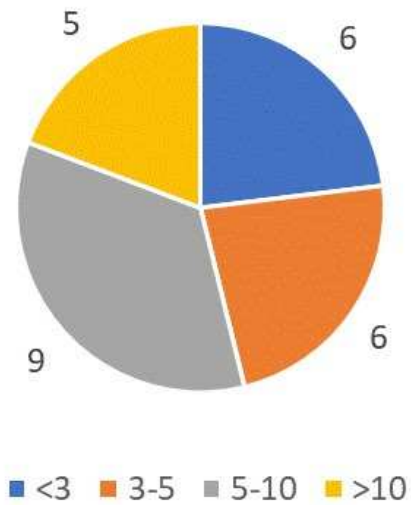
The bounding case of this design is government employees in strategic-level Air Force organizations. These strategic organizations are primarily responsible for management and oversight of lower-echelon, operational- or tactical-level units. Strategic-level organizations were selected for two reasons. First, the author had access to potential participants through professional contacts. Second, the majority of employees in strategic-level organizations are civilian personnel, compared to lower-level (i.e., operational- or tactical-level) units that tend to have a higher population of active-duty military personnel. Civilian personnel also tend to remain in major command and headquarters organizations longer than their military counterparts, which provides an enduring base of expertise and knowledge. Military personnel are routinely reassigned to new positions and organizations every two to four years. “As a result, U.S. military

personnel have little experience in their successive jobs, know little of tasks' histories or traditions, and cannot manage long-term projects effectively” (Starbuck, 1992, p. 721). Active-duty military personnel were intentionally excluded from the case due to the dynamic nature of active-duty assignments and organizational tenure. Almost half (47%) of all DoD civilian employees are military veterans who provide substantial experience in the strategic implementation of U.S. military forces (OPM, n.d.). Thus, Air Force government civilians in strategic-level organizations were more likely to offer a richer perspective of the phenomenon from a longitudinal perspective. On final analysis, 71% (19 of 26) of the participants have more than 10 years of government civilian experience, and of these participants, 79% (15 of 19) indicated that they had experience in other government organizations.

Different demographics and roles in the workforce were used as the embedded units of analysis, which provides meaningful comparisons and interpretations of organizational forgetting. Demographic units of analysis were categorized by their level of experience in government service. The average tenure of a federal civilian employee is 7.5 years (BLS, 2022) and was used as the differentiator during analysis. Role-based units of analysis were classified as 1) supervisory employees (i.e., directors, managers, and supervisors), 2) non-supervisory employees, and 3) recently retired employees. Retired personnel were expected to have rich and extensive perspectives on organizational forgetting. In addition, their perceptions of organizational efforts to “capture” their knowledge and expertise prior to departing government service proved particularly salient. Only one individual who retired within a year of the study timeframe was included to ensure that contemporary information was collected. Figure 11 illustrates the embedded units of analysis.



Time in Organization (Yrs)



Roles/Responsibilities

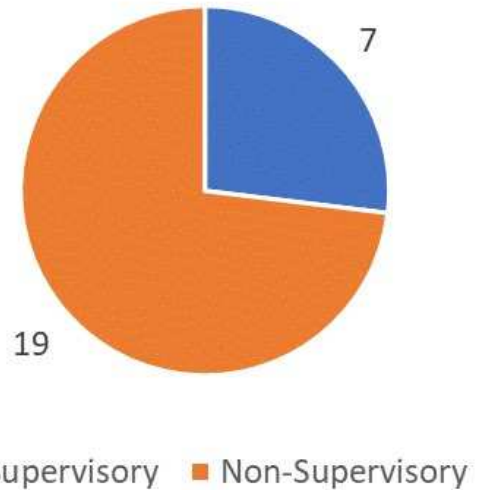


Figure 11 *Embedded Units of Analysis*

Interview Development

The forgetting literature identifies four basic organizational factors: individuals, processes, systems and tools, and structure or context (Mariano et al., 2020a). Similarly, knowledge management literature has identified success factors such as senior management support, developing and maintaining a knowledge culture, a clear vision or strategy aligned with the organization's mission, and technical and organizational infrastructure (Dalkir, 2017; Davenport & Prusak, 1998; Oliva, 2014). Extensive literature has discussed prescriptive approaches to improve knowledge management (Daghfous et al., 2013; Dalkir, 2017; DeLong, 2004; Harris, 2013; Levy, 2011; Levallet & Chan, 2019; Liebowitz, 2009; Martins & Meyer, 2012). These normative and prescriptive approaches are encapsulated by a variety of tools to assess how an organization functions and performs (Dalkir, 2017; Morgan, 2006).

Organizational assessment tools of knowledge management effectiveness were reviewed for use by the Air Force. Several quality management systems and assessment frameworks have been used to benchmark and manage organizations' performance and process improvement (Oakland et al., 2021). Prominent quality management frameworks include the APQC (American Productivity & Quality Center) Process Classification Framework, Baldrige Excellence Framework, the International Organization for Standardization 9000 (ISO-9000), the Deming Prize, and the European Foundation for Quality Management Excellence Award (EFQM) (Hill & Hill, 2011; Knowles, 2011; Oakland et al., 2021; Pesec, 2016). These quality management frameworks are used to systematically evaluate organizations' performance and productivity effectiveness based on supplies, inputs, processes, outputs, and customer satisfaction (SIPOC) (Oakland et al., 2021). Each quality management framework applies different standards in this basic model to help organizations ensure that they have the correct methods, skills, materials,

and processes to meet their objectives. Thus, comprehensive assessment and benchmarking tools are available to provide systematic analysis of issues in government organizations. They are generally limited only by the resources of time and initiative.

These assessment frameworks affirm a focus on individual perceptions, organizational processes, application of systems and tools, and the contextual elements that influence organizational forgetting. The frameworks were used to develop the interview questions. The interview guide is shown in Appendix E.

Final Preparation: Key Informant Feedback

An initial feasibility review was conducted with four key informants (i.e., subject matter experts) to identify significant issues with the intended research method (Merriam & Tisdell, 2016). In this initial assessment, the author solicited feedback on the recruitment language, consent process, and appropriateness of questions to meet the research objectives and improve study outcomes. The key informants were purposefully selected based on their experience in organizational knowledge management and civilian employment in the DoD. Information collected during the feasibility review provided an initial readiness check of the research plan. Key informant feedback supported the value and importance of the study, but it was not included in the study findings.

All key informants hold PhDs with extensive experience in the Air Force and U.S. government organizations related to the cultures, behaviors, leadership, and management of these organizations. The dissertations of the four informants are evenly divided between qualitative and quantitative methods. Key Informant #1 is a retired senior Air Force officer and government civilian employee with more than 40 years of combined service. His dissertation examined organizational performance based on the learning culture. Key Informant #2 is a retired

government civilian who has held positions as Chief Knowledge Officer at multiple strategic service and joint command levels. She has advised numerous PhD candidates in the fields of organizational behavior, leadership, and education. Key Informant #3 is a senior Department of the Air Force civilian employee with more than 30 years of experience across multiple levels of the Air Force. Her professional responsibilities have focused on research and analysis associated with industrial and organizational psychology. Key Informant #4 is a U.S. government civilian with more than 25 years of experience in program and knowledge management. His dissertation examined organizational elements to sustain institutional knowledge in a government organization.

The author conducted one-on-one online meetings with the key informants using Zoom and Microsoft Teams from January 9 to January 15, 2024. The key informants were given an executive summary of the research proposal with an emphasis on the questions and methods. Informants were not given the study's literature review or methodology chapters prior to the meeting. Each of the key informant meetings provided critical comments on the study and provided the author with confidence in the study's approach to the phenomenon. Interviews were recorded and transcribed for reflection prior to data collection.

The most prominent feedback issues include the following comments, and their feedback has been addressed as much as possible in the study. First, participants must understand what is meant by "organizational forgetting." More than one key informant advised the author that participants may not fully recognize the language used in the research or the different types of knowledge loss that is the basis for the study. Similarly, study findings must ensure clarity on the types of knowledge lost by the organization (e.g., individual cognition versus organizational memory) to follow and support previous studies. Another related feedback element from the key

informants was the primary research question. Specifically, the question inherently presumes that interview participants will recognize their organization's forgetfulness. This feedback was addressed in a revision to the interview guide.

Second, all key informants emphasized the need to describe the commonalities and differences between the organizations represented by the interview participants. This recommendation was addressed by developing basic descriptions of the organizations of the participants. The original approach was to solicit participants from four or five major organizations within the Air Force manpower and personnel management enterprise. However, using snowball sampling, additional participants from other major Air Force organizations expanded the list to eight organizations as previously presented. One informant also recommended distinguishing how knowledge is valued differently between the private sector and military organizations. Private sector organizations may measure the costs of knowledge loss through profit/loss analysis while military organizations must balance time and resources to life and death considerations. The commonalities and differences between the representative organizations are provided below with the participants' demographics.

Third, a common feedback element related to participant selection and the approach to reduce bias. The author initially identified four well-known counterparts to conduct the pilot interviews. However, to reduce potential perceptions of bias, this selection decision was replaced by four participants using a computerized, random selection of four individuals from the first 12 respondents to the solicitation. The selection method allowed the author to schedule pilot interviews while waiting for additional responses from other possible participants.

Data Sources and Participant Selection

Two data sources were used in the study: interviews and organizational documents. The primary source of evidence was semi-structured, problem-centered expert interviews (Döringer, 2021; Witzel, 2000) with Air Force civilian employees to develop a deep and rich understanding of participants' experiences (Patton, 2015). Conducting problem-centered expert interviews is an interview approach to gather implicit, interpretive expert knowledge from participants (Döringer, 2021). Problem-centered expert interviews combine well-established expert interview techniques to gather explicit, theory-building knowledge (Bogner et al., 2018) with dialogic-discursive methods to reveal participant perspectives (Döringer, 2021). This inductive-deductive approach is particularly appropriate as it focuses on participants' implicit perceptions of the organizational forgetting phenomenon (Döringer, 2021). The interviews and organizational documents provide comparative sources of evidence to improve the validity of this study (Yin, 2018).

Criteria for selecting employees was a minimum of two years of employment experience with their current organization or retired from the organization within the past year. The two-year minimum is the DoD's probationary period for new employees, and was determined as a reasonable period for any employee to become fully immersed in the complexities and dynamics of an organization. Recently retired personnel were included to provide a retrospective, potentially longitudinal perspective of the organization. Government employees with discontinuous employment in the DoD were included as long as they met the employment criteria. Active-duty military personnel were intentionally excluded from the sample due to the dynamic nature of active-duty reassignments. DoD civilian personnel tend to stay in an organization much longer and thus have broader organizational perspectives.

A combination of purposive and snowball or chain sampling of Air Force civilian personnel was used (Patton, 2015). Purposive sampling enabled the targeted selection of an appropriate cross-section of women and men, roles and responsibilities, and organizational experience for an information-rich case. Purposively selected individuals included professional colleagues and other individuals who the author knows through work-related collaborations. Individuals were identified based on the perceived value of their perspectives to the research objectives (Patton, 2015).

Snowball sampling allowed the inclusion of previously unidentified knowledgeable contributors. The author was cognizant of bias that snowball referrals may introduce. One type of bias is the tendency for individuals to associate with others who share their opinions and characteristics. Another possible bias is the author's sense of obligation to include referrals (Patton, 2015). Participants identified through the snowball technique represent 42% (11 of 26) of the total group. Some of these participants were identified by referral and others volunteered when they heard about the topic from colleagues. Purposive and snowball sampling of diverse participants supported data triangulation and saturation by expanding the data collection sources. Thus, this process improved the reliability of the study (Fusch & Ness, 2015).

The author initially identified four principal organizations with three to five potential participants from each organization. This purposeful sampling was to provide a more representative and more consistent interpretation of perspectives from each organization. Each organization's workforce predominantly consists of civilian employees. Participants from these four organizations represented 92% of the interviews. Individuals from other peripheral organizations were added for potentially contrasting and varying perspectives during data collection (Miles et al., 2020; Patton, 2015). Four other organizations were represented in the

sample with a single participant. Table 2 describes the eight organizations represented by participants.

Table 2

Organizations Represented by Participants

Number	Organization Description	Percentage of Civilian Employees
O1	The organization is principally responsible for the organization, training, equipping, and maintenance of the Air Force. The organization reports to the Secretary of Defense. Approximately 75% of the organization are civilian employees. The organization is led by a civilian and civilian deputy. Subordinate directorates are predominantly led by civilian employees.	~75%
O2	The organization is responsible for overall strategic planning, policies, management, and governance for all Air Force military and civilian personnel. The organization reports to the Chief of Staff of the Air Force. Approximately 75% of the organization are civilian employees. The organization is led by an Air Force general officer with a civilian deputy. Subordinate directorates are led by both officers and civilian employees.	~75%
O3	The organization is responsible for the requirements development and system integration planning for all Air Force manpower and personnel systems. Approximately 60% of the organization are civilian employees. The organization is led by an Air Force officer with a civilian deputy director. Subordinate directorates are predominantly led by civilian employees.	~60%
O4	The organization supports all Air Force personnel functions and programs around the globe. The civilian workforce is 1,000 civilian employees. The organization is located in the southern United States. The organization is led by an Air Force general officer with a civilian executive director. Subordinate directorates are led by both officers and civilian employees.	~50%
O5	The organization is responsible for recruiting, educating, and training members of the Air Force. It is one of nine major commands in the Air Force with approximately	~25%

Number	Organization Description	Percentage of Civilian Employees
O6	<p>15,000 civilian employees. The organization is distributed across multiple geographic locations, primarily across the southern United States. The organization is led by an Air Force general officer with a military deputy commander. Subordinate directorates are predominantly led by military officers.</p> <p>The organization provides the Air Force installation and mission support, development, test, evaluation and life cycle management for the entire service. The command has the largest civilian workforce in the Air Force, with approximately 68,000 employees. The headquarters is located in the Midwest supported by multiple activities across the United States. The organization is led by an Air Force general officer with a civilian executive director. Subordinate directorates are led by both officers and civilian employees.</p>	~85%
O7	<p>The organization provides investigative and law enforcement services for the Air Force. The organization reports directly to the Secretary of the Air Force as a designated executive agency with multiple field locations across the United States. The organization employs approximately 800 civilians. The organization is led by an Air Force general officer with a civilian executive director. Subordinate directorates are predominantly led by officers.</p>	~30%
O8	<p>The organization is responsible for the development and implementation of policy directly supporting Air Force operations in all domains. The organization reports to the Chief of Staff of the Air Force. The organization is led by an Air Force general officer with a military deputy. Subordinate directorates are led by both officers and civilian employees.</p>	~50%

The target sample was approximately 20 from the initial solicitation of 42 individuals to participate in the study. This sample size was expected to meet the study purpose and explicate the phenomenon within the available time and resource constraints (Patton, 2015). The participant sample size was also expected to provide thematic and theoretical saturation to improve study validity (Fusch & Ness, 2015; Guest et al., 2020; Saunders et al., 2018).

Saturation is a fundamental qualitative research concept that helps researchers bound data collection activities. Saturation is achieved when additional data fail to reveal new evidence, and the evidence stabilizes or becomes redundant around identifiable themes or patterns (Merriam & Tisdell, 2016). Saturation was evaluated by comparing the number of new themes revealed to the total number of interviews conducted (Guest et al., 2020). Empirical evidence has shown that 90% of themes were revealed within the first six to ten interviews (Guest et al., 2020). Thus, a sample of 20 individuals was expected to sufficiently reach saturation.

Initial contact with prospective participants was by phone and email. Individuals who expressed interest in participating were contacted a second time with a detailed solicitation and approval email. This email introduced the study, solicited their participation in an interview, and documented their informed consent. The participant recruitment and consent email are in Appendix B. A convenient time for both the participant and author was then established for a 45- to 60-minute interview session. Interviews were conducted either virtually via Zoom or Microsoft Teams collaboration platforms due to geographic separation of respondents and the author and based on the preference of each participant. Interviews were audio and video recorded with the participant's permission. The interview guide is in Appendix E.

Participants were primarily associated with Air Force personnel management and systems implementation between GS10 and GS15 pay grades. One participant was a member of the Senior Executive Service, or the highest level of civilian authority in the DoD. The participants were key agents and knowledge brokers in their organizations. Approximately 40% of the individuals invited are close colleagues of the author while the remainder are professional associates or recommended contacts.

The second data source was documentation (Yin, 2018), which provided additional evidence related to organizational forgetting and knowledge management in DoD organizations. Secondary sources were bound by functional relevance to ensure consistency and appropriateness to address the research questions (Gray, 2014). Documentation sources consisted of official publications and relevant organizational materials. Most of this documentation is publicly available and other documents were solicited from participants. Secondary sources were used to provide additional depth and richness to the case analysis (Miles et al., 2020).

The author was sensitive to potential bias from documentation in the form of selective deposit and selective survival (Gray, 2014; Yin, 2018) given that these biases influence what has been recorded and missing, respectively. However, selective deposit and survival biases were not expected to affect official publications. Official publications require extensive review and concurrence by multiple organizations and subject matter experts before final approval, thus eliminating selective biases. Nevertheless, the author was sensitive to potential bias in personally managed or locally developed organizational content.

Military organizations commonly apply a hierarchical structure to document sources from a broad strategic level to an operational level, and to the most detailed tactical level mirroring the organizational level of responsibilities and scope of control (see Figure 7). As guidance flows down the structure, processes and procedures must align with higher-level directions, and each subsequent level provides increased fidelity down to the execution level. This structure of guidance should capture the continuum from deep institutional strategic knowledge to the day-to-day process knowledge. The secondary sources provide a direct comparison of what is supposed to occur based on guidance with participant interpretations of how organizations actually

function. Thus, official documents provide a baseline of espoused knowledge management behavior in the Air Force. A sample of the documentation is summarized in Table 3.

Table 3

Hierarchy of Documentation Sources

Originator	Purpose/Scope	Example(s)
Federal	National level. Strategy, policy, and high-level vision to direct all elements of national power and influence in support of protecting America’s vital interests.	National Security Strategy (NSS); National Defense Strategy (NDS); National Military Strategy (NMS); OMB Circular A-130, “Managing Federal Information as a Strategic Resource”; Federal Employee Viewpoint Survey (FEVS)
Department	Strategic level. Captures, clarifies, and translates national guidance into Defense Department priorities and resourcing to meet threats. Provides ways, ends, and means to defend the nation.	CJCS Instruction 5760.01B, “Records and Information Management Policy”; CJCS Instruction 5780.01, “Joint Knowledge Management Program”; CJCS Instruction 5780.01, “Joint Knowledge Management Program”
Service	Organizational level. Operationalizes policy and guidance directives.	AF Manual 33-396, “Knowledge Management”
Organization	Locally developed business rules to guide routine day-to-day functions.	Standard Operating Procedures (SOP); “How To” Guides; Organizational network drives and directories

Data Collection

Yin (2018) presents four principles of data collection to strengthen the evidence and quality of a case study: 1) use of multiple sources of evidence, 2) establish a case study database, 3) document the chain of evidence, and 4) apply caution when using electronic sources of evidence (e.g., social media). The author used multiple sources of evidence as enumerated above. A case study database was used to capture the author’s notes, interview data, reflective analysis,

relevant archival records, and additional evidence (Lincoln & Guba, 1982; Yin, 2018). A comprehensive qualitative data analysis program called “MaxQDA 2022” (hereafter referenced as simply “MaxQDA”) was used to manage this database. Database evidence was mapped to the research questions to establish a chain of evidence and convergence on discernible themes or patterns (Ng, 2016; Patton, 2015; Yin, 2018). This process improved the strength of the evidence and quality of the study.

Semi-structured, problem-centered expert interviews were the primary collection method to investigate the qualitative factors of the research questions (Döringer, 2021; Witzel, 2000). It was important that the data collection method embraced the research questions and allowed participants to fully express their perspectives (Marshall et al., 2021). Semi-structured interviews balanced flexibility with the author’s ability to systematically explore the phenomenon (Patton, 2015). Interviews were conducted using a small number of open-ended questions. The interview discourse was initiated with a general opening question to draw attention to the issue of organizational forgetting and stimulate reflection on related thematic issues (Döringer, 2021). The opening question was a “warm up” to generate a narrative dialogue before going deeper into broader perspectives and specific themes in subsequent questions. Mirroring during interviews was used as appropriate to provide feedback to the participants based on their commentary and to enhance the conversational flow. The flow of problem-centered expert interviews is illustrated in Figure 12.

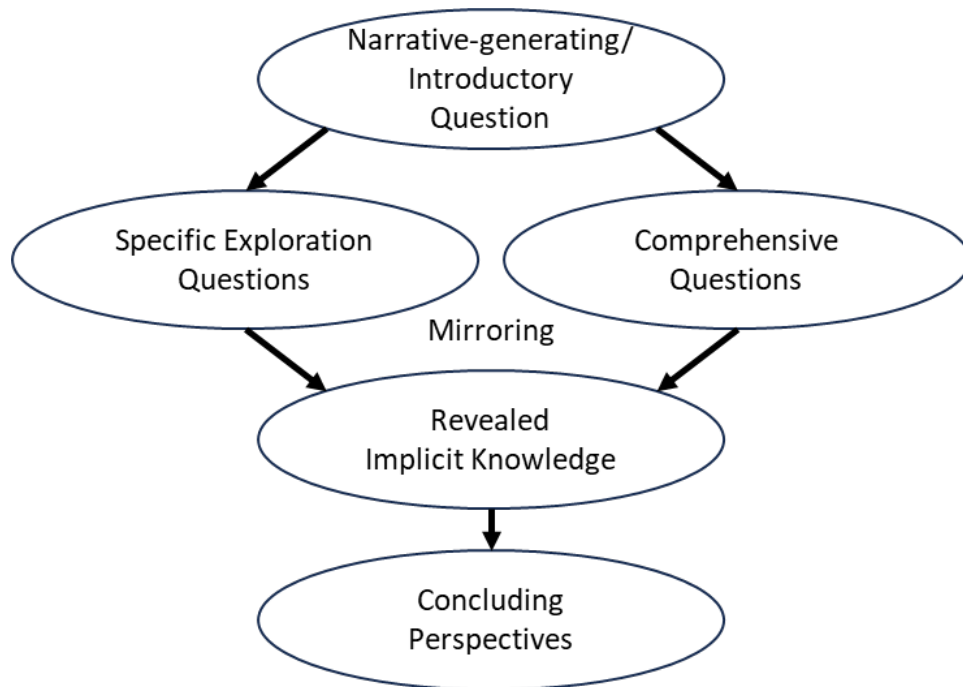


Figure 12 *Problem-Centered Expert Interview*

Note. Adapted from Döringer, S. (2021). ‘The problem-centered expert interview’. Combining qualitative interviewing approaches for investigating implicit expert knowledge. *International Journal of Social Research Methodology*, 24(3), 265-278.

Interview questions were intended to solicit answers but, more importantly, to help the participant reveal deeper perceptions and experiences that are critical to the research (Castillo-Montoya, 2016). These perceptions were elicited through a combination of experience questions, behavior-based and opinion questions, and value-based questions that were sequenced in order of ease to foster more robust dialogue (Patton, 2015). Using the same order for questions supports data saturation and maintains a logical chain of evidence between the research propositions and the collected data (Fusch & Ness, 2015). Other questions emerged from the dialogue, which improved the richness of the data. The order of questions evolved as the author gained experience and reflected on previous interviews (Merriam & Tisdell, 2016). The a priori

questions and associated follow-up questions provided both thick and rich descriptive evidence of the phenomenon (Bazeley, 2013; Merriam & Tisdell, 2016).

Pilot interviews were conducted to assess the protocol and refine the interview questions to improve the study results (Kohlbacher, 2006; Malmqvist et al., 2019; C. Watkins, personal communications, March, 3, 2023). The author used a computerized, random selection of four Air Force civilians from the first 12 respondents to test the collection instrument for suitability and support triangulation of the findings. Pilot interview data and feedback revealed the need for minor revisions to the interview guide. The pilot interviews also provided interviewing practice and experience for the author to improve the final case outcomes (Malmqvist et al., 2019; Yin, 2018). Information collected from the pilot interviews was transcribed, coded, analyzed, and contributed to the study findings. The pilot interview process is illustrated in Figure 13.

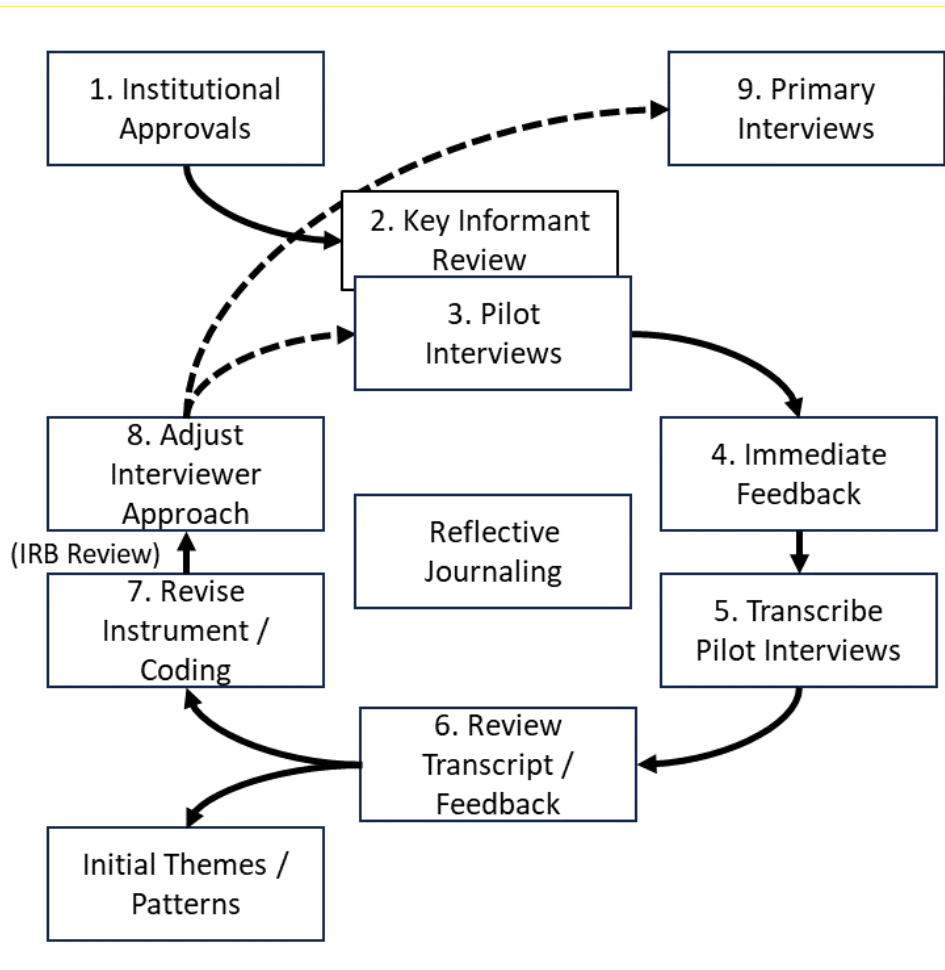


Figure 13 *Pilot Interview Process*

A total of 26 interviews were conducted between January 26 and April 12, 2024. Four pilot interviews were completed between January 26 and February 4, 2024. The pilot interviews revealed that minor modifications to the interview protocol were necessary, which necessitated another IRB review. The remaining 22 primary interviews were conducted between February 20 and April 12, 2024, with about three interviews each week to allow for journaling, transcription, and initial coding. Interview sessions lasted from 40-90 minutes, with an average of 64 minutes. The total time for all interviews was 27 hours and 55 minutes. The author assessed saturation before all 26 interviews were finished but conducted the remaining interviews with participants

in the last two weeks of the collection as previously scheduled. The last six participants reinforced the findings and also included a member of the Senior Executive Service (SES). As the most senior participant, this respondent validated the importance of the study for the Air Force and provided extensive depth of relevant knowledge. Since it is often difficult to schedule interviews with senior officials, the contributions of this participant warranted extending the interview schedule. Table 4 summarizes the participants' demographics.

Table 4

Demographic Summary of Participants

Participant Number	Age Range	Gender	Education	Years in Organization	Gov Civilian Years
P01	40-49	F	MS	3-5	5-10
P02	30-39	F	MA	3-5	5-10
P03	50-59	F	MA	<3	5-10
P04	60-69	M	MS	5-10	>10
P05	60-69	M	BS	5-10	>10
P06	60-69	M	MS	3-5	>10
P07	30-39	M	MS	3-5	>10
P08	70-79	M	MA	>10	>10
P09	40-49	M	MS	5-10	>10
P10	50-59	M	BS	5-10	>10
P11	50-59	M	MS	>10	>10
P12	60-69	M	MS	5-10	>10
P13	20-29	F	BS	<3	<3
P14	30-39	F	MS	<3	5-10
P15	60-69	F	BS	>10	>10
P16	30-39	F	MS	3-5	>10
P17	30-39	F	MS	<3	5-10
P18	50-59	F	MA	>10	>10
P19	30-39	F	MBA	<3	>10
P20	50-59	M	MBA	5-10	>10
P21	60-69	M	MS	>10	>10
P22	40-49	M	MA	>10	>10
P23	50-59	M	MBA	3-5	>10
P24	50-59	M	MPA	5-10	>10
P25	50-59	M	MA	5-10	>10
P26	50-59	F	MPA	<3	>10

Table 5 below compares the participant group to the broader Department of the Air Force civilian population demographics.

Table 5

Comparison of Study Participants to DAF Civilian Population Demographics

Age	DAF Population	Participants
Average (years)	46.8	50.9
Gender	DAF	Participants (#)
Female	28.9%	42% (11)
Male	71.1%	58% (15)
Military Service	DAF	Participants (#)
Retired Officer	4.7%	23.1% (6)
Retired Enlisted	18.5%	11.5% (3)
Some Military (Not Retired)	28.7%	7.7% (2)
No Military Service	48.1%	57.7% (15)
Length of Service	DAF	Participants
Average Years	13.4	14.9
Type of Work	DAF	Participants (#)
Professional	23.1%	61.5% (16)
Administrative	43.6%	3.9% (1)
Technical	9.7%	34.6% (9)
Clerical	1.7%	0% (0)
Other	2.6%	0% (0)
Blue Collar	19.3%	0% (0)
Education Level	DAF	Participants (#)
Unknown	0.20%	0% (0)
<H.S./GED	0.10%	0% (0)
H.S./GED	33.60%	0% (0)
AA/Some College	12.50%	0% (0)
BA/BS	25.10%	19% (5)
MA/MS	26.10%	81% (21)
PhD/Professional	2.40%	0% (0)

Figure 14 illustrates the demographic distribution of solicitation, participants, and DAF civilians.

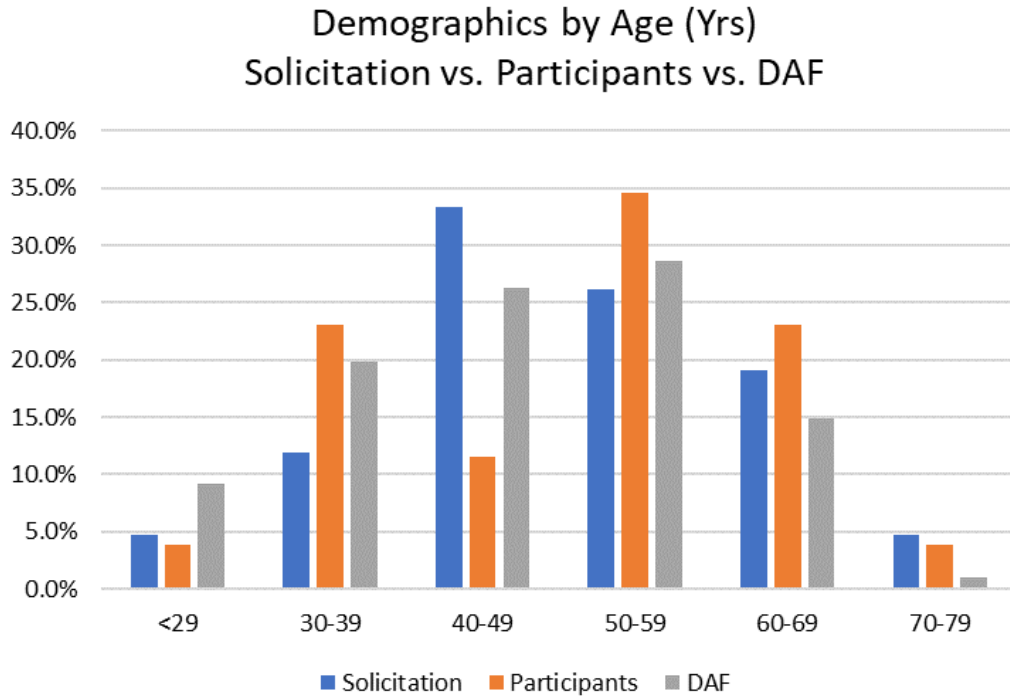


Figure 14 *Solicitation vs. Participants vs. DAF Demographics*

The Zoom and Microsoft Teams collaboration platforms automatically transcribed the audio. However, the transcriptions were moderately satisfactory and required additional manual corrections. Discrepancies were most often caused by the unique terminology and acronyms commonly used by the military. The author used MaxQDA and a professional transcription service to supplement the Zoom and MS Teams transcriptions.

Reflective Journaling

Reflective journaling is an important tool in qualitative research to enhance the depth of analysis and overall quality of the study (Bazeley, 2013). Thus, the author used reflective journaling and memos in hard copy and MaxQDA software to capture participant feedback.

Analytic memos and journaling throughout the iterative process of collection and analysis further bolstered the study (Miles et al., 2020).

Patton (2015) described the importance for researchers to develop a balance between description and interpretation of the evidence. Description captures the who, what, and where details, while interpretation is the subjective analysis of the why (Patton, 2015). Reflective journaling helped the author develop this balance. Thus, the author maintained a journal throughout the study to capture reflections on the evidence and process, providing another source of evidence for the study.

The author was sensitive to introducing reflexivity bias into the interview due to personal experiences, shared associations in the Air Force, and the conversational tone of the interviews (Yin, 2018). Thus, the introduction of reflexivity bias was addressed to ensure a trustworthy study (Lincoln & Guba, 1985). Key informant assessments and pilot interviews provided the author with valuable feedback and experience prior to the main data collection effort. The author focused on the interview protocol during the interviews and minimized conversational feedback on the participant's comments to reduce this interview risk. Yin (2018) highlighted the importance of the researcher's ability to listen well when conducting a case study. The author recognized that each demographic group's interpretation is influenced by their personal experiences and opinions. Thus, the author attempted to distinguish between organizational issues and personal biases.

The author used mirroring during interviews to ensure that comments were accurately perceived. The author also used member checking with participants to validate descriptions and analysis of comments after the interviews. Record keeping on both the processes and products

associated with the study further enhanced the trustworthiness and auditability of the data (Lincoln & Guba, 1985; Miles et al., 2020).

Data Coding and Analysis

Qualitative data analysis involves a methodical and logical distillation process to develop meaning from the data (Gray, 2014). Qualitative data analysis commonly uses a process of coding and categorizing to develop or refine a phenomenon's conceptualizations and theory (Corbin & Strauss, 2015). The systematic process enables the researcher to translate raw data into meaningful and supportable concepts (Miles et al., 2020; Patton, 2015). This translation is accomplished by the process of data reduction through coding, categorizing, and labeling patterns (Patton, 2015). A hybrid analytic approach that is both deductive and inductive was used to code and categorize interview data (Miles et al., 2020). This section describes the coding and analytic process that was used, as illustrated in Figure 15.

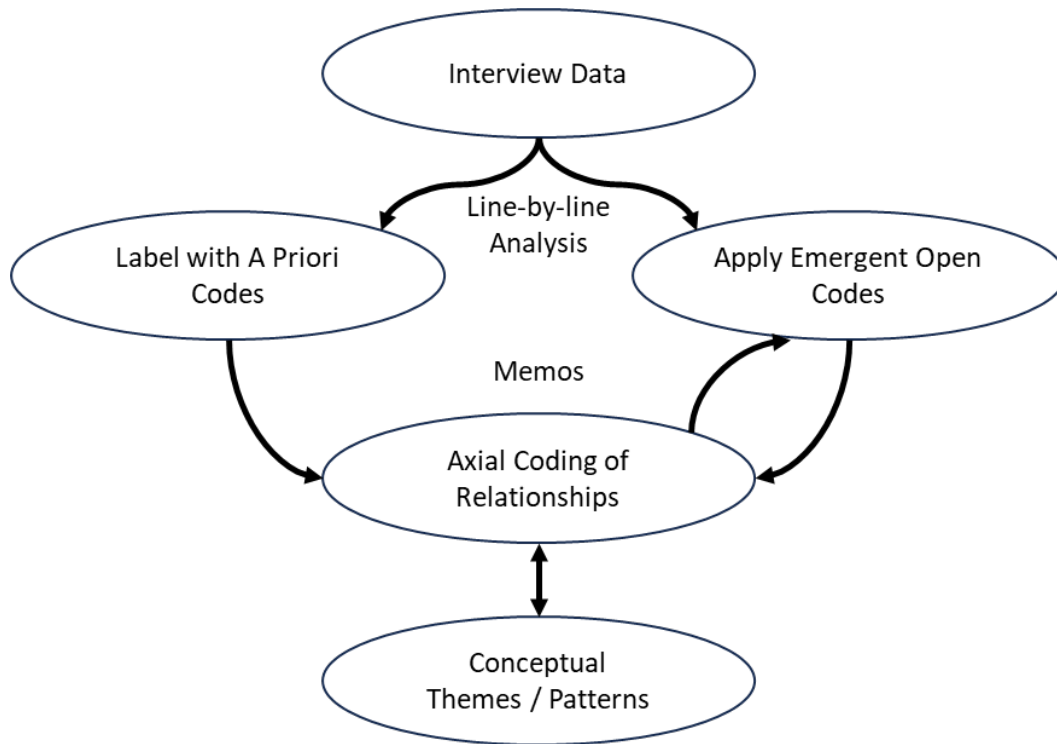


Figure 15 *Coding and Analysis Process*

The deductive baseline consisted of an initial set of a priori codes developed from existing conceptualizations. A priori codes, based on established concepts of the phenomenon, provided a foundation from which to explore new descriptions (Bazeley, 2013; Miles et al., 2020). Line-by-line examination was conducted to assign relevant codes (Glesne, 2016). The author was aware of potential risks if data are forced into preconceived a priori codes (Sandelowski, 1995). Thus, the author closely examined each interpretation.

New perspectives were expected to emerge as the properties and dimensions of the data are closely examined (Corbin & Strauss, 2015). Open codes were introduced to inductively identify emergent ideas from the evidence (Miles et al., 2020). Axial coding or categorization was then used to develop an initial set of 25-30 categories and sub-categories that reflect relationships in the data (Corbin & Strauss, 2015). The author was sensitive to ensuring

conceptual congruence and closely scrutinized the level of abstraction of each category (Merriam & Tisdell, 2016). Categories of information were aligned to develop patterns, themes and relationships as a result of focused content analysis. Themes, patterns, and relationships are asserted based on recurrence in the data (Patton, 2015). The resultant key themes and findings are presented in the next chapter. The data analysis process is illustrated in Figure 16.

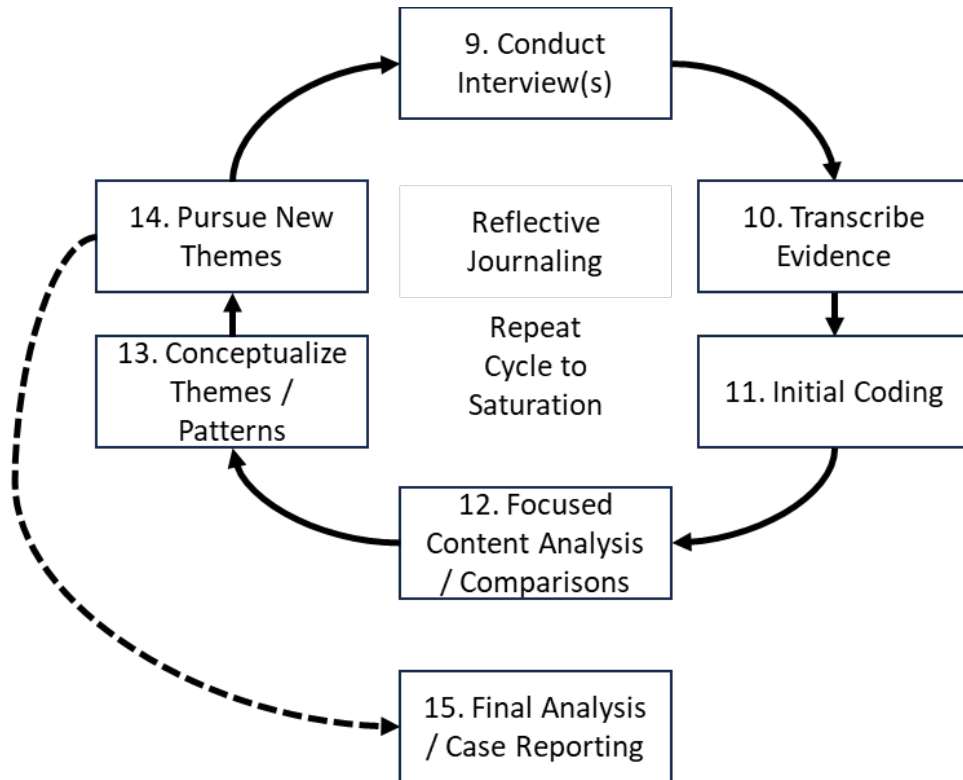


Figure 16 *Data Analysis Process*

A key feature of qualitative research is that analysis of data occurs simultaneously with collection to support the inductive process to develop a deeper understanding (Marshall et al., 2021; Merriam & Tisdell, 2016; Patton, 2015). A constant comparative method was used for data analysis, where each successive data element was compared and contrasted to previously collected data to identify categories of information (Merriam & Tisdell, 2016). This method was used to recursively assess if the data are associated in grounded theory methodology (Corbin &

Strauss, 2015). However, comparing and contrasting data to better understand a phenomenon was appropriate for this study.

According to Patton (2015), two criteria should be used to assess the appropriateness of the data categories for convergence on themes. First, internal homogeneity is how well the data fit together within a category. Data should be clearly associated and mutually supportive. Second, external heterogeneity is a clear distinction between categories. The categories should be easily recognized with minimal overlap. Where overlapping categories existed, the author repeated the analysis to clarify and reclassify the data to ensure accurate categorization. Thus, a recursive constant comparison process enabled the author to dynamically follow the tenor of the data and refine his understanding of the phenomenon (Corbin & Strauss, 2015).

The transition from data collection to analysis and from analysis to interpretation is not distinct in qualitative research (Sandelowski, 1995). Patton (2015) highlighted the importance for researchers to recognize the difference between descriptions and interpretations of the data. Thick and rich descriptions capture what is happening to help immerse the reader in the environment, enabling them to develop their own understanding. Interpretation is the researcher's creative analysis of why something is occurring and is set against the emergent patterns. The author's reflective journal and memos captured both the descriptive and interpretive notes for analysis. The interview guide provided a descriptive analytic framework for the case analysis (Patton, 2015).

Trustworthiness

An underlying objective of the study design was to provide trustworthy analysis of the phenomenon based on the criteria of strong construct validity and legitimate claims for external validity (Lincoln & Guba, 1985; Miles et al., 2020). A fundamental element of credible research

is quality data (Charmaz, 2008). The research design and method incorporated multiple strategies to ensure credible and trustworthy findings. This section reiterates the elements of the design and methods used to support valid and reliable research.

Interpretation and Verification

Miles et al. (2020) described 26 tactics to create meaning and verify conclusions from the data. Some of the tactics are not appropriate for all research but three to five are suggested to support analysis. Identifying patterns and themes is a fundamental “given” in qualitative research, and was used as previously described. Plausible explanations may appear without substantiation. These plausible findings were used as indicators for deeper investigation. Counting recurring themes is another tactic to identify prominent elements. Qualitative data analysis (MaxQDA) software assisted in counting commonly used words, phrases, and themes. The author was sensitive to recognize the basis of numerical information before interpreting undue importance. An example would be a high word count associated with commonly used organizational vernacular. Finally, a coherent interpretation of the data was supported by a systematic and logical chain of evidence (Yin, 2018). The author used other tactics for verification of the trustworthiness or validity of the findings, as described in the following sections.

Construct Validity

Construct validity was ensured using three tactics: multiple sources of evidence, establish a chain of evidence, and a subject matter experts review (Yin, 2018). First, multiple sources of evidence consist of semi-structured interviews, document analysis, and direct observation. Multiple sources of evidence helped the author assess the representativeness of the sample and triangulate the findings (Miles et al., 2020). Second, collected data were recorded in a database

and coded to create a logical chain of evidence from the research proposition to the findings (Miles et al., 2020; Yin, 2018). Key informants were used in the initial assessment of the study protocol and a subsequent review of the findings was conducted to support construct validity.

Internal Validity

A reflective stance was established through repetitive verification of the author's interpretations of participants' comments. Faithful characterization of the data was developed using three primary techniques to demonstrate validity (Gray, 2014). First, interviews were recorded and transcribed to ensure an accurate record of the interview. Second, mirroring or "member checking" was used during the interviews to check the accuracy of participants' intentions. Third, participant reviews were done after synthesizing the interviews. These techniques and a reflective posture moderated possible personal experience biases when capturing participants' information through critical self-assessments (Whittemore et al., 2001). Checking for researcher bias is a tactic recommended by Miles et al. (2020) to assess data quality. These techniques also minimized the author's improper inferences (Gray, 2014). These tactics ensured internal validity.

External Validity

Given that organizational forgetting is sufficiently commonplace in organizations, transferability of the fundamental findings to other organizations is realistic (Mariano et al., 2020a). Further study in other contexts was necessary to justify this assertion. Miles et al. (2020) offered several criteria for a study to enable a reader to assess transferability. First, the case description should be sufficient to allow comparisons in other contexts. Second, the report should highlight limitations that would impact broader generalizability. Third, thick descriptions and interpretations of the case should allow other researchers to assess the appropriateness and

transferability to their settings. Finally, the report should suggest other settings where the findings could be examined further. Each of these criteria are addressed in the final chapter.

Reliability

Miles et al. (2020) provided multiple criteria to evaluate study consistency. Some of the criteria are not applicable to this design. However, the author asserts that the following criteria were met during the study. First, the features of the research design are consistent with clear research questions and propositions. Second, the author explicitly described his position and association with the case. Third, the findings demonstrate coherence across the multiple data sources. Fourth, the analytic construct was clearly specified. Lastly, key informant assessments were used to review the protocol and findings. Thus, a reliable study was conducted.

Revisions, Strengths and Limitations

The research design was revised by the author and approved by the IRB after the pilot study to improve the focus and clarity of interview questions. An adaptive position was maintained throughout the study to address new revelations but with careful deliberation to ensure that research rigor was maintained (Yin, 2018).

A fundamental strength of this research approach is the consistent, logical, and systematic examination of a practical phenomenon based on an established qualitative design. The qualitative case study approach enables readers to better appreciate and understand the various contextual elements of organizational forgetting. The findings should relate to other organizations' experiences. Finally, the study on organizational forgetting in the Air Force fills a void in the literature and expands the current body of knowledge.

The case study is limited in terms of broad generalizability, and, despite the author's objective intentions, it likely reflects his professional biases or verification bias. The contextual

nature of the phenomenon may also limit the extension of any causal themes to other situations without careful examination. Given that organizational forgetting is sufficiently commonplace in organizations, some degree of transferability is realistic (Mariano et al., 2020a). However, this assertion requires additional research.

Summary

This chapter describes the preparation and method used to investigate tolerated forgetting in a DoD organization. The current conceptualization of organizational forgetting is challenged, and research questions are established based on the context of the study. The qualitative research design and case study method are described to demonstrate the trustworthiness of the research plan. These sections present a clear methodological approach to studying tolerated forgetting. While limitations are acknowledged, it provides a rigorous contribution to the field of organizational learning.

Many researchers have used qualitative case study methods due to the nature of the environment and varying contextual elements involved in the organizational processes associated with organizational forgetting (Mariano et al., 2020a). To date, research has extensively investigated the causes of organizational forgetting and knowledge loss, and the researchers have recommended solutions to alleviate knowledge loss. However, few researchers have deeply investigated why organizations fail to take meaningful steps to address this well-recognized issue. The author of this research found no investigations of organizational forgetting in the U.S. federal government or DoD.

The predominant terms of accidental and purposeful forgetting may not adequately describe the phenomenon in many organizations. Specifically, the author asserts that many organizations recognize the value of their knowledge resources and realize their vulnerability

when knowledge is lost. However, few organizations address knowledge loss at a practical level. A key question is if an organization is aware of the vulnerability but takes no action to remediate the risk, is the knowledge loss considered accidental or purposeful as the literature has suggested? The author asserts that it is not accidental or purposeful but is more appropriately described as “tolerated forgetting.” Tolerated in this context refers to someone or something whose behavior allows another individual or organization to continue patterns of behavior that may contradict espoused standards. This perspective introduces a new line of investigation to determine why organizations knowingly tolerate processes, structures, or activities that allow continued loss of organizational knowledge. A greater understanding of this organizational phenomenon was the objective of this research.

CHAPTER FOUR: FINDINGS

This qualitative case study explored the contextual issues that influence tolerated forgetting within strategic-level organizations of the Air Force as experienced by the civilian workforce. The research questions that guided this study are:

- **Research Question 1:** Why do Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies?
 - o **Sub-Question 1:** How do Air Force organizations prioritize knowledge loss in their learning and knowledge management activities?
 - o **Sub-Question 2:** How are organizational processes, systems, and culture managed to address knowledge loss?

This chapter is organized into four sections. The first section presents an overview of the findings to answer the research question. The second section describes the analysis of relevant knowledge management documents that establish policy for Air Force organizations. The analysis of policy documents establishes the objection component to tolerance (Forst, 2017; King, 1976) (see Figure 5). The analysis of policy documents illustrates a contradiction between acceptable and actual knowledge management behaviors in Air Force organizations. The third section describes the contextual findings from data collected through interviews. The contextual considerations are the acceptance component of tolerance (Forst, 2017; King, 1976) or the reasons Air Force organizations tolerate forgetting and willingly accept non-compliant behavior from established policies. The final section summarizes key themes to address the research objectives.

Overview of Findings

The findings are based on two primary data sources: policy documents and semi-structured interviews. Policy documents were used to identify established organizational standards of behavior. Interviews were used to describe why the organizations' behaviors are inconsistent with established policies described in the documents. Findings were developed using both deductive and inductive approaches to the interview data. A priori codes from the literature were aligned with the organizational elements of people, processes, systems, and context to provide an initial framework for analysis (Mariano et al., 2020a). Emergent open codes and in vivo coding were used to reveal additional details. These analytic approaches to the interview data were combined through axial coding and categorization to develop the key themes. Appendix F includes a comprehensive map of the codes, categories, and themes.

Four contextual and interdependent themes emerged from the data to illustrate why Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies, which is the primary research question. These themes and associated categories are summarized below and presented in Table 6.

Theme 1: Motivation and Values. Knowledge management activities are often relegated to other tasks and are dependent on localized efforts rather than a systematic organizational approach. These efforts are based on individuals' motives and methods.

Theme 2: Acceptance Culture and Accountability. Broad contextual elements have habituated organizations to knowledge loss. Lack of accountability and routine turnover of personnel contribute to an acceptance culture.

Theme 3: Strategic Management. Organizations are focused on short-term, urgent issues without explicit long-term guidance toward strategic objectives. Task accomplishment is frequently prioritized over broader outcomes.

Theme 4: Organizational Governance. Organizations were described as continuously operating with reactionary, undocumented business processes. Application of information systems for content management was generally left to individuals' familiarity more than organizational guidance.

Table 6

Tolerated Organizational Forgetting Thematic Framework

Theme	Category	Description (Prevalence)
Motivation and Values	Individual performance	- Assessment of work performed (176)
	Appreciation	- Value-based judgment of positive contributions (87)
	Recognition	- Impact of an issue, situation, or condition (60)
Acceptance Culture and Accountability	Process management	- Alignment of processes with organizational objectives (171)
	Systemic elements	- Broad external influences (48)
	Risk avoidance	- Indecision and inaction (23)
Strategic Management	Continuity	- Intentional planning for organizational and personnel changes (104)
	Prioritization of efforts	- Methodical work assignments towards long-term objectives (75)
	Organizational management	- Alignment of personnel and work to meet requirements (75)
Organizational Governance	Performance management	- Managed processes of work to meet objectives (137)
	Systems/tools	- Application of information systems technology (121)
	Roles and responsibilities	- Descriptions of work functions by the organization and individuals (117)

Theme	Category	Description (Prevalence)
	Decision making	- Intentional mechanism to guide activities and allocate resources (62)

The next section evaluates Air Force policy documents that establish standards of behavior and direct how Air Force organizations should manage organizational knowledge resources including people, processes, and systems.

Policy Documentation Analysis

Analysis of documentation (Patton, 2015) was used to compare the official directive guidance for knowledge management with local organizational policies and practices. Official guidance directs military organizations' actions and allocation of resources. The author sought to understand the history of the Air Force policy through document analysis including how policy was developed and how policy is implemented (Cardno, 2018). Detailed analysis examined the originator, audience, context, content, and objectives of the policy documents. The purpose of this analysis was to assess what the documentation says and also reveal the values that the policy is intended to realize in practice (Cardno, 2018). The analysis established an official posture for organizational behavior in the Air Force. Document analysis also provided additional rigor and trustworthiness of the study (Patton, 2015; Yin, 2018). Appendix G presents the detailed analysis of relevant policy documents.

This section first describes the primary motivations behind Air Force publications, followed by the management of policy documents and content. Last, key implementation documents are analyzed to explain how they influence organizational behaviors and practices.

Primary Policy Motivation: National Security Strategic Objectives

The U.S. government's vast library of documents describes functions and responsibilities to support the nation. Documents related to national security and the military cascade from general strategic descriptions to more refined implementation guidance. The policies and guidance implemented by the DoD and the military services are derived from the National Security Strategy (NSS), which is further amplified through the National Defense Strategy (NDS) and the National Military Strategy (NMS) (Heffington et al., 2019). These broad strategic documents illustrate the security challenges faced by the nation and are the motivation for supporting defense-related policies.

The National Security Strategy (NSS) is developed by the executive branch of the government to outline the administration's national security concerns and establish a common frame of reference with the legislative branch for oversight and resource management. The national strategic objectives provide the basis for DoD policy and guidance. The broad concerns of the NSS are addressed through the National Defense Strategy (NDS) published by the Secretary of Defense. This strategy is used by the Chairman, Joint Chiefs of Staff, to develop implementation guidance to the military services through the National Military Strategy (NMS). These strategic-level documents motivate and direct military organizations' actions and allocation of resources. The high-level descriptions of the NSS, NDS, and NMS provide the reasons (the "why") organizations must act while leaving the "what" and "how" to implement the strategic objectives to lower echelons to develop. The lower-level implementation guidance on knowledge management from the DoD and Air Force is the focus of this document analysis.

Policy Document Management

The DoD directs activities and assigns responsibilities to the military services through directives, instructions, and manuals by the authorities described in Title 10 of the U.S. Code, *Armed Forces*. Each service subsequently develops implementation guidance through service-level directives, instructions, and manuals to conform with DoD guidance and as authorized within subtitles of the law. Air Force authorities are described in 10 U.S.C. Subtitle D. The span of control and scope of authority are based on the organization's level in the military hierarchy.

There are two primary authoritative sources for official DoD and Department of the Air Force² publications. DoD documents are managed by the Directives Division of the Executive Services Directorate (ESD) of the Washington Headquarters Service (WHS). DoD publications and information about the administration of related programs are available at <https://www.esd.whs.mil/>. Air Force publications and forms are administered by the Air Force Departmental Publishing Office (AFDPO) under the oversight of the Secretary of the Air Force (SAF) Administrative Assistant for Information Management (AAI). Air Force publications, forms, and information about their development and management are available at <https://www.e-publishing.af.mil>.

Air Force publication management is detailed in the Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*. Air Force publications are organized hierarchically in response to DoD directives and instructions. Policy documents (PD) are used to delegate authority from the Secretary of the Air Force (SECAF) to the next lower echelon of the department, commonly referred to as the "2-letters" or "A-staff." The headquarters organizations

² The Department of the Air Force expanded in 2019 under 10 USC Chapter 908 to include the U.S. Space Force. Many publications are under revision to include the new language required to integrate the U.S. Space Force mission. Revised instructions use "DAF" for "Department of the Air Force" versus "AF" in their naming.

are called the “A1” for personnel, “A2” for intelligence, “A3” for operations, and so forth to align functional responsibilities.

The Headquarters Air Force (HAF) leadership establishes policy through instructions (AFIs) and manuals (AFMANs) that describe *what to do* and *how to do it*, respectively. This detailed guidance is further refined at lower levels of the organization, citing the next higher level of command as the directive authority. Formal processes are used to develop and maintain publications according to the level of authority and scope of oversight. Official Air Force publications are reviewed and updated nominally every four years or as needed per the Department of the Air Force Manual (DAFMAN) 90-161. The primary types of Air Force documents are presented in Table 7.

Table 7

Primary Air Force Document Types

Document Type	Purpose/Context
AF Policy Directives (AFPD)	Orders from the SECAF. Mandatory policy to initiate or manage Air Force activities.
AF Instructions (AFI)	Orders from the SECAF. Directs Air Force-wide action, ensures compliance, and/or gives detailed procedures. Instructions may be supplemented and more restrictive at any level below the HAF, unless stated.
AF Manuals (AFMAN)	Typically amplifies AF instructions with more guidance for Air Force functions.

Air Force instructions (AFI) and manuals (AFMAN) are numbered and serialized according to their functional category or responsibility akin to a library’s Dewey Decimal System. The first two digits indicate a functional area of the Air Force. There are 39 different

functional areas used to identify publications. Documents associated with communications and information management begin with 33- as the first two digits.

Air Force Knowledge Management Policy Documents

Knowledge management policy in the Air Force is described and guided by two directive documents: Air Force Policy Document (AFPD) 33-3, *Information Management*; and Air Force Manual (AFMAN) 33-396, *Knowledge Management*. AFPD 33-3 translates multiple DoD directives on information and records management into Air Force policy. The eight pages of substantive content of AFPD 33-3 describe information management, information access, records management, freedom of information, privacy and civil liberties, and IT accessibility programs. The last two pages describe the roles and responsibilities of senior headquarters organizations (SAF/CIO and SAF/AA) to implement these programs. Directive language is used throughout these pages to describe organizational responsibilities, such as “establish,” “develop,” “conduct,” “designate,” and “provide.”

AFMAN 33-396 provides Air Force personnel guidance on implementing practices to effectively “leverage knowledge as a strategic resource” (p. 1). The directive presents a comprehensive overview of knowledge management as a mission-focused, organizational program to integrate people, processes, and systems. “The focus of KM is on knowledge which the Airmen need to accomplish their work; improve processes, products, and services; and innovate to add value for the customer and organization” (p. 4). The directive differentiates knowledge management, data management, information management, and records management as distinct but mutually dependent efforts for organizational performance. AFMAN 33-396 further explains the competencies required for effective knowledge management across three fundamental organizational roles: knowledge workers, knowledge management practitioners, and

leadership. The objective effects and capabilities created by knowledge management are specified based on fundamental standards to improve organizational performance. The main content of the directive describes organizational roles and responsibilities for implementation of the guidance from Air Force headquarters down to the installation level. Attachment 2 of the directive presents thorough and specific descriptions of the core competencies necessary for effective knowledge management in a tabular format. This table illustrates multiple competencies within the fundamental categories of agile learning, decision cycle, enhance performance, KM program management, and shared understanding.

There are other instructions and manuals related to information management in the DoD and the Air Force. However, these publications are dominated by policy associated with the management of data, official records, content, and information systems rather than knowledge and expertise in organizations. An exception to this characterization is CJCS Instruction 5780.01, “Joint Knowledge Management Program” which is the only document that presents a holistic view of knowledge in organizations as an integration of people, processes, and systems. Additionally, it is the only document that describes the value of knowledge management for continuity and to remedy lost organizational knowledge. Appendix G summarizes the knowledge management policy documents.

Policy Document Analysis

Three prominent features were identified in the DoD and Air Force knowledge management-related documents: 1) focus on information technology, 2) emphasis on data and records management, and 3) directive language mandating compliance. First, policy documents focus on the use of technology for information management and content sharing. There are scarce references to the importance of human interaction and developing a learning culture to

retain knowledge. These references explain the importance of information sharing and the use of information in decision making.

Second, the documents emphasize data and records management requirements. The documents highlight the need for proper management of records according to U.S. statutes and to support operations. However, actual use of official, historical content is limited based on the author's career experience and perspective, which are also shared by many study participants. In particular, this point was validated by a key informant who asserted that most Air Force leaders fail to reflect on past lessons when deciding the way forward. Instead, they rely on their personal experience and "gut feeling." Policy documents also emphasize maintaining and sharing explicit content/records more than the human and process elements of knowledge management. These issues are consistent with the historical emergence of information technology in the 1990s and focus on the use of information technology to capture explicit knowledge in organizations. The technical and content-focused knowledge management culture was established by the federal government in publication OMB A-130 (OMB, 2016) and the focus continues through DoD and Air Force publications.

Mandated compliance is the third prominent issue associated with Air Force knowledge management policy documents. Directive-type policy and guidance publications require Air Force personnel, other individuals, and DoD organizations to comply, as described in the documents. Failure to comply with directives is a violation of a lawful order or regulation and may result in punishment under the Uniform Code of Military Justice (UCMJ) or administrative actions. DAFMAN 90-161 specifies language for enforcing non-compliance, which is required to be included in directive publications. The language is commensurate with the potential

consequences of non-compliance with a tendency toward non-punitive, administrative actions such as letters of counseling to correct behavior.

The primary Air Force directive for knowledge management, AFMAN 33-396, explicitly states that compliance is mandatory in bold, all capital letters on the title page. The instruction specifies responsibilities for the organizational commander and chief of staff. “Commanders will establish an organizational KM program and KM governance structure to improve the unit and execute the mission” (USAF, 2019, p. 13). Additionally, the Chief’s or Director of Staff’s responsibilities include “3.4.2.4. Provide governance, vision, leadership, and oversight for the organization’s implementation and practice of KM” (USAF, 2019, p. 13). However, no evidence was found of any administrative or punitive actions against any Air Force individual or organization for failure to comply. The Air Force Inspector General (IG) could not identify any records of relevant investigations or referrals for non-compliance punishment. Similarly, no audits of compliance or organizational processes related to knowledge management appear to have been completed by the Air Force Audit Agency (AFAA). The author acknowledges that individuals’ records were not accessible or assessed. However, none of the interview participants could identify a case of punishment for poor knowledge management or non-compliance with directives.

Accountability for non-compliance is challenging due to the unclear definition of who is responsible for standards enforcement. Directives identify particular offices that are responsible for actions within an organization, but these offices either cease to exist in an organization or are often reorganized and renamed. As a result, they disconnect the responsibility from the actual office that should be fulfilling the necessary tasks. Official publications also fall behind reality, which creates gaps in organizational awareness and responsibilities that expand over time

without effective management processes. These gaps are exacerbated by personnel turnover and organizational changes. For example, AFMAN 33-396 specifies that Air Combat Command (ACC) is the lead organization for Air Force knowledge management. ACC is directed to establish an Air Force Knowledge Management Capability Working Group (AFKM CWG) to meet at least monthly to build a community of organizational knowledge management professionals and discuss programs, training, and related issues. Air Combat Command's (ACC) CYSS division is the primary Major Command division to chair the meeting. However, the ACC/CYSS division no longer exists and the managing directorate, ACC/A6 Communications Directorate, did not recognize the division name "CYSS" in the organization. When contacted by the author, the front office of the directorate was unable to identify the replacement organization, or which office would have assumed the responsibilities. Thus, no organization is responsible for managing the Air Force Knowledge Management Capability Working Group (AFKM CWG) according to the established directive, and the working group no longer exists.

Interview Findings

Policy documents direct *how* Air Force organizations are to manage organizational knowledge resources. The contextual elements reported in this section illustrate *why* organizations do not or cannot manage organizational knowledge and why forgetting is tolerated in strategic-level Air Force organizations. Organizational forgetting was widely recognized and experienced by nearly all participants. Some participants had not explicitly considered the issues until they were introduced to the study and expressed their epiphany.

At the start of each interview, participants were asked about their general reaction to the tolerated organizational forgetting in this study. This introductory question was used to open participants' reflections on their experiences and establish a mutual context for the interview

(Döringer, 2021). The topic resonated with participants. Participants commonly expressed enthusiasm to share their personal experiences and opinions from their current and past organizations. Four participants asked if the study was officially requested by their leadership due to the culture and knowledge loss problems they were experiencing in their organizations. Participants expressed optimism that the findings would be shared with their leadership and practical changes would be made to improve their organization's effectiveness.

I didn't know if you picked the topic... It seemed so pertinent and like a huge, glaring problem in our office that I didn't know if it was something that you were already interested in or if you identified the problem and chose to explore it deeper... But obviously, the problem of institutional forgetting is huge in our office and huge in our organization. (P07)

It's something that affects us on a daily basis. ...It's a huge issue. And when I saw what you were doing, I thought, wow, this is pretty interesting. I hadn't heard anything like this before... (P04)

I think it's an endemic problem, especially at higher headquarters where they have a lot of turnover. I think it is incredibly costly to the American people, and it's incredibly frustrating as an employee to work in an organization that refuses to learn or won't commit the basic resources necessary to institutionalize remembering or keeping track of the work we've done and the lessons we've learned. (P01)

Four themes were developed from the interview data: 1) motivation and values, 2) acceptance culture and accountability, 3) strategic management, and 4) organizational governance. These themes are presented from the most abstract (motivation and culture) to most concrete (management and governance) to illustrate the complex relationships between contextual elements contributing to tolerated organizational forgetting in the DoD. Comments by participants often related to multiple codes that could reasonably align with more than one category and theme. Thus, the categorization and coding alignment was made based on the dominant tenor of the comment and context within the interview.

Thematic findings are described in the following sections using the prominent categories of each theme to address the primary research question. Each section begins with a summary of

the theme, followed by a table of codes and categories for the theme. Then the relevant elements are discussed and substantiated based on participants' comments. Parentheticals have been inserted into participant quotes to remove identifiable details or provide contextual clarity for the reader. Quotes have been shortened to focus on the relevant elements of the passage. The contextual themes and prominent categories are illustrated in Figure 17.

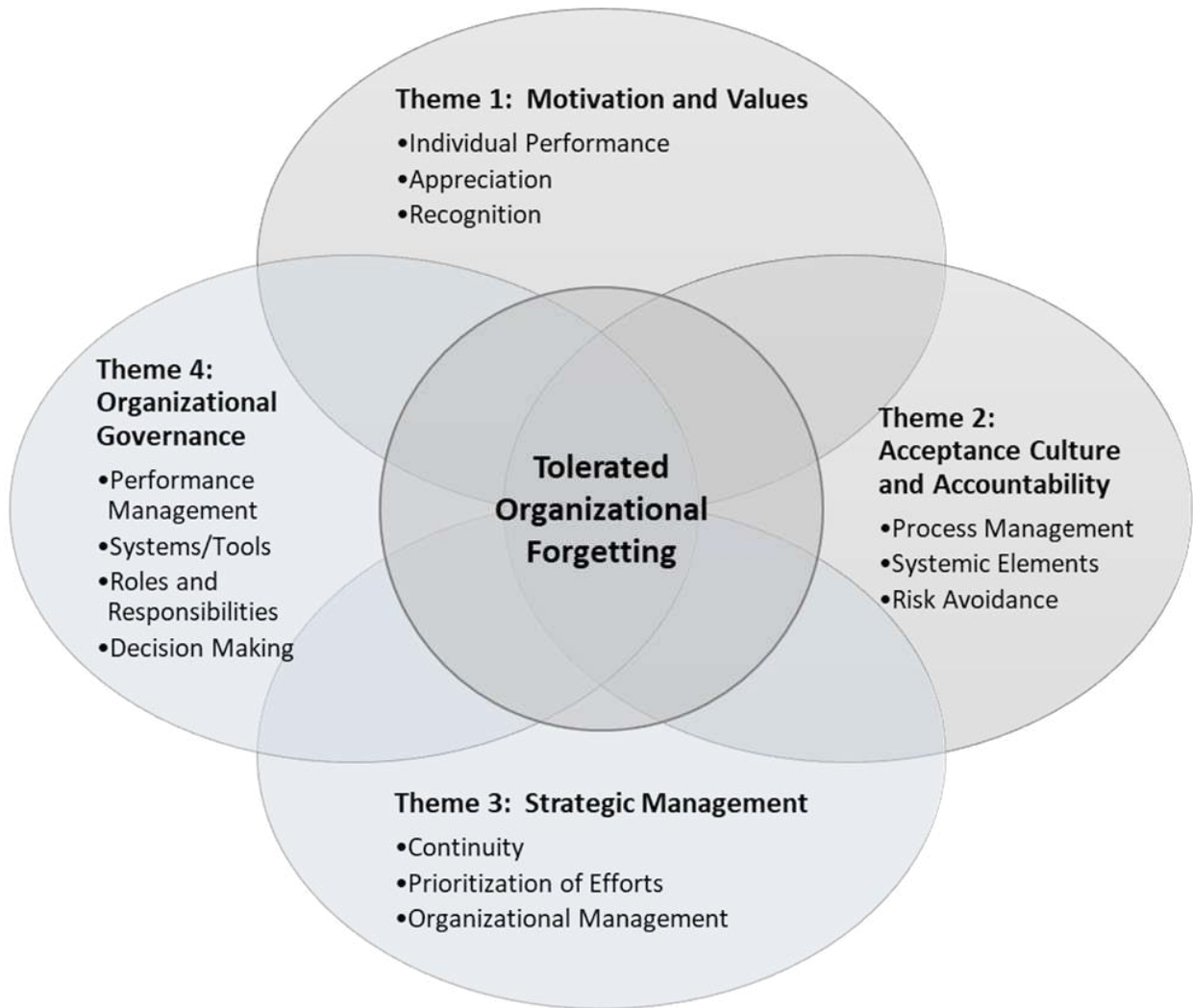


Figure 17 *Contextual Themes and Prominent Categories from Findings*

Theme 1: Motivation and Values

I don't think organizations intentionally forget. I think they just either don't care or they lack the awareness... (P15)

A common undercurrent in the interviews was the lack of organizational and individual motivation to address the phenomenon. Participants described their organizations as aware of the value of knowledge and impacts of knowledge losses. However, efforts to retain knowledge were relegated to other tasks and were often dependent on localized individual efforts rather than a systematic organizational approach. While participants reported that the value of knowledge is accepted, the effort required to manage knowledge is superseded by other organizational priorities. The findings suggest that prioritizing other organizational responsibilities may stem from a fundamental misunderstanding of knowledge management. Participants described how it is much easier for decision makers to focus their efforts on tangible articles like hardware or software than the impacts of knowledge loss. Measuring the value of knowledge is difficult as reflected by participants' views on the lack of organizational motivation to address knowledge loss. P10 captured this motivation, "Knowledge management requires more work than just producing artifacts." The thematic construct is presented in Table 8.

Table 8

Motivation and Values Codes and Categories

Theme	Category	A Priori / Open Code*
<u>Motivation and Values:</u> Knowledge management activities are often relegated to other tasks and are dependent on localized efforts rather than a systematic organizational approach.	Individual performance	<i>Awareness</i> Personal values and motivation towards KM Culture of individual focus
	Appreciation	<i>Value of knowledge</i> Motivation <i>Appreciation</i>
	Recognition	Leadership decisions and priorities <i>Lost skills</i>

Theme	Category	<i>A Priori / Open Code*</i>
		<i>Cognition</i> <i>Knowledge-inhibiting activities</i>
		<i>*A Priori Codes italicized</i>

Individual Performance

Individual performance was a prominent element for the motivation and values associated with knowledge management. Comments on individuals' motivations include the participant's personal awareness of organizational forgetting and the importance of addressing knowledge loss. Many participants described their efforts to maintain and share their knowledge as driven more by their own experiences, sense of obligation to others, values, and personal integrity than by organizational directives.

I think the goal should always be take that expertise level and leave that behind. Give that next person such a head start that it's not about wondering where to find things. It's about finding them, learning them, remembering them, applying it to them. So, you're not going to have a perfect transition of expert to expert, but you can have a much more efficient way of doing business. (P25)

I mean, you never know who's going to pick up the mantle..., but I feel a responsibility myself to make sure that anything I do is understandable by others and available to others, accessible. (P03)

It was important to me, but, you know, my boss was also very interested in ensuring that I passed as much information on to (my replacement) as possible. (P05)

Participants discussed how the Air Force culture recognizes the individual more than team performance, which affects individuals' motivation. Annual employee performance reports assess what an individual has achieved and do not include measures on individuals' contributions to longer-term organizational learning.

I think part of the problem is folks get rewarded so much as an individual rather than a team. When John Smith's two-year stint is up at his or her job at Headquarters Air Force, ...it seems like in their mind, they close the book, they close the door, they're gone, they get their evaluation. It doesn't really matter what happens next. It doesn't seem to matter to them. (P25)

I think the way we incentivize promotions, and the way that our promotion kind of, a goal works against our organizational knowledge and retention. Because it's not incentivized, it's not looked at and incentivized that way. (P14)

It's clear to me that we're not growing strategic thinkers, we are growing doers, firefighters. One of the reasons I have seen officers want to go into a job and ignore any knowledge that exists is then they're the firefighter, and the firefighter has a great annual appraisal. I saved us from disaster. The one that wrote, "I used the knowledge that was captured before me to continue operations in a smart way," does not rank as high. (P20)

Appreciation

Participants often expressed an *appreciation* for the value of organizational knowledge. However, participants also described that their work is driven by what their leadership is asking for or where they perceive the most immediate stress more than defined organizational objectives. Participants characterized knowledge retention as an afterthought in their daily work rather than an intentional systematic effort. Several individuals associated this mindset with the frenetic pace of their workday. Many individuals highlighted that time to document or share what they know simply does not exist and their organization does not make it a priority.

That's why people seem to go, you know, I could work my butt off, but nobody's going to care. That's the apathy that you get from a history of failed changes. (P01)

I think it's leadership. ...Like, I don't want to be called out, so therefore, I'm going to make sure that this represents the highest quality. That doesn't happen. There's not really accountability. So, then what is the motivation for people to excel if you get paid the same to sit in your cubicle and do nothing, or to be a really high performer? It comes down to intrinsic motivation. (P16)

One participant described another perspective on appreciation: how an extensive database designed to help make strategic decisions for a broad enterprise of systems is not used. It is only used when an artifact from the database requires approval rather than to help develop long-term plans.

Everybody knows it's a strategic decision-making tool, but I don't think anybody places any value in it. Really, I think the only reason people tolerate the people who are associated with it is because when you want to get an ATO (Authorization to Operate), you have to do some architecture. (P04)

Recognition

Recognition of knowledge loss by leadership due to personnel turnover and reorganization was described as an afterthought. Participants described how many individuals were performing duties outside of their official position descriptions in order to complete necessary work despite insufficient manpower. The result was that undocumented work and required skills to accomplish organizational tasks were often taken for granted by leadership. The lost skills were realized only when the individual was no longer available.

...and when he was gone, when they cut that billet (position), they looked at his list of things on his PD. They made sure those (jobs) went to wherever they needed to go, and they cut the person. But what was documented in the billet (description) is not what the human did. So, when that gap was discovered, it was like, 'that's not my job,' 'we're not taking over all that,' 'we don't have anybody with that expertise,' The knowledge was lost. We don't have anybody with that expertise and how could you replace him? (P01)

Not a lot of folks really appreciate what their employees are bringing with respect to skill and knowledge. We will look at those guys and use them beyond their PDs (position descriptions) because they have skills. And then, you know, when they leave, then we find ourselves in a bind because the guy stepped up beyond what his job was. I mean, it's something greater. And how do we react to that loss now? (P05)

He's one of those true knowledge brokers in this whole environment. But the system said, 'Well, you're working outside your job jar. Get back in your lane.' Then when they do need that knowledge, there's nobody there to fill the void. (P04)

A few participants highlighted the lack of attention given to knowledge management or awareness of the problem among leaders simply because the work was still getting done.

Participants shared that the required work was accomplished primarily due to diligence and hard work by individuals.

So, we try to highlight this to leadership in that, hey, these are fundamental things we need to do, particularly as you want to be more in a data-driven dashboard..., kind of driven methodologies to improve your OODA loop, let's say. There is a culture of assuming away that all of this (knowledge management) is working. (P24)

I would say on a surface level they recognize it. Oh, like that sucks for that team (when someone leaves), you know, sort of thing, but the empathy only goes skin deep... The work doesn't stop, and you have to continue to fill that gap and deliver the same amount

of work with or without that person...And so I also don't think they really grasp like the amount of knowledge that goes out the door with that person. (P02)

One participant described a meeting with their leadership while advocating for an organizational knowledge management program. The senior leader wanted an information dashboard to support decision making but failed to recognize how a comprehensive knowledge management program was required to deliver what he wanted or how hard his staff was working to deliver his current information products.

I was up in his (senior leader) office two months ago, trying to explain some things to him about how we were organizing information so he could have it at his fingertips, so he could get the information. And the response back was, 'Well, I'm not going to go look for the information.' So, you're worried about yourself and not the people who actually may have to find that, that you expect them to find the information right away. (P24)

Participants' comments reflect an awareness of the importance of knowledge management in their organizations, but organizational efforts to address knowledge loss were secondary to other priorities and individual motivations.

Theme 2: Acceptance Culture and Accountability

So, instead of actually following through and making the changes, we just continue with, 'Oh, well, so and so left, so that's why it's not done yet, because we're having to start over again.' ...that seems to be the easier route, and it's accepted. (P19)

Broad contextual elements habituate organizations to knowledge loss. The routine turnover of personnel and gaps in filling vacant positions are a fact of life in military organizations. The recurring "changing of the guard" and military "can do" attitude contribute to a culture of acceptance. The acceptance culture is built on how organizations are managed, systemic factors, and people's mindsets. Acceptance is reinforced when organizations or individuals are not accountable for non-compliance with established policy. Tacit approval for non-compliance erodes the systems designed to ensure consistent organizational performance. Deficiencies often become invisible, deviance from requirements is normalized, and tolerance

for non-compliance becomes part of the culture (Vaughan, 1995; Wong & Gerras, 2022).

Participants presented several contextual elements that contribute to a culture of acceptance for knowledge loss. The thematic construct is presented in Table 9.

Table 9

Acceptance Culture Codes and Categories

Theme	Category	<i>A Priori / Open Code*</i>
<u>Acceptance Culture and Accountability</u> : Broad contextual elements habituate organizations to knowledge loss.	Process Management	<i>Accountability</i> <i>Implementation</i>
	Systemic elements	Personnel turnover and transfer Assessing performance <i>Institutionalization</i>
		Leadership acceptance Workload Big AF culture
	Risk avoidance	Indecision Risk
<i>*A Priori Codes italicized</i>		

Process Management

Process management reflects comments on accountability, implementation of processes, and personnel transitions. Accountability of organizations and individuals was the third most common code across all interview codes. Participants described the lack of accountability at many levels of their organizations, further reinforcing an acceptance culture. Accountability included comments on organizational inefficiencies and individuals’ poor managerial decisions without repercussions. None of the interview participants could identify an instance of an individual or organization being held accountable for non-compliance with organizational directives or poor decisions.

The government tends to hide its aloofness, if that's the right word to put it. It's not really the right word. I'm not saying cover up or anything like that, but we tend to let people get

away with big mistakes that would otherwise get people in the industry fired. But it's so hard to fire a civilian, right? We have to come up with a better way to measure accountability and then enforce it. (P11)

We are really bad at accountability. In fact, I kind of alluded to it earlier where I said we shuffle people around or move them to a position that maybe is not the best position for them. Not because we're trying to do them a favor, but because we don't want to hold them accountable or ourselves accountable for anything that happened. And so, we push it to the side and sweep it under the rug. (P17)

Accountability is more difficult when decisions are based on the inclination of the moment or are based on who is in the conversation rather than a systematic analysis of alternatives and a record of how a decision was to be made. Participants frequently commented on the lack of documented business processes and decisions to establish standards or metrics to create accountability across levels of the organization. Implementing processes and policies to establish accountability was presented as a challenge by participants.

I looked at what had been done before and what we were doing, and it became real clear, if we're serious about that, we've got to put some processes in place. ... And there were really shortcomings where leadership would say things and they wouldn't happen. (Organization X) had other priorities. (P08)

It can take years to get policy written up here at the HAF level, worse than the installation level. (P18)

I've written documents, but they're more like thought pieces and they're guidance. But without a division chief, who's going to say, 'this is how we're going to do something,' it's no longer a guidance, it's just a thought piece. (P15)

Transition between employees through turnover was discussed as a prominent challenge for participants. Participants described how they had developed skills and expertise to do their job before moving to their current position. They shared how their organizations accepted the knowledge lost when they moved to new responsibilities.

I can tell you that when I moved from (job A) over to (job B), the vacancy just stayed. They never hired somebody else to do (job A). Nobody was doing the things that I was doing day-to-day. The program suffered because of it, because the chief (job A) was told she would have a senior underneath her working on her behalf, and she's had to do it all herself. (P07)

I built this whole program. I know it was valuable. I was told every day, all the time, that it was valuable. I built really good structures that the science, the research, the practice say are what you do in this organization, and it was all just wiped away. (P01)

I've been around for 16, 18 years in the service or as a fed civ, and what's the point? No one cares about records management. No one asked me for records. No one asked me for my emails or my files. Just move on to the next job. I think it's more of a lethargic sort of mindset. (P25)

Systemic Elements

Systemic elements that participants indicated contribute to the culture of acceptance include how leadership addresses knowledge management, workload demands on employees, and the broader culture of the Air Force. Many participants commented on how work requirements never stop, and the workforce must do its best to keep up.

...if the organization tolerates it, maybe it's just they're unaware that it's happening within the team, as well as they've just kind of accepted it to be kind of culturally what's normal with the culture of the constant turnover. (P13)

I don't think knowledge management on the GS side is a priority. And if it was, we have too many competing priorities just to get the right people in the right seats that it's just not. And even if it was a priority, I don't think the people, currently in the positions today, even know where to start with, like, what knowledge they would need to capture. (P19)

I often tell people that you have to be very healthy, physically fit, or have a great support system so that you don't get consumed. Because an example I use for people is, this is a machine, and a machine like an assembly line, it does not stop. If you work for Amazon or the post office and certain companies that have to generate so many widgets by the hour, and if you can't keep up, you're going to be injured. This organization is like that. (P21)

A participant introduced “toxic positivity” in Air Force culture to describe how the service often heaps glowing accolades on individuals rather than truthful constructive criticism. The participant who received the effusive praise knew well that the leadership was not satisfied with their performance and warranted a more modest appraisal. The following example illustrates their perception of a culture in the Air Force that is reluctant to be critical even when warranted.

My family came in last Friday and toured the (organization), and (the leader) came out to say 'hi.' (Leader) looked at them and said, 'Oh my God! We think (P26) is fantastic!' After we walked out, I turned and I looked at them and I went, 'Shh...(Leader) does not think I'm fantastic...' (Leader) could have said, 'We think (P26) is a hard worker.' Yes, I do work very hard, and I think (leader) would say I work very hard but (leader) went with 'fantastic' because of the toxic positivity of the Air Force. (P26)

Risk Avoidance

Several participants described the *risk avoidance* culture of the Air Force. Participants shared opinions on why many Air Force leaders are reticent to make decisions. Participants described the internal cultural disparity between functional elements of the organization to illustrate why decisions were often deferred. Indecision in the organization was frequently related to a fear of accountability for a poor decision or desire for consensus.

You don't solve anything by talking about it... Make a decision, move out, do something. 'Well, I don't want to do anything, because if I do something and it doesn't succeed, I can't walk on water anymore, and then that will reflect on my OPR' (Officer Performance Report). (P24)

...the IT culture and the HR culture are polar opposites. That in IT, we're very authoritative, somebody's got to make a decision. ... When we make a decision, we're going to move out. And then in the HR community, the meeting after the meeting where decisions are all questioned, and we all think through things again. ...in the (HR) community, the decision wasn't right unless everybody said yes. (P20)

...it just seems that nobody wants to address the accountability piece, or there's something about our culture that causes people to shy away from that. (P08)

We're so unwilling to take risks that we won't put metrics in place. So, we're not even doing our mission objective, our mission objective as a portfolio is to report and provide performance metrics. We're so afraid of failing that we don't begin. (P14)"

I was just astounded that we would have these so called 'decision making bodies,' decision making meetings but there was never a table slap. It was like, nice to see you. You might have a heated discussion about well, we should do this, no, we'll do that, but nothing comes out of it... I see it, you know, the reason behind it. I don't know if people are just gun shy. (P12)

While leadership indecision was decried by participants as a cause for poor productivity, one participant shared his experience from the opposite viewpoint.

I have been to meetings where after the meeting, the (leaders) stay behind, and they talk about how intentional they were in not giving direction because they could be wrong. There's a (leader) rule that says, you don't offer anything. Your goal is to get your staff to recommend something, because then it's on them, it's not on you. (P20)

Other participants pointed to leaders who were reluctant to establish processes and make decisions. For example, one participant had presented his commander with a knowledge management framework to establish standard organizational processes for information governance. In this particular case, the participant was frustrated by a senior leader's inability to establish policy and lead the organization.

And he (senior leader) said to me, 'Hey, we need to see what your usage number of your webpage is so we can figure out whether people want to use it or not.' I thought to myself, "This isn't a want-to-use scenario. We're a military organization. This is what we use. Use it. I'm not [in] a business that is trying to attract your attention. I'm telling you; this is how we do it." (P24)

When participants were asked if they could influence their organization's knowledge management business practices, most expressed a limited ability to change their organization. Some participants expressed surprise that their efforts to affect change were frequently met with resistance.

I just think a lot of individuals want to operate business as usual, because that's kind of, if it's not broken, don't fix it kind of mentality. (P13)

Nobody wants to force anybody to do anything. To implement a knowledge management process is going to be painful... They can't write them (their business processes) down... And the thing is, if everybody has a process... If you identify—if we start tracking your process, then I can't blame it on somebody else. (P26)

The interviews revealed a general culture of acceptance of knowledge loss across organizations. Participants often highlighted examples of an acceptance culture and the reluctance to enforce accountability as key contributing elements to knowledge loss.

Theme 3: Strategic Management

Senior leaders talk about strategic goals, but if you look at what they actually do and are concerned about, it's the operational goals, it's what they're feeling at the time. (P08)

An organizational focus on short-term, urgent issues without explicit long-term guidance creates strategic blindness for the organization. Participants described a lack of a strategy to establish organizational objectives and guide their work or associate their efforts with a broader vision. The absence of strategic objectives was often decried as a principal reason for reactionary work, ad hoc decision making, and the absence of performance metrics to assess progress. The strategic management theme transitions from the first two more abstract themes of organizational motivations and acceptance culture to a more concrete element of the organization. The thematic construct is presented in Table 10.

Table 10

Strategic Management Codes and Categories

Theme	Category	<i>A Priori / Open Code*</i>
<u>Strategic Management</u> : A focus on short-term, urgent issues without explicit long-term guidance creates strategic blindness.	Continuity	Government-contractor balance Transition process <i>Knowledge Sharing</i> <i>Learning</i>
	Prioritization of efforts	Urgent vs. important issues Constantly changing priorities and tasks Competing priorities of different leaders
	Organizational management	<i>Organizational design</i> Lack of expertise <i>Organizational restructuring and churn</i>

**A Priori Codes italicized*

Continuity

Managing *continuity* of knowledge in participants' organizations was often related to balancing the expertise between government and support contractors, personnel turnover, knowledge sharing, and learning in the organization. The most prevalent issue in this category

was contractor support provided to government organizations. The support was characterized by several participants as yielding skills and expertise to transient external sources instead of developing it internally.

We become increasingly reliant on that contractor workforce as we progress along, and as they come and go, they take more expertise with them, and we get dumber and dumber. (P05)

I think that's caused a lot of, not chaos, but a lot of concern within leadership to kind of adjust the job duties of who is left on the team and what work needs to be picked up, because the contractors have a lot more knowledge ... and they had a lot of projects that were kind of in the middle of development that they just had to leave behind and transfer over to us, that maybe myself and the team don't know exactly how it functions, how it operates, and what's all encapsulated in that project. (P13)

P18 went so far as to recommend that an entire organization of internal personnel be replaced by an outside contractor team, conceding that the government does not have the required skills and knowledge for the mission.

Maybe we just contract out the entire (organization). That's always something that I have said and (leader) always cringes. But if you want the best product to serve your military, then maybe we just need to get the right skillset. Maybe we just don't have it... Everything is being dependent on the contractors to do it. (P18)

When participants were asked about their organization's continuity planning or personal transition plan when they decide to leave their position, most participants admitted that neither exist. Participants acknowledged that they recognized the importance of continuity, but it was not a priority for the organization when confronted with other issues. Some participants described their personal approach to ensuring someone else could find the necessary information to take over their responsibilities. Participants also acknowledged that when someone left their organization and provided directions about the necessary content to enable the next person to take over, the new person rarely had time to actually find and use the information.

I haven't really thought about the transition. And that's why it's a good point because when I take leave, I typically take my computer with me, and I don't go longer than a week away. So, it's not like I'm off the grid totally. And that's a bad thing for me. I should

be paying more attention to it..., but I just get caught in the workflow, the battle rhythm. (P06)

Everybody kind of has their silo keeping of files. We have no continuity books in the (office). (P26)

Down at my level, communication about the essentiality of continuity, continuous learning, I don't see it. I just see that in my small work center ... we're focused on every day, is not only getting the job done and helping folks and coordinating things, but we're also constantly talking about documenting information. (P25)

I think resources and time are the biggest issues that we struggle with because unless you want to work 12 hours a day and, you know, go through somebody else's inbox and files in your spare time, it's never going to get done. And we, even as a team, hardly have time to meet throughout the week just to talk about upcoming priorities, let alone discuss lessons learned or potential issues. (P02)

Related to continuity of knowledge in the organization, participants related the value of specific individuals who provided connective tissue between the present and past decisions.

We have people that have been here four and five years, and they're just the go-to [people] because they're the only people who have been around long enough to know what happened with that project that got left on the shelf or why something hasn't moved for two years. ...If they were to walk out the door tomorrow, then it's totally gone. Nothing is written down outside of email. ...It's just sprint, sprint, sprint forward, don't look back, don't worry about it, don't write anything down. (P07)

Prioritization of Efforts

Prioritization of efforts was characterized by participants in the context of both the internal business processes and the outward-facing organizational work. These findings contribute to answering sub-question 1 of the study. Almost all participants identified the tempo and dynamic demands of their work as a key element contributing to forgetting. The workload of participants was described as a competition between the urgent priorities of leadership and the important issues for their organization. The result of these competing demands on the organization is that the urgent and changing priorities of leadership often pushed aside anything else such as knowledge management.

But I think with that lack of direction, it does affect our prioritization, or in some cases, lack of prioritization, like we have a lack of strategic direction. (P20)

Day-to-day, it's hard because I never know how to vector my team to support things. Everyone is kind of forced to jump from project to project and manage multiple things. There's not a lot of stability in the requirements. Something is always new, and it pops to the front of the line, and then the prioritization goes to that until it's done, and then we move on to the next thing. So, there's no road mapping of my 18 to 24 months. I go day by day not knowing what is going to pop and what needs to be addressed, and why it all of a sudden is the top priority. (P16)

Yeah, the shiny pennies—'oh let's do this.' And whenever you shift, I mean if you have the organization moving in a direction and they go 'Oh no, we're going to go in this direction.' Guess what? You've got to ramp down from what you're doing, you're going ramp up to what your new direction is, then eventually you might get back to where you were going. So, you had to ramp back down and ramp back up again. You can see how inefficient and ineffective that is. (P12)

Everything is in the present. Nothing is about the future. (P09)

I believe your boss's priority is your priority, rightfully so. We have big problems in the world. We're concerned about certain countries and areas of the world and conflict that could be coming our way. So rightfully, those are big things to concentrate on. But there's also the administrative machine, I think, that needs to be concentrated on. ... It's like mission first. We're more combat focused. We're not worried about the admin stuff. (P25)

Many participants described specific organizational examples of constantly changing priorities because they had no long-term view to focus the organization.

There are different personalities, different fears and assumptions and ideas about the way things should work. It creates a lot of churn within the staff because you don't know who to listen to, you don't know whose priorities to tackle, and then you spend a lot of time kind of deconflicting things. So, it's definitely muddy. (P16)

I think nobody sees the immediate value of knowledge capture. Like, we can always rationalize that I have more time before (individual) leaves or (individual) leaves. We always have more time to do that later, and there are things with deadlines. (P20)

One participant was involved in a project that required sustained organizational support. He found that constantly changing leadership and their priorities stymied his efforts despite the acknowledged value of the project for the organization by senior leadership.

I think when there's a lot of turnover in leadership and then they have their own agenda or they're getting oriented, and I just wasn't high enough in the structure or the pecking

order to be taken seriously, although whenever I briefed on it, people said, yeah, this is a good thing. (P08)

A few participants described efforts in their organization to share knowledge. However, the examples were limited, and more often, participants cited a lack of time to offer or pursue learning opportunities. Informal and localized exchanges to share knowledge were illustrated in participants' comments. Only one organization had implemented formal knowledge sharing and learning opportunities.

From day one since I've been in this job, she has been passing on information, documenting information, tell us where she documented the information. And we all do that. We're all doing that every day. We'll run into some strange situation where (higher headquarters organization) have a new edict on how this or that will be done, and we update our documents immediately... We're constantly communicating that to each other. And she was doing that up until the day she left. (P25)

Lunch and Learn is one of the ones (training/sharing venues) that the general and our senior executive do, and they're full all the time... We have courses that come out. And again, it's all driven by our director of staff. They have a section that just does all the education, and they develop programs and send them out every month. (P21)

Other participants offered contrasting perspectives on knowledge sharing in their organizations. These participants' comments suggested that sharing knowledge requires more work or additional effort by individuals to seek knowledge.

I feel like when I do share information that I think is relevant... trying to figure out when to give them (leaders) information of what you're working on. Because sometimes giving them information causes more work, and we all don't want more work. (P10)

Maybe I just don't know where that (other person's content) is, where that's located, but I think that is something that should be communicated to all team members, to know that not everything is happening kind of in each individual's own silo, in their own kind of bubble that's not being shared with everybody else because then it gets very confusing, at least from my part, what I've observed. I don't really know what other people are doing unless I go and ask them. (P13)

Organizational Management

Organizational management captured participants' perspectives on how their organizations are designed and structured to meet objectives. Participants related their

experiences of often unclear organizational relationships, roles, and responsibilities. Some participants believed that this ambiguity was intentional by some leaders to avoid accountability or to avoid losing the flexibility to make decisions.

I've never seen a more dysfunctional organization in my life. ...It doesn't help that we're in DoD, in bureaucracy and everything, and even though (Organization A) is quasi over (Organization B), but (Organization B) outranks (Organization A). So that just adds to the mess, right? (P19)

I think that it's easier to get what you want done in chaos. And so, if you don't have rigid rules on what everybody's doing, what people should be doing, what we're responsible for as an individual, what we're responsible for as a branch, as an office, as a sub directorate, whatever it may be, then you can kind of work within the chaos to do what you want. And I feel like I see a lot of that where if somebody doesn't get the answer that they want, they just move over a person or move over an office and get it done anyways. (P07)

Participants also described the challenge of the alignment of skilled personnel with the work required. The misalignment was attributed to unclear responsibilities and unaffordability of the correct skillsets.

A lot of these people in these organizations are (human resource) type specialists. Not IT people, not software engineers, none of that. Because, again, at the very top, planning has never occurred. It fails every time. They don't think it through. So now they're doing it with who they have. They're going to the fight with who they have and what they have, instead of sitting down and saying, all right, I want to create a software factory. (P09)

Participants frequently described how their organizations were challenged to develop or maintain a strategic outlook resulting in decisions focused on the near term.

The problem is when we write those (strategies), they go on a shelf, and they go away, and nobody really cares. And then all those people who wrote those, even just a year and three months ago, are gone. And so, the fluidity of the people is really, really the problem. (P07)

Strategic management in the organizations was characterized as non-existent or unpredictable. Organizational focus on short-term, urgent issues resulted in strategic blindness and reactionary work.

Theme 4: Organizational Governance

So, there's no what I call governance, at all. It's just whatever and whomever wants to do that day. (P09)

The most prevalent theme from participants' comments related to how their organizations are governed. Governance in this context included the organizations' business processes, rules, and standards to accomplish work. Organizational governance should align with the organizations' strategic plans to achieve their objectives (Holmes, 2006; Jennex, 2008). Within an organization's established bureaucratic structures, business processes to manage work and achieve organizational objectives were commonly described as reactionary and undocumented. Undocumented processes for work were often attributed to the dynamic nature of organizational tasks in the moment and the lack of strategy, as discussed previously. This thematic construct is presented in Table 11.

Table 11

Organizational Governance Codes and Categories

Theme	Category	<i>A Priori / Open Code*</i>
<u>Organizational Governance:</u> Organizations continuously operating under reactionary, undocumented processes.	Performance management	Lack of business processes Governance Compliance
	Systems and Tools	Technology and record keeping Digital literacy Technical change Technical adoption <i>Accessibility</i> <i>Physical repositories</i>
	Roles and responsibilities	Cohesion and collaboration Work priorities Workplace roles Managerial agency <i>Information flow</i>
	Decision making	<i>Leadership advocacy</i> <i>Poor record keeping</i>

Theme	Category	A Priori / Open Code*
		Resource investment <i>Politics</i> Challenging to maintain knowledge
		*A Priori Codes italicized

Performance management encompassed participants' comments on the lack of processes, governance, and compliance. Participants illustrated how their organizations generally relied on ad hoc approaches to work rather than using documented processes. One participant explained how the lack of governance in a system development activity resulted in more work than the organization could effectively manage. The organization ultimately delivered a product that had to be redeveloped due to poor processes and oversight.

...And because there was no governance or even capacity planning in place, ...it became an overrun. And that's how we ended up with (application) being really not great... So, we had to then go backwards and redo things and make sure. And then instead of being willing to 'cut the cord' and say, 'You know what? This needs to stop. Let's fix this.' We kept going and it snowballed until it became a really big problem... The lack of governance has been our continued downfall. (P17)

Another participant from the same organization as P17 commented on the same development initiative and lack of accountability.

I don't think they're holding anybody's feet to the fire. I think they're pushing people out and hiring people that they believe will make a difference and they are the right people, but they don't know what needs to be done and they don't know what they're hiring for, so the wrong people continue to be hired. And instead of holding anybody accountable and keeping them around long enough and having the difficult conversations and saying, 'get it together,' they just get rid of them and bring someone else new in. And it's a vicious cycle of tolerated forgetfulness. (P19)

Governance of information *systems and tools* emerged from comments on how organizations use technologies for knowledge management. These findings contribute to answering sub-question 2 of the study. The use of information systems for content management and business processes was characterized as dependent on the motivation and capabilities of

individuals or small work groups. Participants expressed a wide variety of perspectives on their organization's technical skills, digital literacy, and use of information systems. Prevalent in the comments was the lack of guidance or documented best practices to effectively manage the organization's knowledge resources. Training for common productivity tools, such as MS365, is available but generally left to an individual to pursue it.

I would say it (digital literacy) differs from team member to team member. There's not an overall training that everyone has to go through to use SharePoint properly or Teams. There are best practices that are communicated from leadership to do this and not do that, but there's no documentation behind that. (P13)

I think locally, I think we have pockets of people that do very well. I know when I was in (organization) I used the SharePoint and OneNote extensively. And then in this position, we're definitely using Teams quite a bit. We will collaborate and centralize our information. So, I've seen that in pockets, but I don't think it's across the board. (P12)

A common sentiment among participants was the volume of data that must be managed but is often lost due to inconsistent or poor practices. Participants indicated that the use of information systems for content management across their organizations changed frequently. In one instance, a participant described how his small team had been very methodical about developing their knowledge management practices and content repositories to ensure continuity. Unfortunately, during a system migration, someone outside of the team deleted the directories without any coordination and the team was forced to recreate as much as they could.

It's overwhelming, the amount of data that we're swimming in data, and we can't find the islands of information. (P15)

The different three letters (divisions in the organization) think, well, we're just going to do it our way. Then that comes back to the accountability. That comes back to the, well, in (Division A), you do it this way, in (Division B), you do it this way. I work up at the (Front Office), for example, how do I find anything? The general wants it now, so I have to wait for this one Major who's the only person on the planet who knows where to find this piece of information. Wrong answer. (P24)

We have a handful of people that use Teams, and if they were to get hit by a bus, all of their information is in Teams, and somebody could go in there and it's accessible to everybody. Somebody could go in there and pick up where they left off. And then a

majority of the organization, it's all just word of mouth and what's in your head, and when they're gone, they're gone. (P19)

Roles and responsibilities for knowledge management included comments on organizational challenges with collaboration, establishing priorities, and aligning individuals to the work. Participants highlighted how undocumented work created gaps in skills and the social fabric when personnel left.

...and when he was gone, when they cut that billet, they looked at his list of things on his PD (position description). They made sure those (jobs) went to wherever they needed to go, and then they cut the person. But what was documented in the billet (description) is not what the human did. So, when that gap was discovered, it was like, 'that's not my job,' 'we're not taking over all that,' 'we don't have anybody with that expertise.' The knowledge was lost. We don't have anybody with that expertise and how could you replace him? (P01)

Participants frequently shared how the work they perform was not reflected in their official job description. With little organizational governance and documented job descriptions, supervisors and employees performed the work that was perceived as necessary at the moment rather than work that was assigned through systematic management.

I've had two roles in this organization, and both times I was introduced to the new role, there was nothing written down on paper about what the job should be, what the job was supposed to deliver, what the expectations were of that job. (P07)

She was applying for a job, and she saw that what she has done in the past seemed to match what USA Jobs was asking for. But when she talked to the hiring manager, it turned out that the write-up was completely different than what the job would actually be. (P25)

It was commonplace for individuals to see an organizational need and do their best to address the need.

Not a lot of folks really appreciate what their employees are bringing with respect to skill and knowledge. We will look at those guys and use them beyond their PDs (position descriptions) because they have skills. And then, you know, when they leave, then we find ourselves in a bind because the guy stepped beyond what his job was. I mean, it's something greater. And how do we react to that loss now? (P05)

It's always that last line and the PD (position description) says, 'other duties as assigned,' but no, you're right. I mean if it (work responsibilities) expands too much and then you try to back fill that position you're going to lose that (expertise)... I know when I was in (organization) they (position descriptions) were extremely old. I mean, like some of them were 15 to 20 years old. But I think they're getting better on that, because of all the restructure, they had to update those PDs. (P12)

Ninety percent of the people at (organization) who were working on the (project) build and program are working above their PD (position description). (P17)

Decision making in participants' organizations was associated with leadership advocacy, record keeping, investment of resources, politics, and organizational commitment. Participants described who made decisions on how the organization needed to move forward. They recounted how whoever was the most senior leader in the room made the decision for the day.

...it's just, okay, whatever the highest-ranking person told me to work on today is what I'm going to work on. And we end up putting out terrible products and things that have tech debt and no enterprise architecture because it's just push whatever, just make it happen, just get it out there. And it's not good... there're no processes in place because nobody allows for a process to even be followed because everything is just so last minute. I need it now. There's this sense of ad hoc panic constantly. (P19)

Decision making was generally described as inconsistent. Participants described meetings where key individuals with the requisite expertise were not invited or present. Other meetings to decide a course of action often ended with indecision. For example, enterprise architects are used in complex technical activities to ensure sound development planning. However, participants with architecture expertise discussed how decision makers often did not understand or appreciate the added value of this functional role.

Decision making is really spread out all over the place... It's definitely not coordinated. It's just. you know, people make decisions based on things that they hear in meetings. And I guess the higher up you go, the more powerful, the more impact is each decision... A decision is made. Then we all go in a direction. And oftentimes it seems like these strategic decisions are made... All these chief technology officers are not in the room. Enterprise Architecture is not in the room, and we move forward to do something. So, my question is always, who works for who and who's the ultimate decision maker and who's got the ultimate strategic plan? (P04)

Decisions were described as the outcome of a system sunset, financial motivation, and politics more than performance. Drivers for decisions were presented as reactionary to external factors.

We had that looming deadline on us, but we had to get all this, all the applications and everything off the (system) before it shut down. So, what did that drive? That drove what we called “dead with all cause.” I mean all cause. That means people working astronomical hours, software that was being released with bugs in it... it was not the same capability as the customer was used to. They called it a “minimum viable product.” All around it was lose, and lose, and lose. Because of the decision of making that timeline was with the contract. (P12)

The engine room, as I call it, would be (organization)... They're given specific timelines like, ‘Hey, we need to roll this out, we need to shut down these physical servers, and go to the cloud.’ So, they're under constant pressure to basically produce new systems or applications a little bit quicker than maybe they should have. (P06)

Participants also described an environment where the organization was not committed to addressing the problem of knowledge loss.

I think the communication overall is what's most important, and I don't think that is prioritized in my current organization, as well as maybe across the board. The knowledge sharing isn't a priority when it should be, and letting things kind of be forgotten is a cultural norm that I think should be addressed, but nobody wants to address it. (P13)

I've been around for 16, 18 years in the service or as a fed civ, and what's the point? No one cares about records management. No one asked me for records. No one asked me for my emails or my files. Just move on to the next job. I think it's more of a lethargic sort of mindset. (P25)

Participants characterized how politics and personalities affected knowledge management in their organizations.

Memory is convenient when it is used in a contrary way. ‘We tried that once, but it didn't work. Remember when you did that and how horrible that went?’ (Leader X) loves those kind of contrarian examples in the history. But when it comes to the history of how we rolled something out, what worked, what didn't work, that does not seem to be anywhere. (P01)

Because we don't have that profit-minded mentality, it's very hard to prove when we're on the right track and we're developing things that are right. And what happens is that personalities get to control what the products are. And these personalities in the government shift at least every three years. (P09)

Embedded Units of Analysis

Different demographics and roles in the workforce were used as embedded units of analysis. These two organizational units of analysis were expected to provide meaningful comparisons and interpretations of tolerated organizational forgetting. Demographic units of analysis were defined by an individual's level of experience in government service or physical age. The average tenure of a federal civilian employee is 7.5 years (BLS, 2022) and was used as a differentiator during analysis. The average level of government service among participants was 14.9 years, nearly twice the federal average. This difference is likely attributable to the strategic level and size of the organizations represented in this study. Specifically, large strategic organizations provide an easy transition from active duty into a civilian role.

The demographic unit of analysis was intended to illustrate generational or experiential differences of the tolerated forgetting. About a third (31%) of the participants had less than 7.5 years of government service. The author anticipated that less experienced, often younger participants would have greater reliance on information technology to manage knowledge. This demographic was also expected to highlight a decreased sense of forgetting in the organization based on increasingly robust search capabilities with information systems. However, comments among all demographic groups were consistent and no substantive differences in perspectives were found. For example, both demographic groups indicated that younger employees tended to embrace change more readily and were more adaptable to new ideas than most of their more experienced counterparts. However, the commentary revealed that flexibility, adaptability, and comfort level with new technologies was more often simply due to the individuals' personal characteristics instead of their age or experience. Comments by P13 and P07 represented the younger demographic group whereas P01 and P25 represented the older demographic group.

There are a lot of things (technologies) that I think people are just hesitant to use because their lack of knowledge in it... And for me, it's been natural for me... It's something that I kind of grew up using... and for other people, it might not be that way. (P13)

I don't want to blame the age. I want to blame the comfort. And I'll tell you why. It's because we work in technology. So, I could see if we were, I don't know, artists or something that didn't have a lot to do with technology. I could say, oh, yeah, they're just older, they're not going to learn the computer. But we do have to learn computers and we do work in technologies. (P07)

We do have a variety of skill sets and the older you are, the less likely that your skills are up to par for what we need in our organization. And it's not necessarily a function of how old you are. It's a function of what you use in your private life and if you use a lot of advanced technology in your private life, then you're really able to do it in your work life. (P01)

It doesn't seem to me to be an age thing. It just seems more about the person's experience and sort of their interest, their aptitude. If they have the interest and aptitude to learn things and get around things, then they're probably going to have some tricks. (P25)

One participant from the more senior group suggested that the younger demographic may not be as motivated to document knowledge because of where they are in their careers compared to an older, more reflective employee.

We have a lot of senior leaders who are willing to learn, but really, they just don't know. So, there's a literacy problem in our wisest class... And then on the other hand, the people who are the most literate, the younger folks. They're less interested in creating that historical record because they're not thinking about their legacy yet. (P01)

Participants' comments did not reveal significant differences in perspectives on knowledge between older experts and younger novices as the literature has indicated (DeLong, 2004; Lantigua, 2016). One older participant asserted that the younger demographic is less likely to read documents or instructions than those in the older demographic.

Role-based units of analysis were classified as 1) supervisory employees (e.g., directors, managers, and supervisors), 2) non-supervisory employees, and 3) recently retired employees. Retired personnel were expected to have rich and extensive perspectives on organizational forgetting. In addition, their perceptions of organizational efforts to "capture" their knowledge

and expertise prior to departing government service proved particularly salient. Only one participant was retired, but he provided valuable longitudinal perspectives on knowledge management and forgetting. A common theme between the supervisory and non-supervisory employees was the lack of adequate time to reflect, document, and assimilate information. The demands of their daily work most often came from whomever was above them, independent of the individual's workplace role. Participants reiterated that their daily priority was the boss's priority, independent of the position in the organization.

All participants were asked the same interview questions. In terms of continuity planning and knowledge transfer, a few of the more senior and supervisory participants expressed confidence that their team already knew everything necessary to succeed when the leader decided to leave the organization.

Nothing will happen, because I've instilled great leaders behind me that will carry on. My one position, me, one person, my leaving will not disarray (organization)... I mean, we have literally handpicked everybody in (organization)... They don't need me. (P18)

However, a senior leader acknowledged that he should have created a continuity document for his successor, but it had not happened before he left the organization.

I know I should. And yet it never became the priority. All the 'day-to-day' (work) was the priority. And even when I found hours of time, I never did that. It was always something else that was optional. And that's why I was thinking about, like, why do I do that? ... I think that's because the others in the organization are able to help my successor. I believe that all those (other leaders) and folks like you are able to help my successor know everything they need to know. That's probably not a great answer, but that's what I truly think. (P20)

Summary

This chapter reports the findings of the study. Two primary data sources were used to investigate why Air Force organizations tolerate forgetting. The data sources were official knowledge management policy documents and one-on-one interviews conducted with Air Force civilian employees from older senior leaders to more recent hires. The policy documents were

analyzed to establish how organizations should manage their knowledge resources. The knowledge management policy and guidance in these documents establishes the foundation for expected behaviors. The policy documents were used to define the objection element for tolerance (Forst, 2017; King, 1976). The participants' comments illustrate why established policy has not been consistently followed and why they tolerate knowledge loss (Forst, 2017; King, 1976). Participants described the voluntary willingness to allow other contextual issues and conditions to rationalize non-compliance with the established guidance.

Three prominent features were identified in the DoD and Air Force knowledge management-related documents: 1) focus on information technology, 2) emphasis on data and records management, and 3) directive language mandating compliance. The next chapter discusses the following four themes associated with policy and findings from interview data.

1. **Motivation and Values:** Individuals highlighted their recognition and awareness of forgetting in their organization. However, knowledge management activities are often relegated to other tasks and are dependent on localized efforts rather than a systematic organizational approach.
2. **Acceptance Culture and Accountability:** Broad contextual elements have habituated organizations to knowledge loss. Routine turnover of personnel, an atmosphere of non-accountability, and Air Force culture all reinforce the culture of accepted knowledge loss.
3. **Strategic Management:** Organizations are focused on short-term, urgent issues without explicit long-term guidance, which creates strategic blindness. Work prioritization is unpredictable and inconsistent for employees.

4. **Organizational Governance:** Organizations were described as continuously operating with reactionary, undocumented business processes. The lack of explicit procedural controls reduces accountability for knowledge management and compliance with Air Force directives.

CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

The purpose of this study was to gain a deeper understanding of organizational forgetting in the U.S. government civilian workforce. The motivating problem for this study is the lack of research on the phenomenon in U.S. military organizations. The phenomenon of forgetting contributes to performance inefficiencies, unnecessary costs to U.S. taxpayers, and the potential inability of military forces to meet national security requirements. The ultimate goal of this research is to improve organizational knowledge management and overall performance within the DoD given the current human capital, workforce, and national security challenges.

Organizational forgetting is commonly defined as either accidental or purposeful knowledge loss (Mariano et al., 2020a; Martin de Holan & Phillips, 2004b). This binary definition, based on organizational intent, has dominated the literature and was the initial conceptual model for the study. However, this study found that organizational forgetting is far more complex and influenced by other contextual issues. The context establishes the environmental conditions for organizational learning (Argote et al., 2021). These environmental conditions similarly affect the tolerance for forgetting what should be learned and retained by the organization.

The specific objective of this qualitative exploratory case study was to investigate how and why strategic-level organizations of the Air Force tolerate organizational forgetting despite policy directives and available prescriptive remedies. Following this primary research question, two sub-questions were used to ensure a thorough analysis of the tolerance phenomenon. The first sub-question was how do Air Force organizations address knowledge loss in their learning

and knowledge management activities? The second sub-question was how are organizational processes, systems, and culture managed to address knowledge loss?

The chapter is organized in four sections. The first section presents the key conclusions developed from the findings and themes to address the research questions. The second section interprets the findings implications in the context of existing literature and theory. This discussion analyzes and expands the findings following the same structure as they were reported in Chapter Four. A new conceptualization of organizational forgetting is proposed to follow up on this investigation. The third section presents implications of the study for theory, research and practice. Finally, the key takeaways and fundamental contributions of the study to the field are summarized.

Key Conclusions

Primary Research Question

Why do Air Force organizations tolerate forgetting despite policy directives and available prescriptive remedies?

This study indicates that strategic-level Air Force organizations tolerate forgetting due to insufficient and misdirected motivations reinforced by a systemic organizational culture of acceptance and non-compliance. Organizations ostensibly fail to strategically manage their knowledge resources, exacerbated by ineffective governance processes to remedy knowledge loss.

Strategic-level Air Force organizations often relegate knowledge management activities to other work priorities. Workplace priorities are frequently motivated by short-term “urgent” issues and individual accomplishment more than by unclear, long-term organizational objectives. Work is most often driven by deliverable products and deadlines. However, managing

knowledge is a continuous effort that is difficult to quantify or associate with a specific output. The value of knowledge to an organization is undisputed, but asserting the benefits of knowledge management without definitive metrics is problematic. This point is particularly true for public sector organizations that are distanced from their stockholders (i.e., the taxpayer) and not measured by a quantifiable return on investment. Thus, knowledge management efforts in the Air Force are not valued the same as other more visible and measurable accomplishments.

Broad contextual and systemic elements have habituated Air Force organizations to knowledge loss. Risk averse decision making, lack of accountability, and non-compliance with policy combine to sustain an organizational culture of acceptance of knowledge loss. The findings reveal a tendency to defer decisions to avoid risks. According to directive policies, knowledge management is the responsibility of everyone in an organization. However, no one is accountable without process management or deadlines for measurable deliverables. Accountability is also difficult to maintain without defined roles and responsibilities or workplace attribution for actions and decisions. Compliance with mandatory directives is not enforced. Organizations and individuals appear to have the latitude to decide what level of effort is dedicated to knowledge management requirements.

The acceptance culture is reinforced by employees' past experiences with their own job changes. The routine of starting a new job without information from their predecessors' moderates expectations for any past lessons in the future. Turnover is constant in military organizations, further reinforcing an acceptance culture. An underlying mindset is that everyone does their best with whatever is left behind by departing employees. These elements reinforce a culture of acceptance for knowledge loss.

Constant changes to work priorities, reorganizations, and ad hoc, reactionary approaches to work indicate a lack of strategic management. Organizational activity appears to be equated to achievement. Everyone is busy but without a systematic plan toward strategic objectives, progress is difficult to measure. Additionally, the lack of strategic objectives makes it difficult for organizations to ensure that personnel with the necessary skillsets are aligned with organizational objectives. Dynamic demands for skills cannot always be filled by existing employees. Civilian employee skills gaps are frequently filled by private contractors, which is a more unstable workforce for long-term, organizational knowledge retention. The use of private contractors has the damaging long-term effect of reducing the abilities of the civilian workforce causing employees to become more reliant on the available short-term, transient support.

Organizational processes are also not documented, which forces individuals to learn by experience or from another employee. In addition, routine business practices and decision making are often governed by unwritten rules and organizational norms. Standard operating procedures (SOP) and continuity books were historically used to capture how an organization functions. However, these organizational guides are rare as they have been replaced by mostly uncurated digital repositories. Information technologies are used by organizations to create, communicate, and capture information. However, implementation guidance and governance for employees on knowledge management is dependent on localized efforts by individuals or teams rather than a systematic organizational approach.

Secondary Research Questions

(SQ1) How do Air Force organizations prioritize knowledge loss in their learning and knowledge management activities?

Knowledge loss in Air Force organizations is generally not addressed in activities or continuity plans. Knowledge loss is accepted in the organizational culture with limited motivation to remediate loss with proactive measures. Air Force directives establish the expected knowledge management practices and activities for organizations. However, compliance with these directives appears to be inconsistent and based on an organization's leadership priorities. Inconsistent compliance with policy is also associated with a lack of accountability from above and within the organization.

One Air Force organization represented in this study has a semi-formal learning program. The program is maintained and supported by the most senior leaders of the organization. The endorsement by senior leadership is critical to sustain the activity and foster broad organizational participation. Leadership often assumes knowledge management is occurring but there is little dedicated attention or resources. Consistent with the military "can do" culture, organizations mostly rely on the workforce to make do and press on. Participants reported that knowledge retention was more often a focus at a localized, sub-organizational level (i.e., division or branch), or individual level than at the directorate level and higher.

(SQ2) How are organizational processes, systems, and culture managed to address knowledge loss?

Knowledge management is not institutionalized in the Air Force culture, which contributes to knowledge loss. The findings suggest that leadership and employees fail to recognize knowledge management as an organizational mindset of integrating personnel with processes and systems. Knowledge management is often perceived as simply the information technologies available to the organization and how content is stored. This perception is reinforced by the policy documentation and is consistent with the difficulty individuals have

associating value to a more abstract resource (e.g., knowledge) compared to tangible resources (e.g., computers).

The interviewees described reactionary business processes, ad hoc use of information systems, and a culture focused on doing what is necessary to just get the work done. Few individual efforts to establish knowledge management practices were reported and generally they were localized. Individuals who were motivated by personal experiences with inadequate help with continuity provided the richest examples of knowledge management practices. The tenor was that they did not want their replacement to endure what they had to go through. In particular, they indicated that their organizations were not committed to effective management of their knowledge resources.

Discussion

This section expounds on the findings and these conclusions in relation to existing literature and conceptualizations.

Theme 1: Motivation and Values

Organizational forgetting literature focuses on the motivation to retain or forget knowledge (Levy, 2011; Martins & Meyer, 2012; Pollitt, 2000; Stark, 2019). This study reveals the motivation to allocate resources to other organizational issues instead of knowledge management. Motivation in organizations and motivation theory associated with organizational behavior are a complete field of study (Kanfer, 1990; Steers et al., 2004), and a comprehensive discussion is beyond the scope of this study. However, fundamental outcome components of motivation theory are relevant to address why organizations tolerate knowledge loss. These motivation components are generally the direction, intensity, and the persistence of the organization's and workers' efforts (Kanfer, 1990). The direction component is associated with

choices made between alternatives. For example, a decision may be to assign an individual to one task versus another. In other words, it is a mutually exclusive choice. Similarly, an individual may choose to work on one project over another. The intensity component reflects the level of effort or attention directed towards a task. Intensity is presumably that more effort results in improved task performance and a better outcome for the organization. For example, the organization may allocate more employees and resources to one project than another. The persistence component incorporates an element of leadership commitment to sustain the direction and intensity components. These components are reflected in the decision processes, goals, and priorities of the organization to manage its knowledge resources (Kanfer & Chen, 2016).

Military organizations rely on higher authorities for their resources, and those resources are allocated based on the perceived contributions of the organization (Builder, 1989). Nystrom and Starbuck (1984a) described that in institutionalized organizations, "outputs are evaluated by ceremonial demands from elaborated institutional environments, as contrasted with production organizations with outputs that are evaluated by markets." (p. 182) They contended that the organizational façade of contributing to the greater whole must be sustained. This culture is motivated by ensuring that resources continue to flow into the organization (Nystrom & Starbuck, 1984a).

This motivation is reflected by participants' comments on how organizations are driven by maintaining an image of agility or innovativeness to senior leadership and constantly changing to the newest shiny object (P01). Past approaches are perceived as irrelevant and new ideas are always better (Pollitt, 2000). Participants particularly highlighted that the work approaches and structure are constantly changing. Multiple participants described how their

workday would start with a plan only to be disrupted by emergent tasks or urgent demands. Planned activities for the day were met with a “wrecking ball” of constantly changing positions, demands, and objectives (P02). This management approach reflects the fact that performance in government organizations is assessed by service delivery rather than profit-loss margins. Measures of effectiveness, more than efficiency, influence how the military organization functions.

Individual Performance

Government organizations may be motivated to forget based on strategic convenience, political expediency, accountability, or scrutiny avoidance (Pollitt, 2000; Stark, 2019; Stark & Head, 2019). Organizations may have past experiences that are best forgotten or selectively recalled to minimize public embarrassment (Stark, 2019).

Participants’ comments reflected these motives but with a greater emphasis on personal agency. That is, the direction, intensity, and persistence to manage organizational knowledge was relegated by other activities that often focused on individual achievements. Participants related how performance evaluations are assessed on their tangible contributions to the organization more than an ethereal measure of knowledge saved or shared with others. Massingham (2018) discussed this type of individual motivation as part of the psychological contract individuals adopt within the organization. Massingham’s focus was on the employees’ commitment to the organization. Another perspective on the psychological contract from this study is the influence of personal recognition on effort prioritization. Participants also described how past poor experiences with knowledge sharing or lack of information passed along from other employees motivated them to do their part and capture their unique knowledge for others.

Appreciation

Participants described how their organizations appeared to be aware of knowledge loss but did not appreciate how it was impacting the workforce or mission effectiveness. Participants expressed frustration with the time and effort required to find a document or presentation and often resorted to recreating the content. Leadership appears to be unable to associate the frenetic pace of the work and employee fatigue with knowledge loss. Thus, organizational leaders are not motivated to dedicate resources to address these knowledge management needs.

Appreciation in this context is the value-based judgment of positive contributions of knowledge management to organization. Participants characterized knowledge loss as a lack of attention to the issue rather than an intentional effort to forget. Participants described their work motivation as being driven by other priorities of their leadership and deadlines in the organization. A few participants asserted that as long as the work was getting done, their leadership was not going to dedicate time or resources to address the issue of knowledge loss, irrespective of the fatigue or frustration it created for the workforce. Other participants expressed similar sentiments that many Air Force leaders fail to realize the effort required to meet the expectations associated with organizational knowledge management. The inattention to knowledge loss and focus on other competing priorities represents a different perspective on motivation compared to what has been discussed in much of the literature. As a result, organizations are motivated to address other issues instead of knowledge loss, despite a recognized value.

Appreciation for knowledge loss may be attributed to an organization's abilities to reflect on past successes and failures. Organizations that reflect on their past will learn better than those that do not and will be more successful in the future (Argyris & Schon, 1978; Warren, 2012).

The U.S. Army is often recognized for having a robust system to reflect on past operations and to apply those lessons (Baird et al., 1997; Van Laar & Kitchens, 2020). Three participants with experience in Army organizations described how the service will create “white space” or unscheduled time to allow individuals and organizations to reflect on and assimilate current actions. This allowance stands in contrast to the comments of a senior participant who lamented they had no time to think. The participant shared an old adage that “you can either let your calendar manage you or you can manage your calendar.” Another participant shared the following commentary on lessons learned in the Air Force.

The Air Force loves to admire problems, and I've also noticed that the Air Force is not good at lessons learned. We are good at lessons observed and lessons documented, but we are not good at all is then taking those lessons observed and adjusting tactic, technique, procedures or whatever is appropriate to ensure we don't repeat the same mistakes or improve our efficiency or effectiveness in the future. (P16)

Recognition

The motivation to reorganize or restructure the work was another prominent issue in the interviews. In a demonstration of their leadership and authority, leaders often reorganize or restructure their organizations and try new approaches to the work to achieve performance improvements (Pollitt, 2000). Unfortunately, many will never be present long enough to recognize the impacts of their decisions or learn from the results (Senge, 1990). Stark (2019) noted that organizational churn exacerbates knowledge loss that is never realized by the decision maker. Military organizations appear to value activity as much as accomplishment. This sentiment was also captured years ago by Ogburn (1959).

Perhaps because Americans as a nation have a gift for organizing, we tend to meet any new situation by reorganization, and a wonderful method it is for creating the illusion of progress at a mere cost of confusion, inefficiency and demoralization. (p. 60)

The fundamental motivation for managing knowledge resources in Air Force organizations is for improved operational effectiveness (USAF, 2019). This motivation is the

driver for the standards of behavior established in knowledge management guidance and policy documents in the Department of Defense and the Department of the Air Force (see Appendix G). The documents direct how organizations, information systems, and data are to be managed to conform with both statutory requirements and organizational objectives. Mandatory compliance with these official directives is intended to motivate expected behaviors. Similarly, the Air Force uses a system of inspections to verify that organizations are performing properly (DAF, 2023). This inspection system categorizes assessment findings under six major graded areas: (1) planning, (2) execution, (3) quality, (4) standardization, (5) objectivity, and (6) thoroughness. Paragraph 6.5.4 of the instruction, “Standardization” assesses an organization’s “implementation of and adherence to policy and guidance.” The findings suggest that neither directive policy nor formal inspections are effective in motivating the establishment or maintenance of organizational practices for knowledge management.

The technology and content focus of existing documentation relegates a holistic view of organizational knowledge to organizations and individuals without the requisite expertise to develop a cohesive organizational design for knowledge. It is the personality and motivations of organizational members that will reflect how knowledge is prioritized and not any directive policy. Knowledge management efforts are further diluted with frequent changes in personnel with different experiences and appreciation. Thus, knowledge management in the Air Force is not driven or motivated by policy but is dependent on the personalities of individuals in the organization.

Implications of the Finding

The implication of this finding is that Air Force organizations are not sufficiently motivated to address the issue of lost knowledge although they are aware of the value of

knowledge to the organization. Organizations focus effort and attention on the crisis of the day, relegating knowledge management to the proverbial back burner, to be addressed at some elusive point in time.

Theme 2: Acceptance Culture and Accountability

Broad contextual elements have habituated organizations to knowledge loss and contributed to a culture of acceptance for forgetting. The acceptance culture was revealed by participants' comments on how their organizations manage their knowledge resources and the systemic influence of the larger Air Force culture on accountability. The findings related to knowledge management culture are examined in the context of process management, systemic elements, and risk.

The behavior of the organizations reflects the personality of the military service (Builder, 1989). Just as an organization's culture influences how employees interact with each other (Cameron, 2008), the broader Air Force culture influences how sub-organizations function from their structural and hierarchical relationships. Two fundamental perspectives on organizational culture are prominent in the literature (Schein & Schein, 2017; Wuthnow & Witten, 1988). First, the implicit culture develops as humans form groups. The second perspective is that organizational culture as an explicit social product is characterized by observable forms such as language, methods of problem solving, use of tools, and organizational structures (Schein & Schein, 2017; Wuthnow & Witten, 1988).

An organization's culture is difficult to define but reflects the processes, values, and behavioral norms that develop to cope with the environment (Morgan, 2006; Schein & Schein, 2017; Wuthnow & Witten, 1988). The organizational culture provides structure, so employees understand acceptable behaviors, where decisions are made and by whom, and how these

decisions are communicated (Cameron, 2008; Semmer & Tschan, 2020). Schein and Schein (2017) describe three degrees of analysis for organizational cultures, based on the level of observability: (1) artifacts, (2) espoused beliefs and values, and (3) basic underlying assumptions. First, behaviors and artifacts are the most visible to employees and others. Second, the espoused beliefs and values of the organization shape how decisions are made and the commonly accepted approaches to tasks. Third, the basic underlying assumptions shape the employees' unconscious beliefs and perceptions. This framework coalesces the findings to illustrate an acceptance culture.

Process Management

Artifacts are the most visible elements of an organization's culture including the processes, structures, technologies, language, and climate (Schein & Schein, 2017). These ostensive artifacts shape the routines and standard procedures of the organization (Tsang & Zahra, 2008). A learning organization should reflect each of these elements in how it manages knowledge resources (Dalkir, 2017; Morgan, 2006; Senge, 1990). The implementation of processes to manage knowledge resources is the performative aspect or how routines are actually accomplished (Tsang & Zahra, 2008).

Just as the presence of observable processes, structures, and technologies signal the values of the organization to members and visitors, the absence of systematic approaches to knowledge management also implies the value of knowledge to the organization. Knowledge management policy documents are prominent artifacts for the entire Air Force. The findings indicate that these policies are not translated into material organizational standard operating procedures or management guidance to sustain or develop knowledge in an organization. Thus,

the culture of the organization is reflected by what does not exist as much as by what the organization demonstrates.

The recurring “changing of the guard” and military “can do” attitude both contribute to a culture of acceptance. While the military and private sector share the challenge of personnel turnover, military organizations are different based on the underlying culture that permeates the service. Nearly half of all DoD civilian employees are military veterans (OPM, 2022) who bring their own military experiences and personal attitudes to the organization. The culture and mindset often focus on accomplishing the mission independent of individuals or resources. This mindset, summarized by the popular military phrase “improvise, adapt and overcome,” is infused to one degree or another across all military organizations as a “can do” spirit. It is rare for an individual or subordinate organization to “push back” to their leadership because they cannot perform the tasks assigned to them (Nystrom & Starbuck, 1984a; Wong & Gerras, 2015). Thus, employees often accept the situation and “figure it out” when there is no corporate memory to fall back on.

Systemic Elements

Turnover among civilian employees systemically creates gaps because, in most circumstances, a replacement worker cannot be solicited or hired to fill a position until the departing employee has left. The gap between a departing employee and new hire may vary from a couple of weeks to many months depending on the required skillset, location, and compensation available. The work to be accomplished remains, so other employees must compensate until the replacement employee is “up to speed.” This situation is commonplace and the military “can do” culture embraces the notion to “do more with less.” In reality, this situation

is only tenable until the workforce is so shallow that priorities must be established and some of the work simply does not get done (Wong & Gerras, 2022).

The findings suggest that as the workforce becomes thinner, individuals are performing an increasing variety of tasks that may not be part of their formal position. When these individuals leave or change positions, many of their undocumented contributions become recognized losses. The breakdown of the socio-cultural processes associated with turnover and organizational churn deteriorates the social memory in the organization (Stark & Head, 2019) further contributing to knowledge losses. None of the participants could provide a continuity plan for their position or others in the organization. The implication is that continuity planning simply is not an organizational priority. Thus, the military culture reinforces organizations' acceptance and tolerance of lost knowledge as a fact of life.

Accountability

Knowledge management policy documents specifically emphasize mandatory compliance; however, no indication was found of any accountability for non-compliance. The lack of accountability was often highlighted in participant interviews and reveals broad cultural willingness to ignore established directives. The prevailing mindset was that any fallout from non-compliance with an instruction was far removed from any individual or organization while failure to respond to an urgent task or to meet a deadline from higher echelon leadership would be immediately recognized and addressed. As P25 shared, "No one has ever been fired for poor knowledge or records management."

The findings illustrate the absence of defined, stable objectives in the organizations from which progress or accountability could be established. Daily operations were frequently described as dictated by whatever came down from their leadership without predictability or

apparent long-term plans or goals. The lack of objectives undermines developing systematic processes or structures to consistently align work responsibilities. The absence of clear and consistent objectives also undermines accountability and the ability to measure progress.

The findings point to an overall lack of accountability for individual decisions, progress, and indecision. The lack of accountability contributes to a culture of tolerance for non-compliance. Tacit approval for non-compliance erodes the systems and processes intended to ensure consistent organizational performance. Deficiencies often become invisible, deviance from requirements is normalized, and tolerance for non-compliance becomes part of the culture (Vaughan, 1995; Wong & Gerras, 2022). For example, documentation of government organizations' functions, transactions, decisions, and operations is a legal requirement to provide the U.S. public visibility on how taxpayer resources are being used. The military services are required to implement rules and processes for records management, a component of knowledge management, as dictated by law and the National Archives and Records Administration. In reality, records management is often delegated to a junior employee or service member as a secondary responsibility without the requisite authority or leadership advocacy.

Risk Avoidance

Participants who are familiar with records management asserted that their organizations were less than five percent compliant with established directives and speculated that their organization was not unique. The reasons cited were outdated, paper-based approaches for records management with modern information systems and broad assumptions by employees that the information technology enterprise automatically addresses records management requirements. A small number of participants cited the organizational risk or vulnerability of a Freedom of Information Act (FOIA) information request if records management was more

compliant. The implication is that the risk of being held accountable for non-compliance with records management is far less than the vulnerability or exposure of a FOIA request.

Employees commonly shared a similar risk-reward calculation. Participants noted that while they were aware that they had a responsibility to manage their knowledge and the resources of the organization, it simply was not a priority compared to other tasks. The lack of systematic processes and material deadlines relegates knowledge management to individuals or localized team efforts as described in the Findings section. Several participants related that they knew they should be capturing how their work is done, but when there was no recognition by the organization for the effort, they were not motivated to take the extra time. Thus, competing organizational priorities redirected attention and effort away from knowledge management requirements contributing to the acceptance culture.

A basic underlying assumption related to the acceptance culture appears to be that there will always be another person to fill any knowledge needs in Air Force organizations. This is a dangerous position as retention of skilled employees is increasingly challenging across the federal government (Kettl et al., 2018). The findings reveal a workforce trend of hiring contractor personnel to support organizations due to the lack of knowledge and skills within the civilian workforce. Two particularly relevant issues are associated with the use and reliance on contractor personnel. First, as previously discussed, the reliance on contractor expertise has the long-term effect of reducing the technical abilities of the civilian workforce. Second, the transition between two contractor teams as the contracted period of performance expires is frequently disjointed. A gap between contractor teams must be filled by civilian employees until the new contractor team is “up and running.” The hand-off from one team to another relies on the civilian employees being able to adequately support the mission, but the civilians often do not

have the technical skills or expertise to fill the voids. The use of support contractors is necessary for the Air Force as these teams bring highly specialized skills that are not available from civilian employees. The government simply cannot pay enough to attract and retain individuals with special skills. Thus, civilian employees must accept the dependence on contracted support to meet operational requirements. This dependence is another contributor to the acceptance culture in the Air Force.

Implications of the Finding

This finding implies that an organization becomes less sensitive to the routine impacts of knowledge loss and the actions (or inactions) to address the phenomenon become acceptable in the culture. The desensitization to knowledge loss represents a type of social validation (Schein & Schein, 2017). Members reinforce one another's values and beliefs leading them to become assumed or accepted within the organization. Thus, avoiding the requirement to capture knowledge is normalized and accepted by the values established by the organization and leadership.

Theme 3: Strategic Management

Strategies provide organizations with a roadmap on how they intend to achieve their objectives (Builder, 1989; Cohen, 2017; Warren, 2012). Strategies communicate the ends, ways, and means for the organization to internal and external audiences (Cohen, 2017). These are the objectives, the methods, and the resources to guide the organization. Strategies can be developed at every level of an organization to guide decisions. Strategies also reflect the associated complexities of decision making and prioritizing resources at every level. Similarly, attempts to describe strategic thinking within the military services introduce a myriad of considerations related to motives, processes, politics, and personalities (Builder, 1989; Cohen, 2017). This

discussion focuses on the use of strategic management within the representative organizations. It is an interpretation of how the organizations plan, prioritize efforts, and align resources that ultimately affect knowledge loss.

The lack of a coherent strategy to achieve long-term organizational objectives was very prominent in the findings and contributes to perceptions of instability for the workforce. It is important to acknowledge the influence of the larger Air Force personality (Builder, 1989; Cohen, 2017) on strategic management at the organizational levels. Three general traits of the Air Force culture are salient to the organizations' approaches to knowledge management. These personality traits (Builder, 1989) are used to shape this discussion. First, the Air Force is primarily technology oriented. Second, the service culture is based on the individual. Third, the Air Force embraces innovation and change. Each of these characterizations are likely to foster debate within the service regarding the fairness, importance, or impact. However, these traits are reflected in participants' comments and the characterizations are justified within the context of this study.

Knowledge management in the Air Force is commonly associated with investments in technologies. This focus can be attributed to the historical emergence of information technologies, current policy guidance, and a culture that is drawn towards the concrete more than abstract. The culture of the Air Force is founded on the individual aviator who practiced the art of war through their aircraft and flying skills (Builder, 1989; Cohen, 2017). The Air Force today remains focused on the individual and technology (Cohen, 2017). This foundation is reflected by participants' comments highlighting how many decision makers were attentive to the operational mission elements and technical solutions more than the administrative elements of the organization. Although many would agree that the mission is first, the lack of attention to the

administrative requirements and support elements imparts non-technical costs to the organization reflected by the inefficiencies of lost knowledge.

Continuity

Turnover of personnel is a common element in the organizational forgetting literature (Levy, 2011; Mariano et al., 2020a; Massingham, 2008; Stark, 2019) yet the findings indicate very little continuity management or succession planning. Numerous comments illustrate how no plans exist to capture what an employee knows or systematic approaches to sharing how they do their work with others. Similarly, there was little evidence of systematic plans to manage the transition between contracted support teams. Participants described the gaps in expertise that were created when one contractor team is changed to a new team, and they often must restart the learning process over again. While documentation requirements are met by the departing contractor, it is the experiential knowledge that is lost without management.

Continuity management and succession planning are important tools to address anticipated knowledge loss (Beazley et al., 2002; Rothwell, 2016). Continuity management is part of an organization's strategic management to ensure that structures, processes, and plans are in place to minimize the effects when employees leave (Beazley et al., 2002). Similarly, succession planning involves intentional efforts to develop others or replace people to ensure continued organizational performance (Rothwell, 2016). Continuity management should reflect the value the organization places on its employees knowledge, skills, and abilities.

Personnel turnover is a constant reality in all military organizations and is a common contextual element related to organizational forgetting. Turnover includes routine uniformed personnel reassignments as well as members of the civilian workforce seeking new responsibilities and promotion. Military reassignments are reasonably predictable; however,

civilian employees have much greater control to decide when they will pursue different opportunities. Therefore, they are much less predictable. Civilian employees are not bound to a term of service like their uniformed counterparts. Turnover is also often accelerated in higher headquarters organizations as some individuals are “on the fast track” to higher positions of authority or they quit due to employee burnout (Stark, 2019). The routine turnover of personnel and gaps in filling vacant positions are a fact of life in military organizations, which should motivate organizations to document what and how employees do their jobs.

Military organizations have historically maintained “continuity books” or unit manuals to describe the various roles and functions across the organization. These documents enabled a newcomer to the organization to quickly understand what was expected of them and how the organization conducted business. However, the advent of increasingly capable information systems has eradicated organizations’ expectations for employees to develop and maintain such documents. Employees are now expected to rummage through network drives or past emails to find historical content and understand how to do their jobs. The information that is found is largely detached from the contextual reasons the content was important to retain, challenging a new employee to interpret the value, relevance, or applicability of the information. This untenable situation is further exacerbated when organizations have no systematic plans for content management resulting in unmanaged digital landfills (Mancini, 2014). The absence of a systematic plan toward organizational objectives also challenges organizations to identify what knowledge will be of value and should be retained or shared.

Continuity management and succession planning should involve intentional efforts to address anticipated organizational and personnel changes. Federal agencies are provided tools to

implement strategic workforce planning and strategic foresight to address manpower challenges (OPM, 2024).

Agencies that align the recommended workforce planning and development efforts with broader organizational goals and priorities will contribute to a federal workforce that is well-equipped to meet the needs of the Federal Government and the American public, both in the present and in the years to come. (p. 3)

However, participants described a distinct lack of management or planning for changes in their organizations. Organizations were reactionary to individuals' departures or contract termination.

Prioritization of Effort

With the lack of well-defined goals and objectives, the prioritization of effort in an organization consistently focuses on urgent, short-term issues at the expense of important long-term challenges. Participants frequently described the endless shifting of work priorities depending on who was making the decision of the day. One participant explained that it was like being on a ship with multiple captains, each with their own perspectives, each giving orders to the crew, and the crew being unable to determine who was really in charge or which orders to follow. This analogy illustrates two issues. First, the individualized culture of the Air Force is revealed as each decision maker asserts their determination and authority on how to proceed without cross-organizational coordination or collaboration to minimize dissonance. Participants commented on how interpersonal friction and politics influenced why and how certain decisions were made. Near-peer decision makers would intentionally or unintentionally undermine a counterpart's guidance. Second, the lack of long-term objectives or strategy enables the constantly changing priorities and tasks without traceability or accountability.

Participants' comments about the constantly changing priorities frequently related to how decision makers fail to think strategically. They attributed this to some leaders not wanting to be

bound to a strategy that they did not agree with or aversion to risk with an approach for which they could be held accountable. P20 stated that in their leadership training, they were encouraged to avoid attaching their names to decisions but rather to have recommendations associated with a subordinate. The implication for decision makers is to avoid accountability and risk wherever possible.

Some leaders in Air Force organizations also have a cultural disdain for strategic plans (Cohen, 2017). Strategies have historically been disparaged for becoming “shelfware” requiring significant effort to develop but then they become a static document gathering dust or a glossy, coffee table book. A more senior participant indicated that the value of a strategic plan was questionable with the rapidly changing environment and a plan would only curtail innovation or hamstring their decision-making agility. However, comments from participants indicated that decision makers could not or would not think strategically and provide a stable vision of the way forward. A subtle undertone to these comments could be characterized as bureaucratic laziness or unwillingness to make difficult choices. Decision makers appear to not recognize that the value of strategic planning is the development process as much as the end product. The development process should help the organization better understand the operating environment, foster new ideas from within, and provide a common vision of the future (Cohen, 2017).

Organizational Management

The inability to map a long-term view of goals and objectives is partially influenced by how Air Force leaders are shaped through their careers. Military leaders in the Air Force are primarily focused on honing their technical warfighting specialty within an operational context and only later in their careers are they introduced to managing a broader organizational landscape of issues (Cohen, 2017). Participants with experience in the other military services

contrasted how the Army and Navy tend to give young leaders much broader responsibilities earlier in their careers than those in the Air Force. For example, a young Army Lieutenant is not only responsible for developing his personal tactical acumen, but also for leading and managing their company of enlisted personnel. This was contrasted to a young Air Force Lieutenant who often is only responsible for developing their personal functional skills. The implication is that many Air Force leaders frequently do not have a base of broad organizational experience in functional and administrative management until later in their careers (Cohen, 2017). Thus, many leaders replace strategic planning with short-term, operational activities to which they are more accustomed.

The most prominent or influential force on knowledge loss was the lack of a coherent strategy to manage organizations' efforts. Participants described how available information and tools were not being used to help decision makers guide the organization. This was generally attributed to a lack of understanding on what the tools provide, but participants also believed some leaders did not want to embrace a systematic approach that would allow objective measures of progress and accountability. The absence of a systematic plan creates strategic blindness that is realized when an organization is distracted by other issues and fails to be attentive to what is actually occurring inside and outside the organization (Ershadi & Dehdazzi, 2019; Kraaijenbrink, 2023). An implication is that organizations must be able to create distance between the issues of today and the necessary investments in knowledge for the future. This is accomplished by shifting attention to the problems of the day and mapping a way into the future. The findings suggest that the representative organizations were unable or unwilling to dedicate the resources of time and effort to moderate their near-term focus towards a strategic perspective.

A classic business maxim is “structure follows strategy” (Chandler, 1962, p. 14).

Participants rarely pointed to a particular organizational structure or arrangement of work as a contributor to knowledge loss. The more prominent issue was the constant change, restructuring, and re-alignment of work. These comments on organizational churn are consistent with existing forgetting research (Mariano et al., 2020a; Stark, 2019). Participants described how their organizations would rearrange personnel and duties to achieve unclear objectives within an undefined strategy. Some of these descriptions were localized within a functional group while others encompassed an entire organization.

Civilian employees should provide continuity and stability toward long-term strategic organizational objectives as the military leadership changes. However, this approach is contrary to military leaders who often see themselves as the change agents. Many leaders believe they need to rearrange their organizations without a strategy or reflecting on the past to demonstrate their managerial acumen. In one dramatic case, a participant shared that they had experienced six division chiefs within a three-year span, each implementing their vision of the unit. A key issue is the lack of decision makers’ understanding or appreciation of the costs of change in their knowledge resources. The organizational churn also affects other interdependent organizations by continuously breaking down social networks and cross-organizational cognition of who does what.

Implications of the Finding

The implication of this finding is that long-term planning and workforce development is not a priority for the organization, or it is assumed that someone else is doing it. This assertion is consistent with other research on human resource management in the DoD (DBB, 2022; GAO, 2019; Kettl et al., 2017).

Theme 4: Organizational Governance

Organizational governance provides organizations with systematic business processes and structures to support their objectives. These objectives should be aligned with the strategic plans to optimize the organization's knowledge resources (Holmes, 2006; Jennex, 2008).

Organizational business processes and structures support systematic decision making, prioritization of efforts, and stability for the workforce. Military organizations often refer to these processes and structures as standard operating procedures (SOP). These routines reflect an organization's explicit, implicit, and tacit knowledge based on what has been learned and retained in the organizational memory.

Knowledge and organizational memory in an organization has been defined as transactional, procedural, and declarative (Antunes & Pinheiro, 2020). Transactional knowledge is the individual and group knowledge developed through interactions between individuals. Procedural knowledge describes how things are or may be done. Declarative knowledge is the known facts or explicit knowledge that form the basis for improvisation.

There are also different types of work and knowledge workers in any organization to be governed and managed. Work may be defined in four ways: (1) transactional, (2) integrative, (3) collaborative, and (4) expertise (Davenport, 2005). It is important to identify the differences between the types of knowledge and the types of work. Transactional work can be well-defined and documented. This type of work is very routine and uses procedural knowledge or how work is done. Integrative work is reliant on systematic and repeatable processes or methodologies to ensure consistency. This type of work is reliant on both procedural and declarative knowledge. Collaborative work requires deep knowledge and the ability to integrate functional roles. Collaborative work most closely aligns with transactional knowledge to bring knowledgeable

individuals together. Expertise work is the most complex and reliant on the individual's experiences and deep understanding to make judgements. Expertise work is the most judgement based and requires a broad accumulation of transactional, procedural, and declarative knowledge.

Any participant in this study could reasonably be matched against each of these knowledge worker types. It is also acknowledged that each participant is unique and may have more responsibilities in one type of work versus another. The findings suggest that, whether the work is highly transactional or based on the judgement of an expert individual, documented organizational governance of business processes is lacking except where dictated by law. The findings also illustrate that as organizations fail to document their routine processes, they are more reliant on individuals' experiences to ensure continuity. This reliance often results in lost knowledge as individuals change, move, or forget.

Performance Management

A prominent issue in the findings is organizational performance management. Performance management includes the business processes and methods to make decisions, prioritize effort, and allocate resources. Participants characterized their experiences with constantly shifting priorities in their work and a lack of planning forcing them to react to the changing conditions or objectives. Participants shared that they often had no idea of what their workday would entail. One participant described that their daily work plan was often met with a "wrecking ball" based on shifting priorities. Many participants expressed frustration when time and effort was expended on a project only to have the project or activity derailed due to a change in leadership or another issue capturing the attention of a decision maker. The frustration and fatigue among participants were palpable and, in a few cases, they led to the departure or planned

departure of individuals from their organizations. The impact of these departures on the organization is the loss of valuable experience-based knowledge on how to get the work done.

While participants shared that they believed that the organization was aware of these losses and workforce fatigue, participants also believed that their leadership would not or could not do anything to stabilize the approach to work and remedy the chaos. The chaos appeared to participants as a fact of life. The lack of established routines also prevented the organization from refining business processes and learning how to improve from previous errors. They believed that the infrastructure for learning does not exist. The implications for poor organizational governance are twofold: (1) as long as the work is getting done, knowledge loss is not an issue that warrants managerial attention or additional resources, and (2) the organization assumes that there will always be another person to fill the knowledge gaps.

Systems/Tools

Information systems and knowledge management are inextricably connected from the origins of both. The shared heritage has a strong influence on how organizations and individuals perceive the use of technology to manage knowledge resources. Knowledge management in the organization is challenged by the volume of content to be managed and implementation of systems and applications without systematic plans on how they will be used, organized, and managed. Organizations seemed to assume that the workforce understands how to effectively use the multitude of available information systems. However, participants shared that there was broad diversity of digital literacy in their organizations with many of their counterparts having only very basic skills. The skills and abilities workers needed to use the available information systems were reliant on the individual's personal desire to learn by participating in voluntary training or teaching themselves.

A participant provided an example of this issue when they described how Microsoft Teams was introduced to the workforce. The application was delivered to the enterprise during the Air Force migration to Microsoft 365 without guidance or governance. The application provides flexible collaboration and communication capabilities for the workforce, but the participant said that the flexibility was both a blessing and a curse. Participants' comments related to how Teams is a great tool for those that know how to use it, but it is a curse when employees do not understand how it functions or how to best manage content in the system.

So, I think that we deliver these (applications) — let's take Teams. We sell this as panaceas for what's wrong and when we don't have any processes, or not even processes, guidance in place on how to implement, it gets away from us and it becomes burdensome. I hate Teams for anything more than chatting with people and doing things like this (interview), because nobody uses Teams as it was designed to be used. (P26)

Knowledge in an organization deteriorates and depreciates more quickly when there are no formalized processes to curate the content (Oliva, 2014). Management is further complicated by the number of information systems with similar functions and capabilities used by an organization. The Air Force enterprise primarily uses the Microsoft 365 suite of applications as well as many other software-as-a-service (SaaS) and infrastructure-as-a-service (IaaS) capabilities and tools. The Microsoft 365 suite provides an organization with several office productivity capabilities for content creation, sharing, collaboration, and management. There are four basic Microsoft 365 content management applications used by a majority of the workforce: (1) SharePoint, (2) Teams, (3) OneDrive, and (4) Outlook. Each of these applications have a particular productivity design objective, but they also share the ability to store and share information across the organization. Participants were frustrated that there was generally no plan or guidance on how to best use and manage these applications. With a few exceptions, everyone was left to store content in whichever application they were most comfortable. Participants' comments revealed how the lack of organization or planning created digital Towers of Babel in

many organizations causing additional knowledge loss when only the originator or a small group knew where or how the content could be found.

I think a lot of it comes down to our lack of standards and rules. It's kind of just the Wild West when you have 10 or 12 different platforms that you work in every single day... and there's no specified naming conventions or dedicated places that you should be operating in or saving things to... It's out of whim. It's whatever, again, whatever is convenient for them. (P02)

Roles and Responsibilities

The arrangement of personnel and work to meet organizational requirements was characterized by participants as an adhocracy (Aspray & Doty, 2023; Mintzberg & McHugh, 1985) within a bureaucracy. Participants reported many instances of civilians performing functions that were not specified in their official position description (PD). This undocumented work was often done by well-meaning employees who recognized that something was needed and worked to get the job done. These efforts reflect the “can do” culture within military organizations. However, since the work is “off the books,” the knowledge or skill requirements are not defined when recruiting future employees. Job offerings often encapsulate these unidentified functions in official work descriptions as “other duties as assigned.” It is understandable that not all work functions can be explicitly defined, but if the work functions are critical to organizational objectives or responsibilities, the functions should be reasonably outlined in documented standards to remedy this type of knowledge loss. A few participants shared that their leadership was only moderately familiar with what they do or how they get their job done. These opinions could also imply that while leadership may be aware of losing knowledge due to employee departures, they may not fully appreciate the effects until the specific, undocumented skillset is needed.

Another impact to knowledge loss of this informal work is that once an individual is recognized by their counterparts for a capability, they often become the “go to” person. As a

result, knowledge is retained by individuals rather than embedded in organizational processes. The knowledge, skills, and abilities of the individual become part of an organization's social network and reinforces the team cognition or cross-organizational awareness of who knows what (Olivera, 2000; Salas & Fiore, 2004). The reliance on the social network for knowledge maintenance is vulnerable to organizational changes and decay (Argote, 2013b). Organizational restructuring, work realignment, and employee departures disrupt or dismantle the social networks and force employees to re-map roles and responsibilities. The focus on near-term issues complicates developing stable organizational alignment of skills to work requirements and identification of what knowledge is important to retain.

Decision Making

Decisions influencing how the organization should function and be managed were prominent in participants' comments. These decisions reflect leadership advocacy, prioritization of resources, politics, and organizational commitment. Participants described situations where a decision would be made on how to proceed by a senior leader only to have their counterpart alter course and redirect efforts. It was not always clear to participants whether the contradictions were motivated by personal politics within the organization or whether the two decision makers were not communicating. The contradictory directions created organizational whiplash and in some circumstances, resulted in redoing work that had already been accomplished. A few participants described incidents where new leadership altered the course back to a previously attempted path and was unwilling or unable to recognize that the organization had already "plowed that ground" without success. The implication is that decision makers will make decisions without the benefit of organizational memory or resident expertise in the workforce.

Decisions were described as reactionary to external influences more than deliberate, strategic plans or performance. Participants' comments indicated that decisions were made based on where the organization had contractual resources available instead of alignment with long-term objectives. For example, the organization has three supporting contractor teams each with defined work and funds. In one scenario, the government requires the capabilities of Team A but assigns the task to Team B because Team A has no more financial scope available for the work. The result is that the organization settles for a deliverable task that is less than ideal. The impact of reactionary decision making on knowledge loss is the lack of predictability and consistency. The lack of decision-making stability undermines organizational learning when lessons from one decision cannot be applied to subsequent decisions. Decisions and emergent daily tasks rely more on the implicit knowledge and skills of each individual rather than explicit organizational knowledge. Similarly, without systematic governance using explicit standards, compliance with established policies is problematic.

Implications of Finding

This finding reveals that without documented process management, the organization does not have requisite mechanisms for enforcing accountability and compliance with Air Force directives. Organizational learning from experience and lessons is problematic without a basis for process improvement.

Proposed Conceptualization for Organizational Forgetting

This study illustrates some of the complexities of organizational forgetting. The research used the conceptual framework introduced by Martin de Holan and Phillips (2004b) and further refined by Mariano et al. (2020a) as an initial basis. This model is based on two fundamental facets of knowledge loss: organizational intent and the degree of embeddedness of the

knowledge. Knowledge loss relates to an organization's intentions as either purposeful or accidental. Martin de Holan and Phillips (2004b) used intentionality to incorporate managerial agency with the phenomenon. The degree of embeddedness describes whether the knowledge is new to the organization or resident within an organization's memory. This study did not differentiate the embeddedness of knowledge as the findings are independent of the knowledge type.

Existing models identify factors that influence how and why forgetting occurs (Mariano et al., 2020a; Martin de Holan & Phillips, 2004b). These factors are grouped as individuals, processes, tools, and context to encompass organizational features associated with the phenomenon (Mariano et al., 2020a). The features highlight the effects of turnover, managerial agency, production processes, information systems, and structure in the literature. Participants described each of these features to some degree but in the context of a military organization. The influences of the Air Force culture and organizational management are prevalent in the findings including motivation, acceptance culture, and strategic management.

The findings on tolerated forgetting suggest a different perspective than Mariano et al. (2020a) and are more closely align with Oliva (2014) who identified senior management and knowledge management guidance as key success factors. Effective management is reinforced by the values, norms, and practices in the organization (DeLong & Fahey, 2000). Oliva (2014) also highlighted the importance of knowledge management plans that align with the organizational strategy from senior management to be successful. The findings illustrate how the absence of an organizational strategy undermines knowledge retention and contributes to forgetting. Thus, the findings reinforce Oliva's (2014) empirical analysis. Additionally, while knowledge management guidance exists in the Air Force, the policies do not motivate the requisite

behaviors if compliance is not enforced. This point directly relates to the managerial influence on tolerance for forgetting.

Martin de Holan and Phillips (2004b) introduced intentionality for forgetting to focus on managerial effects rather than on the positive or negative outcomes of the phenomenon. Their emphasis was on the level of effort required by managers to either remove unwanted processes or maintain organizational memories. Mariano et al. (2020a) characterized managerial agency as the “managerial cognition and discretion” (p. 198) that was predominantly associated with the triage of organizational knowledge associated with intentional unlearning. Participants described managerial agency differently compared to descriptions presented in Martin de Holan and Phillips (2004b) and Mariano et al. (2020a). This study found that managerial agency was influential in organizational motivation to address the phenomenon of forgetting and shape the culture of acceptance. Tolerance for forgetting is reflected in the strategic thinking of the organization and how it is governed. The findings suggest that existing models do not fully explain tolerated forgetting. Thus, a new conceptualization is proposed in Figure 18.

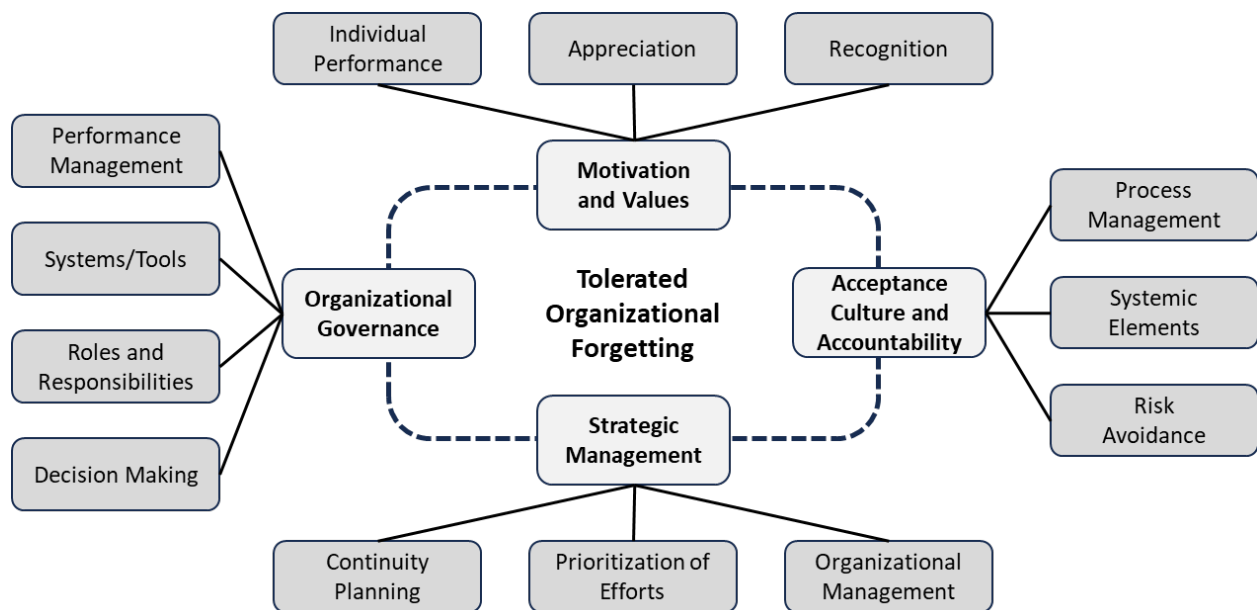


Figure 18 *Proposed Organizational Forgetting Conceptualization*

Recommendations and Implications for Theory, Practice, and Research

This study articulates a new perspective on organizational forgetting. It expands the existing models of organizational forgetting that are focused on intentionality. This study includes other contextual features that contribute to tolerated forgetting. Specifically, existing conceptualizations have focused on how and why forgetting occurs in organizations. Barriers to knowledge management have frequently been investigated. This study took this concept a step further and examined how and why organizations tolerate knowledge loss. This perspective offers implications for theory, research, and practice.

Contributions to Theory

Conceptualizations of organizational forgetting have predominantly focused on the model developed by Martin de Holan and Phillips (2004b). However, scholars have called for further investigation into the contextual issues that underlie knowledge loss in organizations in subsequent research (Mariano et al., 2020a; Martin de Holan & Phillips, 2011; Tsang & Zahra, 2008). Past research has highlighted contextual issues related to knowledge retention and forgetting such as organizational structure, age of the organization, institutional environment, and size of the organization (Blackler et al., 1999; Mariano et al., 2020a; Tsang & Zahra, 2008).

This study contributes to the development of an organizational forgetting theory to include the contextual element of U.S. federal organizations. The findings reveal the contextual influence of motivation in a government organization—an acceptance culture—and management of organizational processes to address the phenomenon. Participants' comments on strategic planning, work prioritization, and decision making highlight the impact of managerial agency on the priorities of the organization.

Nearly every participant described how their organizations are challenged by the frenetic pace of work and competing tasks for their time. Thus, the findings illustrate the requirement for managerial engagement and attention to knowledge management to address organizational forgetting. This point supports examining the phenomenon from an attention-based perspective as well (Davenport & Beck, 2001; Ocasio, 1997; Ocasio et al., 2020). That is, we evaluate how the issue of knowledge loss changes from awareness by an organization to something that captures attention and warrants dedicated resources to address the phenomenon. This approach could have significant theoretical implications to address the focus of attention, situational factors, and structural elements that influence what an organization is attentive to (Ocasio et al., 2020).

Implications for Practice

This study offers Air Force leaders and organizations critical insights on employees' perspectives on management beyond the routine organizational climate surveys like the Defense Equal Opportunity Climate Survey (DEOCS) or Federal Employee Viewpoint Survey (FEVS). Each of these large-scale federal surveys are touted as effective tools for leaders to make meaningful organizational changes. However, employees noted that they have moderated expectations based on past experience and the surveys are met with cynicism that they can influence any change. Remedies to address knowledge loss from departing employees include the use of exit interviews. However, a departing employee shared their sentiment on doing an exit interview.

I think that (exit interview) information is just completely invaluable, and I think a lot of people, if you were to survey them across the (organization), would tell you that it's just like filling out the DEOCS survey. They don't think it's worthwhile because they never see that information go anywhere. So (they should) not only be implementing some of those suggestions, but maybe even be transparent and sharing some of the information received over multiple exit interviews throughout the year with the organization. (P02)

Air Force organizations should acknowledge that there won't always be another person to fill vacant positions and should take meaningful steps to capture what their people know as well as address employee fatigue. Common phrases such as "people are our most important resource" are platitudes when the underlying culture and actions drive a "next man up" approach to getting work done. If an organization's workforce is truly one of its greatest assets, then leaders and managers should treat it accordingly. Many of the participants shared their fatigue and frustration with how their organization was incessantly changing course without any apparent strategy to systematically move forward. Long-term strategic planning should be institutionalized and periodically refined to include processes to maintain organizational knowledge. Strategic plans for knowledge management should include continuity planning for the military, civilian, and supporting contractor workforce to ensure a degree of knowledge transfer. In the absence of face-to-face turnover, knowledge distribution and sharing with nearby counterparts should be used to mitigate the loss of the departing knowledge.

The "can do" culture embraces doing more with less at the risk of losing valuable experiential knowledge when the individual leaves. Performance management plans generalize what an employee is expected to accomplish, leaving a significant amount of work undefined. A possible solution is for supervisors to develop much greater fidelity to the work functions performed by their employees. Fidelity of work functions also enhances a supervisor's ability to identify duplication and shortcomings in skill sets. A more refined definition of work enables other employees to recognize other employees' skills and enhance their team cognition. An outcome would be a more comprehensive understanding of the knowledge, skills, and abilities of the workforce.

Air Force leaders and organizations should scrutinize the motivations and objectives for organizational restructuring. The perceived benefits of rearranging personnel must be carefully measured against the likely setbacks to organizational performance from disrupted social networks. An organization's social networks provide a resilient fabric to support knowledge retention and minimize knowledge loss when personnel leave (Argote et al., 2018; Droege & Hoobler, 2003; Mariano et al., 2018).

Air Force organizations should re-establish compliance requirements and assert compliance to establish accountability with directives. Participants shared how they had never seen anyone held accountable, implying that compliance was more advisory than directive in nature. Similarly, participants shared how when everything is a priority requirement, every task becomes like the next one without any priority. This effort could initiate professional discourse with the objective of improving the organization similar to Wong and Gerras' (2015, 2022) professional critique of the U.S. Army.

Military organizations must be able to learn from hard-earned experience to address emerging requirements. The U.S. Army is often recognized for having the most robust knowledge management culture of the military services. This is exemplified by the Center for Army Lessons Learned (CALL) and their ongoing activities to create a learning culture in the Army (Calton et al., 2021). All Army organizations are required by regulation to have a lessons learned program. These lessons are assessed by experienced observer coaches at the Army's major combat training centers. The performance assessments are then aggregated by the CALL into an annual report for broader awareness across the Army. The Air Force has a dedicated organization to collect and publish lessons on airpower and doctrine. However, participants decried the lack of effort in their organization to use the lessons for process improvements or

change. These comments reinforce the perception that Air Force leaders do not appreciate or understand the value of knowledge management for the organization.

Recommendations for Future Research

The study findings on motivation and values, strategic management, and organizational governance are consistent with existing research on organizational forgetting. A unique element not found in the literature is the military culture of acceptance for knowledge loss and accountability. Private sector organizations often have business plans to address their information, management, and operations processes. These plans are motivated by organizational performance and profitability. Military organizations are also motivated to perform but do not have the same motives for cost-efficiencies as the private sector. Government organizations are fiscally controlled and managed. However, they are not measured by return-on-investment as much as ensuring they provide the requisite capabilities and remain within budgetary constraints. A greater understanding of the motivation for military organizations to manage their knowledge resources may prove beneficial. Air Force organizations would greatly benefit from quantifying the cost of lost knowledge to the organization including time employees spend looking for information or recreating content. The outcome of this research could help improve the overall perception of the value of knowledge management.

Strategic-level organizations of the Air Force reflect the functional elements they oversee. The collective organizations represented in this study are responsible for planning, developing, and integrating the multitude of processes and systems required to meet specific Air Force functional objectives in support of the national security strategy. Each individual organization has specified and implied responsibilities, but they are interdependent on other organizations. Organizational interdependence demands more complex organizational designs

and coordination to effectively manage performance (Galbraith, 2012). Knowledge repositories are increasingly shared resources, which further complicates content management across organizational boundaries. Future research could investigate how interdependent, networked organizations across a military service coordinate knowledge management. The outcome could be new approaches to aligning roles and responsibilities in support of operations.

Interdependence between strategic-level organizations demands cooperation and coordination. However, cooperation and coordination have historically been limited to what is required for shared objectives. Agreement on high-level objectives is often easiest, particularly when directed downward from the most senior elements of the Air Force. It is more challenging for organizations to be synchronized when they have differing perspectives on priorities and how to meet the broader objectives within constrained resources. This cross-organizational coordination is exacerbated by seemingly incessant internal re-organizations and churn (Pollitt, 2000; Wettenhall, 2011) and the resultant disruptions to knowledge flows between the organizations (Nonaka et al., 2008). Future research could examine the impact of cross-organizational strategy development to provide a unifying focus and reduce inter-organizational tensions.

The findings suggest that other U.S. military services should be examined for consistency and comparison. Some participants highlighted differences in the professional development of Air Force military personnel compared to the Army or Navy. Junior officers in the other services often have some form of management responsibilities in addition to their warfighting responsibilities. Participants believed that junior officer development in the Air Force was overly focused on their specific warfighting skillsets at the expense of the necessary administrative functions. Thus, this emphasis deferred learning about both the administrative functions and

mission until much later in their careers. Participants speculated that this development path results in leaders who are more operationally focused, but who lack process management skills and are unable to think strategically. A possible outcome could be a significant re-examination of junior officer development in the Air Force or improved awareness for Air Force leadership.

Contribution to Human Resource Development

Public and private sector organizations are challenged to find the right people to accomplish the work. Human resources in federal government organizations are managed by the Office of Personnel Management (OPM), which has been criticized for outdated approaches to personnel management (Kettl et al., 2017; Kettl et al., 2018). Changing demographics requires that OPM modernize its hiring practices to address the dynamic nature of today's workforce. However, the large bureaucracy is not as dynamic. This point was reinforced by the government Comptroller General's testimony during a 2021 Senate Homeland Security and Governmental Affairs Committee hearing:

I'm also concerned about the state of the federal workforce; 22 of the (37) issues on the (high risk) list are there because of skills gaps and critical shortages of both the numbers of people and the types of skills they need, and I don't think the federal government's workforce is well postured to meet 21st century challenges. (GAO, 2021)

Similarly, a recent DoD report identified three key issues: 1) Civilian development is not seen as a priority in DoD culture; 2) Organizational structure is not postured to effectively manage talent; and 3) The way the DoD manages talent data is flawed (DBB, 2022). Air Force organizations must operate within the regulations of OPM and federal law. Effective change to address these issues will not be accomplished quickly. As such, it becomes increasingly important for Air Force organizations to develop better approaches to retain the knowledge of the workforce and moderate knowledge loss through improved knowledge management.

To make knowledge work productive will be the great management task of this century -- just as to make manual work productive was the great management task of the last century. (Drucker, 1969, p. 272)

Limitations and Transferability

The author acknowledges several limitations that affect the generalizability and transferability of the findings. First, this case study illustrates the perspectives of a small sample of civilian employees of the U.S. Air Force. The study is set within the context of strategic-level organizations of the Air Force. Although the U.S. military is often perceived as a homogeneous monolithic organization, it is a federation of organizations with different cultures that are unified by a common mission. Other organizations in the Air Force will have their unique sub-cultures, however, the findings suggest similar elements could be found in other military organizations.

Second, similar contextual factors vary and exert different influences across military organizational levels. The findings may not be appropriate for broader application or other levels of an organization. The bureaucratic and cultural elements of a military organization present unique considerations that may not be present in commercial enterprises. For example, the motivation of a military organization is broadly based on service delivery in support of the national defense while a commercial organization may be driven by profitability or a shareholders return on investment.

Third, the sample of U.S. Air Force civilians represent organizations with different functional responsibilities, which introduces diverse experiences that affect their opinions and lived experiences. The findings and discussion illustrate contextual features that are likely to be consistent with other settings. This study did not differentiate the type of knowledge lost (i.e., new versus existing). The knowledge management documents and policies examined primarily focus on the maintenance of existing or established knowledge within the organization.

However, the findings emerged independent of the type of knowledge and would not be influenced by differentiation.

Finally, the author has more than 35 years of military and government service, which could introduce biases that influenced the study's conclusions despite efforts to minimize them.

Summary

This chapter discussed the research, conclusions, and implications of the findings for theory, practice, and future research on tolerated forgetting in the Air Force. The findings and analysis indicate that strategic-level Air Force organizations tolerate forgetting due to insufficient and misdirected motivations that are reinforced by a systemic organizational culture of acceptance and non-compliance. The result is that organizations do not strategically manage their knowledge resources. The problem is exacerbated by ineffective governance processes to remedy knowledge loss. Managerial focus on short-term, urgent issues reflects the value placed on knowledge, organizational motivations, and an acceptance culture of knowledge loss. Thus, forgetting is tolerated in the Air Force because organizations ostensibly under-appreciate the value of knowledge management to improve performance and effectiveness.

This exploratory case study expands the existing conceptualization of organizational forgetting based on the intent to include contextual issues that have not been previously addressed. It presents four fundamental contextual issues in Air Force organizations that contribute to knowledge loss: (1) motivation and values for knowledge management, (2) a culture of acceptance and lack of accountability for knowledge loss, (3) use of strategic management to establish knowledge needs of the organization, and (4) organizational governance of business processes.

This case study focused on strategic-level organizations within the U.S. Air Force. However, considering the prevalence of tolerated forgetting in both public and private sectors, these findings contribute to broader academic and practical applications. This study contributes to creating better learning organizations in the public sphere (Dyson, 2019; Piening, 2013) by addressing tolerated organizational forgetting.

Air Force strategic organizations face a multitude of highly complex issues every day with far-reaching impacts on the entire service. Managing these issues effectively is a daunting task that is further exacerbated by the changing demographics of today's workforce. The changing demographics challenges government organizations to recruit and retain the requisite knowledge and skills to meet national security needs. This study offers insights for Air Force organizations on organizational forgetting and improved knowledge management to moderate the loss of valuable knowledge that is critical to mission success.

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Appendix A. Institutional Review Board Approval

PROTOCOLS

kuali



**COLORADO STATE
UNIVERSITY**

The protocol listed below has been approved by the CSU IRB Determinations Fort Collins on Thursday, January 4th 2024.

PI: Chermack, Thomas James

Submission Type and ID: Initial 5259

Title: Tolerated Organizational Forgetting in the U.S. Air Force: An Analysis of Knowledge Loss Among Government Civilian Employees

Approval Date: Thursday, January 4th 2024

Expiration Date: no date provided

The CSU IRB (FWA0000647) has completed its review of protocol 5259 Tolerated Organizational Forgetting in the U.S. Air Force: An Analysis of Knowledge Loss Among Government Civilian Employees. In accordance with federal and state requirements, and policies established by the CSU IRB, the committee has approved this protocol under Exempt review.

The IRB determined that this protocol meets the criteria for Exempt Category 2: Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

In conducting this protocol you are required to follow the requirements listed in HRP-103 - INVESTIGATOR MANUAL.

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a new request to the IRB for a determination.

Change of Institutions: If the PI leaves Colorado State, the study must be closed or the PI must be replaced on the study or transferred to a new IRB. Studies without a Colorado State University PI will be closed.

Other Approvals: This Colorado State IRB approval covers only regulations related to human subjects research protections (e.g. 45 CFR 46). This determination does not constitute approval from any other Colorado State campus departments, research sites, or outside agencies. The Principal Investigator and all researchers are required to affirm that the research meets all applicable local/state/ federal laws and university policies that may apply.

If you have questions about this determination or your responsibilities when conducting human subjects research on this project or any other, please do not hesitate to contact Colorado State's HRPP at CSU_IRB@colostate.edu or 970-491-1553. We are here to help!

Sincerely,

Colorado State University Human Research Protection Program/ Institutional Review Boards

Attachments

Interview/Focus Group Questions	Appendix E. Interview Guide (Lee DG).docx	
Other	citiCompletionCertificate_5571925_57869053_Refresher_29Aug23.pdf	CITI Human Research Refresher Certificate
Recruitment Materials	Appendix B. Participant Recruitment and Consent Email (Lee DG)_Amended.docx	Appendix B. Participant Recruitment and Consent Email (Lee DG)_Amended.docx
Recruitment Materials	Appendix C. Executive Summary (Lee DG)_Amended.docx	Appendix C. Executive Summary (Lee DG)_Amended.docx
Interview/Focus Group Questions	Appendix E. Interview Guide (Lee DG)_Amended.docx	Appendix E. Interview Guide (Lee DG)_Amended.docx
Consent	Appendix A. Informed Consent Agreement (Lee DG)_Amended_v2.docx	Appendix A. Informed Consent Agreement (Lee DG)_Amended_v2.docx

If no expiration date is listed above, continuing review is not required for this study.

The [Investigator Manual](#) defines the standards expected of Principal Investigators overseeing the conduct of Human Subjects Research at CSU. Any modifications to the approved study must be submitted for review through [Kuali Protocols](#). All approval letters and study documents are located within the Activity Log in [Kuali Protocols](#).

What are your responsibilities now, as you move forward with your research?

Document Retention: The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure for audit purposes. Documents regulated by HIPAA, such as Release Authorizations, must be maintained for six (6) years.

Site Permission: If your research is conducted at locations outside of Colorado State University (such as schools, hospitals, or businesses), you must obtain written permission from all sites to recruit, consent, study, or observe participants. Generally, such permission comes in the form of a letter from the school superintendent, director, or manager. You must maintain a copy of this permission with study records.

Training: All researchers collecting or analyzing data from this study must renew training in human subjects research via the CITI Program (www.citiprogram.org) every 3 years. New personnel must complete training and be added to the protocol before beginning research with human participants or their data.

Modifications: Change to any aspect of this protocol or research personnel must be approved by the IRB before implementation, except when necessary to eliminate apparent immediate hazards to subjects or others. In such situations, the IRB should still be notified immediately.

Unanticipated Problems/Adverse Events: Unanticipated problems involving risks to subjects or others, serious adverse events, and noncompliance with the approved protocol must be reported to the IRB immediately through a reportable event in [Kuali Protocols](#) in accordance with the [Reportable New Information](#) CSU IRB procedures. When in doubt, consult with the HRPP/IRB.

Monitoring: The HRPP reminds researchers that this study is subject to monitoring at any time by Colorado State University's HRPP staff, Institutional Review Board, Post Approval Monitoring team, or authorized external entities. Timely cooperation with monitoring procedures is an expectation of IRB approval.

Appendix B. Informed Consent

Consent to Participate in Research Colorado State University

You are invited to participate in a research study. The following information is provided to ensure that you thoroughly understand the purpose and nature of your participation. This informed consent form is required by law for each research participant (45 CFR 46.116-117). Please contact Mr. Daniel Lee at [REDACTED] or Daniel.g.lee@colostate.edu with any questions.

TITLE OF STUDY: *Tolerated Organizational Forgetting in the U.S. Air Force: A Case Study Analysis of Knowledge Loss Among Government Civilian Employees*

PRINCIPAL INVESTIGATOR: Thomas Chermack, PhD Advisor, School of Education (Organizational Learning, Performance, and Change), Colorado State University; Email: Thomas.chermack@colostate.edu

CO-PRINCIPAL INVESTIGATOR: Daniel Lee, PhD candidate, School of Education (Organizational Learning, Performance, and Change), Colorado State University; Email: daniel.g.lee@colostate.edu

WHY AM I INVITED TO PARTICIPATE IN THIS RESEARCH? Your participation is requested based on your work experience in a strategic-level Air Force organization. Specifically, the investigator seeks to interview approximately 20 Air Force civilian employees who have experienced organizational forgetting or knowledge loss that has impacted their job performance or productivity. Knowledge loss may be attributed to organizational factors such as individuals leaving, management processes, information systems, or culture.

WHO IS DOING THE STUDY? The study is being conducted by Daniel Lee, PhD candidate, School of Education (Organizational Learning, Performance, and Change), Colorado State University, under the guidance of the Principal Investigator/Advisor, Thomas Chermack, PhD.

WHAT IS THE PURPOSE OF THE STUDY? The purpose of this qualitative case study will be to explore the contextual elements that contribute to organizational forgetting in the Air Force. Specifically, to investigate how tolerance for forgetting or knowledge loss is reflected by organizational advocacy, accountability, and processes as experienced by the civilian workforce. The ultimate goal of this research is to improve organizational knowledge management and overall performance within the Department of Defense given the current human capital, workforce, and national security challenges.

WHAT IS THE PROCESS AND MY COMMITMENT? If you agree to participate in this study, Daniel Lee will conduct an interview with you at the time and date of your choice. No other individuals are expected to participate. The interview should last about an hour. The interview will be conducted via Zoom or Microsoft Teams and recorded with your permission for transcription purposes.

(Page 1 of 3)

The transcription will be shared with you for validation and for any corrections or clarifications you require.

WHAT WILL I BE ASKED? You will be asked a series of questions about your experiences and perspectives related to forgetting or knowledge loss in your organization. The questions focus on contextual organizational issues and not about individuals' or personal faults. Questions are designed to investigate (1) Why do Air Force organizations tolerate knowledge loss and often forget what should be known? (2) How do Air Force organizations prioritize learning and knowledge management activities? and (3) How are organizational processes, systems, and culture managed to address knowledge loss?

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS? There are no foreseeable risks associated with this study. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks. If you are uncomfortable at any time, you may stop or pause the interview.

WHAT ARE THE BENEFITS TO ME? There is no direct benefit to you from taking part in this study. However, the researcher hopes that the research will shed new light on how to remedy the current and anticipated intellectual capital challenges through more effective knowledge management in the public sector and particularly in the DoD.

CAN I BE IDENTIFIED BY MY RESPONSES? Your identity and association with responses will be private and only be seen by the researchers. The only exceptions to this are if we are asked to share the research files for audit purposes with the CSU Institutional Review Board ethics committee, if necessary.

If the results of this study are published or presented, individual names and other personally identifiable information will not be used. As with all research, there is a chance that confidentiality could be compromised. For example, another individual may recognize your sentiments and make an association with you from the final study document. We assess that the risk to your confidentiality is low. However, we are taking the following precautions to minimize this risk:

- Each interview participant will be assigned a "P" and unique number (e.g., P1, P2, P3, etc.)
- The association of the alphanumeric codes with a name and organization will be maintained in a secured code-key file on the researcher's local storage drive and in a cloud-based database.
- All data storage locations will be configured with multi-factor authentication to limit access to only the researcher and the principal investigator (PI).
- This code will replace an individual's name in all transcripts, research notes, or documents.
- Digital recordings will be destroyed by the researcher at the conclusion of the study.

After de-identification (i.e., removal of all personally identifiable data), information may be used for future research studies or distributed to another investigator for future research studies without additional informed consent from the subject or the legally authorized representative.

(Page 2 of 3)

The researcher recognizes that interviewees may provide information that could be perceived as disparaging by Air Force leadership and thus incur a potential risk to their personal and professional reputation.

WILL I BE COMPENSATED FOR MY PARTICIPATION? You will not be paid or compensated for taking part in this study.

AM I REQUIRED TO PARTICIPATE? Your participation is completely voluntary, and you may decline to answer any question or withdraw from the study at any time you desire without consequence.

WHAT IF I HAVE ADDITIONAL QUESTIONS? If you have any questions about this research, please feel free to contact the researcher at [REDACTED] or Daniel.g.lee@colostate.edu. You may also contact the Principal Investigator, Dr. Thomas Chermack at [REDACTED] or Thomas.chermack@colostate.edu. If you have any questions about your rights as a volunteer in this research, contact the Colorado State University Institutional Review Board (IRB) at: 970-491-1553, or e-mail CSU_IRB@colostate.edu.

CONSENT

By signing below, you agree that: I have read and understand the information provided. I voluntarily wish to participate in this research and understand that I am free to withdraw at any time, without reason or cost. My signature also acknowledges that I have received, on the date signed, a copy of this three-page informed consent document.

Do you consent for your interview to be recorded? (Check one.)

- Yes
 No

Do you consent for the researchers to contact you for follow-up questions related to this study or to participate in new research? (Check one.)

- Yes
 No

Signature of Study Participant _____
Date

Printed Name of Study Participant: _____

Name of Person providing information: Daniel Lee

Signature of Research Staff _____
Date

Appendix C. Participant Recruitment and Consent Email

To: (Prospective Participant)

Subject: Invitation to Participate in a Research Study

Dear (Prospective Participant),

My name is Daniel Lee, and I am a doctoral candidate at Colorado State University School of Education (Organizational Learning, Performance and Change). I am conducting my dissertation research on tolerated organizational forgetting within strategic-level Air Force organizations. The purpose of this qualitative case study is to gain a deeper understanding of organizational forgetting in a U.S. government organization. Specifically, I aim to investigate how tolerance for forgetting or knowledge loss is experienced by civilian employees in Air Force organizations.

Department of Defense guidance emphasizes the importance of effective knowledge management for agile and accurate decision-making in highly dynamic environments. However, limited research has examined how knowledge is managed in U.S. government organizations. More specifically, it is unclear how and why knowledge is lost or forgotten. Such knowledge loss contributes to performance inefficiencies, unnecessary costs to U.S. taxpayers, and the potential inability of military forces to meet national security requirements. This is in addition to the practical frustrations of effort often expended recreating knowledge or “re-inventing the wheel.” The ultimate goal of this research is to improve organizational knowledge management and overall performance within the Department of Defense given current human capital, workforce, and national security challenges.

I am soliciting your participation based on your professional experience in a Major Command or higher headquarters organization. Your participation will involve a recorded interview of approximately one hour via Zoom or Microsoft Teams on a date and time of your choosing within the timeframe of January through February 2024.

I have attached an Informed Consent Agreement, Executive Summary, and interview guide for your preview and preparation. If you agree to participate, please sign the required Informed Consent Agreement and return it to me via email at Daniel.g.lee@colostate.edu or mail Mr. Daniel Lee, [REDACTED]. I will contact you after I receive this consent form to coordinate a suitable interview date and time.

Please do not hesitate to contact me if you have any questions or concerns regarding this study. Thank you for your consideration.

Sincerely,
Daniel Lee
Doctoral Candidate
Co-Principal Investigator
Colorado State University

Thomas Chermack, Ph.D.
Professor
Principal Investigator
CSU School of Education

TOLERATED ORGANIZATIONAL FORGETTING IN THE U.S. AIR FORCE: A CASE STUDY ANALYSIS OF KNOWLEDGE LOSS AMONG GOVERNMENT CIVILIAN EMPLOYEES

Individuals and organizations do not learn well and, as a result, they lose valuable knowledge.³ When knowledge is lost in organizations, it forces workers to spend as much as 25% of their workday looking for information to do their jobs, which contributes to workplace frustration, anxiety, and personnel retention challenges.

The purpose of this qualitative case study will be to explore the contextual elements that contribute to organizational forgetting and knowledge management in the U.S. Air Force. Specifically, this study aims to investigate what factors contribute to the loss of knowledge from the perspective of the civilian workforce.

Studies on knowledge management, information systems, and organizational memory have increasingly examined organizational forgetting and knowledge loss in organizations. Knowledge loss is influenced by the management of personnel, processes, and systems. Organizational forgetting is defined as either accidental or purposeful knowledge loss. Accidental knowledge loss is often attributed to poor knowledge retention processes during personnel turnover and inadvertent destruction of content. Purposeful “unlearning” is the process of forgetting “old ways” of business to become more innovative. Organizations must manage what they know, as well as what and how they forget prior knowledge.

Organizational forgetting in the public sector is the focus of the current research to help organizations learn better. The goal is also to improve our understanding of why organizations tolerate knowledge loss and how to address the disappearance of expertise. This perspective is valuable considering the lack of knowledge management research in the Department of Defense and the impact of knowledge loss given current human capital, workforce, and national security challenges.

Participants (Sample)

Semi-structured, problem-centered, expert interviews will be conducted with approximately 20 Air Force (DAF) civilians from strategic-level organizations (i.e., HAF, AFPC, AETC, AFLCMC). Participants and their organizations will be anonymized. Individuals will be purposively selected from the researcher’s professional and personal associations based on participants’ expertise and organizational roles. Purposive sampling will enable the selection of an appropriate cross-section of women and men, roles and responsibilities, and organizational experience for an information-rich case.

³ See Argote, L., & Levine, J. M. (2020). Group and organizational learning: Past, present, and future. In L. Argote, J. M. Levine (Eds.). *The Oxford handbook of group and organizational learning* (pp. 3-20). Oxford. <https://doi.org/10.1093/oxfordhb/9780190263362.013.3>

Appendix E. Interview Guide

I. INTRODUCTION (00:00:00 - 00:01:30)

- Welcome and Orientation

“Hello and thank you for your time today. As I shared in my email invitation, I am collecting data for my dissertation research on organizational forgetting. Specifically, I am exploring why organizations tolerate the loss of knowledge.

Knowledge in this context is the employees’ experience-based collective memory and shared understanding an organization brings together. Your thoughts, impressions, and experiences are valuable to understanding this phenomenon.

I have a few questions that I hope will mostly be conversation starters. I suspect that our conversation could go on for quite a while, but I want to respect your time so I hope we can capture your thoughts in about an hour. Is that okay with you?”

- Verification of Informed Consent and approval to record.

“Before we begin, I need to make sure you have read, understand, and agree to the Informed Consent Agreement that you signed and returned to me. Do you have any questions?”

Additionally, will you allow me to record our conversation? You may ask that I stop at any time. You will also have an opportunity to review the recording and transcript for any corrections after our conversation. The recording and transcript will allow me to better capture our conversation, your sentiments, and accurately analyze the thoughts from all participants.

Everything that we discuss is confidential with no personal attribution to you. Your comments will be de-identified to reduce the risk of anyone associating your comments with you or your organization. Identifiable details should be minimized where possible.”

(Begin recording)

- Summary of the Study and Interview Purpose

“The purpose of this qualitative study is to explore the contextual elements that contribute to organizational forgetting in the U.S. Air Force. Specifically, I want to investigate how and why strategic-level organizations tolerate the loss of knowledge from the perspective of the civilian workforce. Managing organizational knowledge involves a variety of factors associated with systems, processes, people, and culture. This interview is to solicit your thoughts on why organizations tolerate knowledge losses. If you have experience in multiple Air Force organizations as a civilian, that is welcome as well.”

- Do you have any questions before we begin?”

II. DEMOGRAPHICS (00:01:30 – 00:02:30)

Name			
Age Range	<input type="checkbox"/> 20-29	<input type="checkbox"/> 40-49	<input type="checkbox"/> 60-69
	<input type="checkbox"/> 30-39	<input type="checkbox"/> 50-59	<input type="checkbox"/> 70-79
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	<input type="checkbox"/> Decline to ID
Organization		Prior Military?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Time in the Organization	<input type="checkbox"/> < 3 years	<input type="checkbox"/> 3-5 years	<input type="checkbox"/> 5-10 years <input type="checkbox"/> >10 years
Responsibilities	<input type="checkbox"/> Supervisor	<input type="checkbox"/> Analyst	<input type="checkbox"/> Tech SME <input type="checkbox"/> Finance
Roles/Job Description			
Education Level	<input type="checkbox"/> GED/HS Diploma <input type="checkbox"/> Some College <input type="checkbox"/> Associate	<input type="checkbox"/> BA or BS <input type="checkbox"/> MA or MS <input type="checkbox"/> Doctorate (PhD or DBA)	

III. INTERVIEW QUESTIONS

1. What were your first thoughts or impressions of the topic of “organizational forgetting” when I approached you to participate in this research? Common examples of organizational forgetting are when people have to “re-invent the wheel,” relearn a skill or process that a former co-worker knew, or revisit issues that have already been addressed. In other words, forgetting knowledge that could or should have been saved. (PCEI Introduction) (EBQ)
2. *Why do you think your organization tolerates or accepts forgetting?* (Primary RQ) (PCEI Comprehensive) (OVQ)
 - Possible Follow-Up: Do you think your leadership realizes any issue(s) with knowledge loss? Why or why not?
 - Possible Follow-Up: Have you experienced situations of “re-inventing the wheel? Can you describe the experience and why you think this happened?

- Possible Follow-Up: Are there motivations or drivers for your organization to forget what has or should be learned?
 - Possible Follow-Up: Are you aware of any systemic issues beyond the organization's control that force knowledge loss (i.e., hiring processes)?
3. How does your organization prioritize or advocate knowledge retention and sharing efforts to remedy organizational forgetting? (Secondary RQ) (CONTEXT/PROCESSES) (OVQ)
- Possible Follow-Up: How is your organization structured to capture, retain, and apply lessons learned?
 - Possible Follow-Up: Does your organization use meeting minutes or other recordkeeping processes? Why or why not?
 - Possible Follow-Up: How would you describe accountability and responsibility for knowledge management in your organization?
4. How does your organization use information management systems and tools to optimize knowledge sharing, retention, and reuse? These systems and tools are usually Microsoft Office applications, but your organization may use others. (Secondary RQ) (SYSTEMS/TOOLS) (EBQ)
- Possible Follow-Up: How does your organization ensure everyone possesses the required skills or digital literacy to be proficient with these applications?
 - Possible Follow-Up: Does your organization use governance or procedures to standardize how knowledge is saved for re-use? If not, why?
5. How would you characterize your organization's awareness of what is lost when individuals leave or change roles in the organization? (INDIVIDUALS) (OVQ)

- Possible Follow-Up: What do you think would happen to the knowledge you have acquired about your work if you left the organization?

IV. CLOSING

“Thank you for your time and your perspectives. This has been extremely helpful.”

6. Is there anything else that you would like to add or share?

Types of Questions (Döringer, 2021; Patton, 2015)

PCEI=Problem-Centered Expert Interview; EBQ= Experience/Behavior Question; OVQ= Opinion/Value Question; KQ=Knowledge Question

Appendix F. Coding and Categorization

Theme	Category	Description	Code*	Description	Prevalence	
<u>Motivation and Values:</u> Knowledge management activities are often relegated to other tasks and dependent on localized efforts rather than a systematic organizational approach.	Individual performance	Assessment of work performed	<i>Awareness</i>	Recognition of knowledge loss	77	
	Appreciation	Value-based judgment of positive contribution to organization		Personal values and motivation towards KM	Individual perspectives on organizational KM	74
				Culture of individual focus	Incentives for individual achievement over organizational success	25
				<i>Value of knowledge</i>	Judgement or discernment to assert contributions of the knowledge	44
				Motivation	Organizational drivers and barriers to change	35
	Recognition	Impact of an issue, situation, or condition		<i>Appreciation</i>	Acknowledgement of value-add of individual knowledge	8
				Leadership decisions and priorities	Hierarchical management of undocumented decisions	28
				<i>Lost skills</i>	Forgotten from disuse	19
				<i>Cognition</i>	Shared information, ideas, attitudes, norms, and values.	8
			<i>Knowledge-inhibiting activities</i>	Tasks and processes that undermine learning	5	

Theme	Category	Description	Code*	Description	Prevalence
<u>Acceptance Culture and Accountability:</u> Broad contextual elements habituate organizations to knowledge loss.	Process management	Alignment of processes with organizational objectives	<i>Accountability</i>	KM is everyone's responsibility, but no one is accountable	63
			<i>Implementation</i>	Management plans made but not completed	35
			Personnel turnover and transfer	Methods to retain departing knowledge and ensure availability for replacement employee	28
			Assessing performance	Lack of organizational mechanisms to measure progress	9
			<i>Institutionalization</i>	Transfer of knowledge into organizational memory and applications	9
	Systemic elements	Broad external influences	Leadership acceptance	Tacit acknowledgement of knowledge loss without expending resources to address the issue	31
			Workload	Smaller workforce with the same functional responsibilities	26
			Big AF culture	Risk averse environment where lessons are observed, not learned	22
	Risk avoidance	Indecision and inaction	Indecision	Avoid and defer decisions to others	14
			Risk	Calculation of benefits and cost	9
<u>Strategic Management:</u> A focus on near term	Continuity	Intentional planning for organizational and personnel changes	Government-contractor balance	Deferring skilled work to external contractor workforce	32

Theme	Category	Description	Code*	Description	Prevalence
objectives creates strategic blindness.	Prioritization of efforts	Methodical alignment of work towards long term objectives	Transition process	Changes to contract support teams and personnel without processes to minimize knowledge loss	24
			<i>Knowledge Sharing</i>	Social interaction to distribute knowledge	22
			<i>Learning</i>	Ineffective reflective, retention processes	22
			Urgent vs. important issues	Short term gains prioritized over long term objectives	42
			Constantly changing priorities and tasks	Work assignments and responsibilities in perpetual flux	22
	Organizational management	Arrangement of personnel and work to meet organizational requirements	Competing priorities of leadership	Leaders of interdependent organizations out of synch	11
			<i>Organizational design</i>	Hierarchy influence on knowledge flow; Bureaucracy and adhocracy	38
			Lack of expertise	Individuals assigned to roles without proper skills	21
			<i>Organizational restructuring and churn</i>	Disruptive reorganizations; Creates "new" organizations for employees to relearn and lose touch with the history	16

Theme	Category	Description	Code*	Description	Prevalence
Organizational Governance: Organizations continuously operating under reactionary, undocumented processes.	Performance management	Managed processes of work to meet objectives	Lack of business processes	Lack of documentation to ensure consistent practices	37
	Systems and Tools	Application of information systems technology in the organization	Governance	Lack of established organizational standards to guide decision making and resource allocation	25
			Compliance	Standards are documented but without accountability	12
			Technology and record keeping	Practices and approaches to using available information systems	32
			Digital literacy	Individuals' understanding and abilities to effectively use information systems	23
			Technical change	Process of delivering new technical capabilities to the workforce	21
			Technical adoption	Willingness to embrace new ways of work with technology	17
			<i>Accessibility</i>	Content is lost in repositories	15
			<i>Physical repositories</i>	Decay from disuse/time	13
	Roles and responsibilities	Description of work functions by organization and individual	Cohesion and collaboration	Localized efforts to develop cross-organizational teammates	27

Theme	Category	Description	Code*	Description	Prevalence
			Work priorities	Reactionary work to fill emergent needs and skills gaps	25
			Workplace roles	Difference between the job description and an individual's work performed	23
			Managerial agency	Managerial influence on creating a learning environment	22
			<i>Information flow</i>	Connectivity for knowledge transfer	20
			<i>Leadership advocacy</i>	Support/endorsement for knowledge management	27
	Decision making	Intentional mechanism to allocate resources and guide activities	<i>Poor record keeping</i>	Decisions aren't recorded; Meeting notes not retained	13
			Resource investment	Limited resources in time, money, and people	10
			<i>Politics</i>	Organizational and personal motivations for decisions	9
			Challenging to maintain knowledge	Requires commitment, time, training and education	3

Appendix G. Knowledge Management Policy Documents

Level of Policy	Document	Purpose	Analysis
<p>Federal: Strategy, policy, and high-level vision to direct all elements of national power and influence in support of protecting America’s vital interests. National level.</p>	<p>OMB Circular A-130, “Managing Federal Information as a Strategic Resource”</p>	<p>Establish information resource management and privacy policies.</p>	<p>Broad guidance on the use of information systems to improve government performance through information and information technology management.</p>
<p>Department: Captures, clarifies, and translates national guidance into Defense Department priorities and resourcing to meet threats. The ways, ends, and means to defend the nation. Strategic level.</p>	<p>DoD Instruction 5015.02, “DoD Records Management Program,” 17Aug2017</p>	<p>Establish policy and assign responsibilities for DoD records management.</p>	<p>Focused on records (content) management in all formats to ensure records retention complies with statutory requirements.</p>
	<p>CJCS Instruction 5760.01B, “Records and Information Management Policy”</p>	<p>Establish policy and identify organizational responsibilities for life-cycle management of records and information.</p>	<p>Focused on records (content) management with information systems.</p>
	<p>CJCS Instruction 5780.01, “Joint Knowledge Management Program”</p>	<p>Provide knowledge management policy guidance for multi-service (aka “Joint Force”) Commanders working with other agencies and coalition partners.</p>	<p>Comprehensive document. Only document to highlight value of knowledge management to avoid knowledge loss. Applies to joint forces, not individual services (i.e., Air Force).</p>

Level of Policy	Document	Purpose	Analysis
	DoD Instruction 8170.01, "Online Information Management and Electronic Messaging," 24Aug2021	Establish policies, assign responsibilities, and prescribe procedures for managing electronic messaging and online information.	Focused on the management of online messaging systems and the transmitted content.
	DoD Instruction 8320.02, "Sharing Data, Information, and Information Technology (IT) Services in the Department of Defense," 24Jun2020	Establish policies, assign responsibilities, and prescribe procedures for securely sharing electronic data, information, and IT services.	Focused on use of technology for data and information sharing.
	Joint Staff J7 "Insights and Best Practices Focus Paper on Knowledge and Information Management (KM and IM)" (3 rd ed., May 2018)	Provide practical guidance and suggested approaches for improved knowledge sharing and information flow to support decision making.	Document captures lessons from past planning and operations by joint headquarters organizations as observed by Joint Staff Training Division (J7). The fundamental knowledge management objective is to improve shared understanding in the joint warfighting environment.
Service: Operationalizes policy and guidance directives. Organizational level.	AF Policy Directive 33-3, "Information Management," 21Jun2016	Establish Air Force policy for information management and access.	Focused on management of information resources to ensure data access, records management, and proper use

Level of Policy	Document	Purpose	Analysis
			of technology. Mandatory compliance.
	AF Instruction 33-322, "Records Management and Information Governance Program," 28Jul21	The overall goal of the Air Force records management program is to adequately and properly document the policies, transactions, and management of Air Force activities	Focused on records (content) management in all formats to ensure records retention complies with DoD policy and statutory requirements. Mandatory compliance.
	AF Manual 33-396, "Knowledge Management," 12Aug2019	Identify knowledge management resources to improve mission performance, and provide guidance for effective and efficient use of knowledge resources.	Presents a high-level framework for knowledge management to include a robust description of required core competencies (Table A2.1). Mandatory compliance.

List of Abbreviations

CJCS	Chairman, Joint Chiefs of Staff
DAF	Department of the Air Force
DBB	U.S. Department of Defense Business Board
DoD	U.S. Department of Defense
GAO	Government Accounting Office
IT	Information Technology
JCS	Joint Chiefs of Staff
KM	Knowledge Management
NASA	National Aeronautics and Space Administration
NDS	National Defense Strategy
NSS	National Security Strategy
NMS	National Military Strategy
OODA	Observe, Orient, Decide, Act
OPM	Office of Personnel Management