



**ORGANIZATIONAL FORGETTING PART I:
A REVIEW OF THE LITERATURE AND FUTURE RESEARCH
DIRECTIONS**

Journal:	<i>The Learning Organization</i>
Manuscript ID	TLO-12-2019-0182
Manuscript Type:	Article
Keywords:	Organizational Forgetting, knowledge loss, knowledge depreciation, unlearning, organizational knowledge

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Manuscripts

Accepted manuscript of:

Mariano, S., Casey, A. and Olivera, F. (2020), "Organizational forgetting Part I: a review of the literature and future research directions", *The Learning Organization*, Vol. ahead-of-print No. ahead-of-print.

<https://doi.org/10.1108/TLO-12-2019-0182>

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ORGANIZATIONAL FORGETTING PART I:

A REVIEW OF THE LITERATURE AND FUTURE RESEARCH DIRECTIONS

Abstract

Purpose: The purpose of this two-part paper is to systematically review and synthesize the literature on organizational forgetting.

Design/methodology/approach: A systematic literature review approach was used to synthesize current theoretical and empirical studies on organizational forgetting.

Findings: The review and synthesis of the literature revealed that (1) the organizational forgetting literature is fragmented, with studies conducted across disparate fields and using different methodologies; (2) two primary modes (i.e., accidental and purposeful) and three foci (i.e., knowledge depreciation, knowledge loss, and unlearning) define current organizational forgetting literature; and (3) the factors that influence organizational forgetting can be grouped into four clusters related to individuals, processes, tools, and organizational context.

Research limitations: This literature review has limitations related to time span coverage and journal article accessibility.

Originality/value: This paper offers an integrative view of organizational forgetting that proposes a holistic and multilevel research approach and systematic synthesis of organizational forgetting research.

Article classification: Literature review

INTRODUCTION

In an age of disruption, an aging workforce, and increased emphasis on big data analytics, managing organizational knowledge becomes crucial. Effective knowledge management involves capturing, retaining, and transferring valuable lessons from past experiences as well as quickly discarding practices that have become obsolete or irrelevant to organizational purposes (Argote and Miron-Spektor, 2011; Becker, 2010, 2018a, 2018b; Massingham, 2008). These activities are especially important because of rapid technological advancements that require agile organizational responses (Blackler *et al.*, 1999); the disruptions caused by turnover of an entire generation retiring from the workforce (Bratianu and Leon, 2015; Joe *et al.*, 2013; Calo, 2008); and the challenges of knowledge retention when organizations have access to vast amounts of data and information and sophisticated data analysis tools (George *et al.*, 2014). Given the relevance of such challenges, it is not surprising that scholars are increasingly interested in the study of organizational forgetting from theoretical and empirical standpoints.

This two-part review provides a systematic analysis and synthesis of this organizational forgetting literature and suggests a research agenda to enhance our understanding of organizational forgetting. The field has followed three different, albeit related, lines of inquiry: knowledge depreciation (e.g., Argote *et al.*, 1990), knowledge loss (e.g., Daghfous *et al.*, 2013), and unlearning (Hedberg, 1981). These lines of inquiry—which have evolved mostly independently but have addressed fundamental aspects of organizational forgetting—are the focus of our review, which adds to some recent syntheses focusing on unlearning and forgetting (Klammer and Gueldenberg, 2019a) and intentional forgetting (Kluge and Gronau, 2018), as well as organizational forgetting empirical work (Kluge *et al.*, 2019).

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Our synthesis of the literature revealed that current organizational forgetting work is fragmented, with studies conducted across disparate fields and using different methodologies. Two primary modes (i.e., accidental and purposeful) and three foci (i.e., knowledge depreciation, knowledge loss, and unlearning) define current organizational forgetting literature. Four clusters of factors related to individuals, processes, tools, and organizational context influence organizational forgetting.

This Part I review is organized as follows. First, we explain our review methodology (Suddaby, 2010; Tranfield *et al.*, 2003; Webster and Watson, 2002). Second, we define organizational forgetting and present a chronological distribution of the articles included in this review. Third, we present a literature-driven organizing framework. We close with conclusions.

METHODOLOGY

To identify publications about organizational forgetting, we followed the process recommended by Tranfield *et al.* (2003) and Webster and Watson (2002) and conducted a systematic literature review of work published in 48 journals between 1970 and 2018, adding more recent articles that appeared in 2019 (i.e., Klammer and Gueldenberg, 2019a, 2019b; Cutcher *et al.*, 2019; Levallet and Chan, 2019). We followed three basic steps to assess current contributions: planning, conducting, and reporting (Tranfield *et al.*, 2003). An overview of the process and results is offered in Table 1, Table 2, and Figure 1.

Insert Tables 1 and 2 and Figure 1 about here

ORGANIZATIONAL FORGETTING LITERATURE STATUS OF KNOWLEDGE**Definitions**

We take as a point of departure the conceptualization of organizational forgetting provided by Martin de Holan and Phillips (2004b). They defined organizational forgetting as “the loss, voluntary or otherwise, of organizational knowledge” (2004b: 1606). We found this definition appropriate for the purpose of this review because, although recently confronted (Hatch and Schultz, 2017; Foroughi and Al-Amoudi, 2019), it has been used widely in the literature, incorporates the role of agency (i.e., purposeful forgetting), and encompasses a set of foci that reflects the key domains of study in the literature, that is, knowledge depreciation, knowledge loss, and unlearning.

Employing this conceptualization in our systematic analysis and synthesis of the organizational forgetting literature helped us assess the development in the field of the four proposed modes of organizational forgetting—dissipation, degradation, suspension, and purging—to see whether or not this taxonomy contributed to a concrete advancement in current understanding. It also helped us form an impression of the role of agency in purposeful organizational forgetting studies with specific reference to the contribution of key individuals’ cognition and behaviors. Finally, it helped us understand the extent to which distinguishing between newly acquired knowledge and knowledge already existing in organizations possessed strong theoretical value for the study of knowledge depreciation, knowledge loss, and unlearning. From this assessment, we were able to identify the use of the two primary modes of forgetting (i.e., accidental and purposeful) and distinguish three foci (i.e., knowledge depreciation, knowledge loss, and unlearning) that, as a whole, define current organizational forgetting literature, as described in the following sections.

Chronological Development of the Three Fields of Study

The topic of “knowledge depreciation” was studied primarily in research on learning curves that started appearing in the 1950s and developed in the 1970s (e.g., Baloff, 1970), 1980s (e.g., Smunt, 1987; Sule, 1983), and 1990s (e.g., Darr *et al.*, 1995; Epple *et al.*, 1991; Argote *et al.*, 1990), with one of the first papers published in the economics literature to discuss how production interruptions had a negative effect on learning curves (Hirsch, 1952). This literature on knowledge depreciation referred to unintentional and gradual knowledge decay in production settings that could be empirically calculated through estimated models (e.g., Thompson, 2007; Benkard, 2000; Argote *et al.*, 1990). Almost the entire set of articles we reviewed (N=18) were empirical (n=17), mostly quantitative (n=14), with a few exceptions including two experiments and one mixed-methods study. These articles were predominantly published in the economics (n=3), operation research (n=4), and management science literature (n=5), with a few studies published in general and human resources management journals (n=3), organization studies journals (n=2), or as book chapters (n=1). Human capital theory (n=2) and learning curve theory (n=14) dominated the theoretical perspectives of these studies, with a few exceptions focusing on organizational memory or organizational routines (n=2). Contrasting findings emerged regarding depreciation rates and why depreciation occurs in organizations.

The term “knowledge loss” has been used since the 2000s (e.g., Eckardt *et al.*, 2014; Schmitt *et al.*, 2011; Treleaven and Sykes, 2005) to describe the accidental disappearance of existing organizational knowledge. Knowledge loss appeared to depend on retention failures and, compared to knowledge depreciation, occurred more immediately. Researchers who studied knowledge loss did not use estimated models compared to those who studied knowledge depreciation, and they often used the two terms interchangeably (e.g., Daghfous *et al.*, 2013;

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3 Cattani *et al.*, 2012). Similarly to the knowledge depreciation literature, contributions to the
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5 knowledge loss literature (N=40) were mostly empirical (n=32), although qualitative studies
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7 were predominant (n=20) compared to quantitative (n=6) or mixed-methodology studies (n=6).
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10 Conceptual contributions also started appearing (n=8), mostly during the 2000s decade.
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12 Knowledge loss articles were predominantly published in general management (n=10),
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14 management development (n=4), organization studies (n=17), and strategy journals (n=6), with
15
16 the exception of one key article published in the management science literature (i.e., Martin de
17
18 Holan and Phillips, 2004b) and two book chapters that both took an activity theory perspective
19
20 on knowledge loss (Blackler *et al.*, 1999; Engeström *et al.*, 1990). Additional theories employed
21
22 widely in this literature included the knowledge-based view of the firm (n=12), organizational
23
24 learning theory (n=6), and human capital theory (n=4), along with a few other theories such as
25
26 organizational memory, organizational identity, transaction cost theory, practice-based theory,
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28 critical realism, and social network theory.
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33 Finally, the term “unlearning” refers to the purposeful removal of existing organizational
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35 knowledge, although clarification and alignment of terminology are still needed (Becker, 2019).
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37 The first use of the term was traced to the work of Dewey published in 1938 (see Nguyen, 2017),
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39 and the concept has since followed the popular theorizing by Hedberg (1981) on how
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41 organizations learn and unlearn. Unlearning research developed increasingly in the last 15 years
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43 (e.g., Volland, 2019; Klammer *et al.*, 2019; Fiol and O’Connor, 2017a, 2017b; Gutierrez *et al.*,
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45 2015; Martin de Holan, 2011; Becker, 2010). In contrast to the knowledge depreciation and loss
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47 literature, contributions to the unlearning literature (N=53) were mostly conceptual (n=27).
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49 Empirical contributions also appeared in the literature, especially in more recent years (n=26),
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51 with a predominance of qualitative studies (n=14); a stronger underpinning of empirical research
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on unlearning is needed (Becker, 2019; Kluge *et al.*, 2019). Interestingly, articles were quite scattered across a variety of fields, including general management (n=17), human resource management (n=2), information management (n=2), innovation (n=3), management development (n=3), marketing (n=1), technology management (n=1), organization studies (n=15), strategy (n=4), or as book chapters (n=5).

Unlearning studies made extensive use of learning theories (n=14), along with behavioral strategy or agency theories (n=8). Additional theoretical perspectives included the resource-based view and knowledge-based view of the firm, organizational memory, institutional theory, and dynamic capabilities theory. Most of this literature discussed unlearning in the context of organizational learning and change and focused on the role of managerial cognition and actions (e.g., Gutierrez *et al.*, 2015; Martin de Holan, 2011; Akgün *et al.*, 2007; Sinkula, 2002; Barker *et al.*, 2001; Mezias *et al.*, 2001) and on political issues (e.g., Coopey and Burgoyne, 2000; Cutcher *et al.*, 2019; Foroughi and Al-Amoudi, 2019) related to unlearning. Several studies also pointed out the role of environmental conditions in unlearning (e.g., Leal-Rodriguez *et al.*, 2015; Cegarra-Navarro *et al.*, 2012). Of note is the ongoing debate on what it means to unlearn and whether unlearning exists (e.g., Tsang, 2017; Howells and Scholderer, 2016).

Table 3 provides a chronological synthesis of the literature in these three areas.

Insert Table 3 about here

LITERATURE-DRIVEN ORGANIZING FRAMEWORK AND KEY RESEARCH STUDIES

After we reviewed and categorized the literature chronologically, we followed an inductive theorizing process (Tranfield *et al.*, 2003) to organize key research studies into a

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3 literature-driven framework that would capture the modes, foci, and factors influencing
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5 organizational forgetting. This inductive theorizing process involved several iterative phases of
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7 data reduction, display, and conclusion drawing/verification (Miles and Huberman, 1994) and
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9 included a certain degree of flexibility, active interrogation of data, and constant comparison
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11 (Strauss and Corbin, 1998). Through this inductive theorizing, we identified two modes (i.e.,
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13 accidental and purposeful) and three foci (i.e., knowledge depreciation, knowledge loss, and
14
15 unlearning) of organizational forgetting. We were also able to synthesize the factors influencing
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17 organizational forgetting that met the requirements of recurrence, repetition, and forcefulness
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19 organizational forgetting that met the requirements of recurrence, repetition, and forcefulness
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21 and emerged in an iterative way (Owen, 1984), forming four clusters related to individuals,
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23 processes, tools, and organizational context. As a whole, these clusters define current
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25 understanding of the factors influencing organizational forgetting and constitute the objects of
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27 discussion in existing theoretical and empirical studies.
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31 Figure 2 represents visually the modes, foci, and factors that influence organizational
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33 forgetting. In the next sections we present findings grouped into the four clusters of individuals,
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35 processes, tools, and organizational context and discuss related literature on knowledge
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37 depreciation, knowledge loss, and unlearning.
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Insert Figure 2 about here

43 44 45 46 **Individuals: Turnover and Managerial Agency**

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49 Most studies have addressed organizational forgetting in relation to individuals who
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51 belong to or lead organizations, discussing the role of turnover and managerial agency as
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53 potential factors influencing organizational forgetting.
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3 **Turnover.** Turnover is defined as the departure or movement of organizational members.

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5 A large stream of research (n=7, 41%) in the accidental forgetting literature focused on the role
6
7 of turnover, discussing its detrimental effect on organizational performance and change.

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10 Although a definite link between turnover and depreciation rate has not yet been made in the
11
12 knowledge depreciation literature, there is a tendency to attribute fast knowledge depreciation to
13
14 high turnover rates, with some exceptions. Turnover seemed to drive knowledge depreciation in
15
16 manufacturing settings such as aircraft production (Benkard, 2000) and food processing (Lopez
17
18 and Sune, 2013), where workers embodied production experience and knowledge. However, this
19
20 effect did not seem to hold in shipbuilding manufacturers (Argote *et al.*, 1990; Thompson, 2007),
21
22 where other factors such as transfer mechanisms or changes in the product mix were proposed to
23
24 better explain depreciation rates. Similarly, in the service industry, studies of pizza franchises
25
26 (Darr *et al.*, 1995) and ambulance companies (David and Brachet, 2011) appeared to connect
27
28 depreciation to turnover. This last finding seems to confirm the hypothesis that organizations
29
30 with skilled workers are more affected by depreciation in the presence of high turnover rates
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32 (Argote, 2013).
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38 In the knowledge loss literature, researchers investigated how turnover influenced
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40 organizational knowledge and what consequences it had on organizational memory and decision
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42 making. The focus of this stream of literature (n=25, 66%) was on the characteristics of members
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44 leaving the organization, supporting the hypothesis that turnover might have a higher or lower
45
46 influence on knowledge loss depending on who departs and what personal and relational
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48 knowledge leaves with them. For instance, turnover was found to increase costs and
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50 inefficiencies and to lead to loss of relationships among members, as discovered by Shaw, Duffy,
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52 Johnson, and Lockhart (2005) in a study conducted in 38 locations of a restaurant chain. This
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3 study found a curvilinear relationship between losses of social capital and store performance,
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5 with turnover moderating this relationship, where the parting of those who held communication
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7 relationships was found to be less detrimental than the parting of those who held structural roles.
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10 A direct relationship between turnover-induced broken links in social networks and knowledge
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12 loss was also proposed by Droege and Hoobler (2003) and by Feldman and Feldman (2006), who
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14 discussed the role of lost socially embedded relationships in organizational forgetting from
15
16 network and practice perspectives.
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20 In general, researchers focused on the aging workforce (Massingham, 2018; Bratianu and
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22 Leon, 2015; Calo, 2008), retiring employees (Levy, 2011), departure of senior members (Joe *et*
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24 *al.*, 2013), or employee downsizing (Miller *et al.*, 2012; Schmitt *et al.*, 2011; Ward and Wooler,
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26 2010). The performance level of departing employees (Price, 1977; Dalton *et al.*, 1981; Dreher,
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28 1982; Jacovsky, 1984; Wells and Muchinsky, 1985; McEvoy and Cascio, 1987; Sumbal *et al.*,
29
30 2018) and role or position of departing members (Parise *et al.*, 2006; see also Mowday *et al.*,
31
32 1982) were proposed to have more influence on knowledge loss, especially if the departing
33
34 individuals belonged to top management teams (Carty and Walsh, 2007; Ciuk and Kostera,
35
36 2010), championed routines (Easterby-Smith and Lyles, 2011), had gatekeeper (Allen, 1977) or
37
38 peripheral positions (Parise *et al.*, 2006), represented organizational brokers (Parise *et al.*, 2006),
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40 or acted as central nodes in networks (Shaw *et al.*, 2005).
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45 Although there is general consensus on the harmful influence of turnover on knowledge
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47 loss, some studies found that turnover is not as detrimental at times. Examples of this include
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49 two case studies of organizational memory, one by Casey (1997) of a multisite nonprofit with
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51 high turnover of younger and less skilled employees and one by Scalzo (2006) of the operations
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53 division of a mid-sized financial services organization. These studies found little or no impact of
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3 turnover on the organization's memory system, although a significant amount of individuals and
4 related knowledge left the observed organization. In the latter (Scalzo, 2006), the outcome was
5 explained by actions, such as planning for change and automation, that were taken by the
6 observed organization in due time during restructuring. In the former (Casey, 1997), the minimal
7 impact on the memory system was attributed to the organization's mission and identity. Certain
8 forms of collaborations or structure are often proposed to ease the disruptive effects of turnover
9 due to employee downsizing (Schmitt *et al.*, 2011). Researchers also proposed methods to
10 calculate the risks associated with personnel departures (Jafari *et al.*, 2011; Jennex, 2014).

21 **Managerial agency.** Managerial agency refers to managerial cognition and discretion.
22 Managerial agency was investigated extensively in the organizational forgetting literature,
23 predominantly in the study of unlearning (n=17, 39%), with a few exceptions that appeared in
24 the knowledge depreciation (n=2, 12%) and knowledge loss literature (n=5, 14%). A common
25 characteristic of this literature was the presence of contrasting and often contradicting views on
26 whether managerial agency contributed to or prevented knowledge depreciation and loss and
27 whether it facilitated or inhibited unlearning. These contradictions started appearing in a few
28 examples in the knowledge depreciation (e.g., Kleiner *et al.*, 2012; Baloff, 1970) and loss
29 literature (e.g., Treleaven and Sykes, 2005; Fernandez and Sune, 2009; Mariano and Casey,
30 2013, 2016) but developed consistently in the unlearning literature (Mariano *et al.*, 2018).

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45 Some studies highlighted the critical role of managers in discarding bad practices and
46 facilitating unlearning (Gutierrez *et al.*, 2015; Martin de Holan *et al.*, 2004a; Zhao *et al.*, 2013;
47 Klammer *et al.*, 2019). This work discussed the role of managers in planning or supporting
48 continuous unlearning processes such as exploiting new opportunities, experimenting, and
49 listening to dissent (Nystrom and Starbuck, 1984); proposed critical steps to help employees
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3 unlearn, i.e., creating situational awareness, providing islands of temporal and spatial freedom,
4 encouraging an error-forgiving and stop-doing culture, and reducing the influence of old
5 knowledge over time (Klammer *et al.*, 2019); and supported the promotion of an unlearning
6 context that encouraged reflection on and analysis of events (Cegarra-Navarro and Dewhurst,
7 2006; Cegarra-Navarro *et al.*, 2012) and guided organizational change (Klein, 1989) and
8 innovation (Leal-Rodriguez *et al.*, 2015).
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17 Other studies focused on the possible negative influence of managers' old logics
18 (Sinkula, 2002) or mental models and worldviews that trapped organizations in old beliefs and
19 schemes (Akgün *et al.*, 2007). This research stream argued that unreliable current beliefs and
20 perceptual errors and self-deceptions of senior managers obstructed organizational change
21 (Starbuck, 1996). For example, Akgün *et al.*'s (2007) study of the Polaroid Corporation,
22 originally investigated by Tripsas and Gavetti (2000), discussed how managerial beliefs
23 prevented unlearning and delayed the development and commercialization of digital cameras.
24 Consistent with this conclusion, Fernandez and Sune (2009), Carlsson (1991), Nystrom and
25 Starbuck (1984), Pratt and Barnett (1997), and Starbuck (1996) argued that old beliefs and
26 perceptions, blind and rigid ideas, rigid conceptual frames of reference, obsolete or misleading
27 knowledge, and outdated mental models interfered with adaptation to changing environments.
28 This adaptation was also proposed to connect to political issues and to the managerial power and
29 privilege to control organizational memory usage and structure (Casey and Olivera, 2011; for
30 empirical work on power and politics see also Volland, 2019; Cutcher *et al.*, 2019; Foroughi and
31 Al-Amoudi, 2019) and to keep in place existing practices and routines considered more secure
32 and legitimate (Tsang and Zahra, 2008) or disband ideas that might not be in favor by the
33 dominant political group (Easterby-Smith and Lyles, 2011), as proposed by Mena *et al.* (2015) in
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3 their work on manipulations of events that, over time, could undermine the collective mnemonic
4 traces of past events.
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8 Some researchers explored how to overcome the challenges posed by managerial agency.
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10 A proposed solution was to remove top managers, a strategy confirmed by empirical studies of
11 Eastern European joint ventures (Markóczy, 1994). Fernandez and Sune (2009), Barker *et al.*
12 (2001), and Nystrom and Starbuck (1984) also suggested changing cognitive structures through
13 actions such as replacing top managers as a group to enable strategic orientation (Mezias *et al.*,
14 2001), especially during periods of crisis (Antonacopoulou and Sheaffer, 2013; Nystrom and
15 Starbuck, 1984). Sinkula (2002) proposed “exorcism” (i.e., removal of people) during crises as a
16 faster unlearning alternative to “extinction” (i.e., removal of past knowledge). CEO turnover and
17 top management team heterogeneity were proposed to increase the likelihood of reorientation
18 and, as a consequence, promote unlearning (Lant *et al.*, 1992). Other researchers, however,
19 expressed serious disagreement about these strategies, pointing out the uncertainty that followed
20 the departure of members from top management teams (Gaur *et al.*, 2011) and claiming that
21 managerial practices could be unlearned and replaced by learning capabilities that were
22 facilitated by nonthreatening environments to enable improved behaviors, collaboration,
23 incremental orientation (i.e., acknowledgment of errors), induction (e.g., “broad lessons”),
24 purpose, and symbolism (Klein, 1989) and by an open form of politics that triggered unlearning
25 because it questioned performance and promoted new alternatives and experimentation (Coopey
26 and Burgoyne, 2000).
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Processes and Tools

Production mechanisms, behavioral changes, and changes in physical or electronic repositories were identified as potential factors influencing organizational forgetting in the cluster of organizational processes and tools.

Processes: Production mechanisms. Production mechanisms refer to size, phases, mixes, and frequency of operational routines. At the level of processes, production mechanisms as factors influencing organizational forgetting were predominantly discussed in studies of knowledge depreciation (n=11, 65%). These studies focused on experience-based knowledge and learning mechanisms that held organizational processes and routines and highlighted the disruptive effects of knowledge depreciation. A study conducted in the pharmaceutical industry, for instance, provided evidence that operational routines that guided production had a tendency to decay over time (Anand *et al.*, 2012). On a similar note, a group of studies investigating shipbuilding (Argote *et al.*, 1990) and aircraft production (Benkard, 2000) provided evidence of depreciation of experience-based knowledge over time, showing how knowledge acquired in the past had less effect on organizational routines and performance than more recently acquired knowledge. Lot size and frequency of production (Hirsch, 1952), as well as phases of production (Smunt, 1987; Sule, 1983), production mix changes (Thompson, 2007), scope of task (David and Brachet, 2011), and internal disruptions in production (Anderson and Lewis, 2013) were also proposed to determine depreciation of organizational knowledge and routines. Similarly, product or process obsolescence was proposed to produce depreciation (Argote, 2013), especially from one production to another, as also shown by Benkard (2000) in the analysis of two versions of the L-1011 aircraft production where the aircraft's second model only partially benefited from production experience acquired from work on the first model.

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3 **Processes: Behavioral changes.** Behavioral changes refer to the acts of discarding
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5 obsolete knowledge or inappropriate knowledge structures to foster new behavior. Most of the
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7 work on behavioral changes was published in the unlearning literature (n=12, 29%). Hedberg
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9 (1981) was the first to theorize the link between learning and unlearning, where unlearning old
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11 behavior was proposed to precede the learning of new behavior. This view was reinforced by
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13 subsequent theoretical (Tsang, 2017; Tsang and Zahra, 2008) and empirical studies (Tsang,
14
15 2008), with a few exceptions questioning unlearning (Howells and Scholderer, 2016).
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18 Conceptualizations of strategic problem formulation, for instance, proposed that during
19
20 reorientation periods, unlearning was vital because contextual discontinuities triggered second-
21
22 order learning and involved changes in decision-making premises and assumptions, requiring
23
24 unlearning of prior modes of organizing such as practices and routines and increasing behavioral
25
26 variability (Lyles and Thomas, 1988). This view was confirmed by studies of contractor
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28 organizations in Hong Kong that found a correlation between unlearning and double-loop
29
30 learning (Argyris and Schön, 1978) to help change previous assumptions, beliefs, and routines
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32 that had caused errors and to support subsequent learning processes (Wong *et al.*, 2012).
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37 On a similar note, studies of small and medium construction companies in Spain found
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39 the importance of discarding obsolete knowledge and inappropriate knowledge structures to
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41 foster new behavior, especially in relation to improved customer relations (Cegarra-Navarro *et*
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43 *al.*, 2012). In both examples, these organizations took advantage of learning from experience
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45 which, in turn, challenged and modified existing routines, practices, and behaviors and
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47 capitalized on learning from errors or opportunities raised by mistakes (Argyris, 1976).
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51 Usually, management researchers proposed that when reconfigurations happened, they
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53 led to transition periods with higher costs in the short term before new ways of working were
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3 learned efficiently (Bridoux *et al.*, 2013; see also Klammer and Gueldenberg, 2019b). This
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5 transition period was proposed to build upon three connected processes of initial routine
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7 destabilization: ongoing discarding-from-use of old behaviors; experimenting with new
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9 behaviors; and discharge of prior understanding to develop new understanding (Fiol and
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11 O'Connor, 2017a, 2017b). Research also proposed that temporal and spatial freedom could help
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13 identify outdated knowledge and facilitate unlearning practices (Klammer and Gueldenberg,
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15 2019b).
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19 **Tools: Decay or loss of physical and electronic repositories.** Tools refer to physical or
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21 electronic repositories as knowledge storage facilities. They are mainly discussed in studies of
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23 knowledge depreciation (n=4, 23%) and loss (n=5, 14%). Although there is a general consensus
24
25 on the positive role of tools to retain organizational knowledge and prevent forgetting, concerns
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27 still exist if accidental decay or loss of repositories occurs, disrupting existing stored knowledge.
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31 Those who propose a positive influence of tools on knowledge depreciation discussed
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33 how a shared database to store electronic copies of past designs contributed, together with low
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35 turnover rate, acquaintance of workers, and small organization size, to almost eliminating
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37 depreciation in an architectural engineering company, reporting a rate of only 0.2% decay from
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39 one month to another (Boone *et al.*, 2008). Similarly, quality improvement initiatives embedded
40
41 in technology were found to exhibit lower depreciation rates compared with knowledge
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43 embedded in routines or individuals, as shown in a study of a large automotive manufacturer
44
45 (Agrawal and Muthulingam, 2015); and knowledge acquired through learning-by-doing that was
46
47 embodied in technology was proposed to ensure complete transfer of knowledge across shifts, as
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49 reported in a study of a North American trunk plant producing a single vehicle (Epple *et al.*,
50
51 1991). These findings seem to confirm that knowledge embedded in tools is less prone to
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3 depreciation than knowledge embedded in routines or organizational members, a research
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5 hypothesis also discussed in studies of turnover-induced forgetting. Consequently, organizations
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7 with a lower level of technology could be affected by depreciation more than technologically
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9 sophisticated organizations (Argote, 2013).
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12 Research also proposed that when organizational repositories decayed due to the passage
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14 of time, knowledge was likely to depreciate, as reported by Argote (2013) in the cases of the
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16 Steinway piano company (Lenehan, 1982) and the “Star Wars” trilogy (Morgenstern, 1997). In
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18 the first case, organizational records (blueprints) were lost or became difficult to access. In the
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20 second case, film exhibited physical deterioration due to the passage of time. In both cases, the
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22 conclusion was that “organizational knowledge can exhibit decay: Having knowledge at one
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24 point in time does not guarantee that the organization will have it in the future” (Argote, 2013:
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26 72).
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31 On a similar note, in the knowledge loss literature, researchers investigated the disruptive
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33 effects of losing storage facilities, records, or databases and discussed how these structures could
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35 become difficult to access due to technical or physical constraints (Easterby-Smith and Lyles,
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37 2011). For instance, the study conducted by Blackler, Crump, and McDonald (1999) in an
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39 organization designing and producing high-technology electro-optics products found that a large
40
41 part of documents related to previous work became inaccessible due to a “clear desk policy” that
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43 was introduced after the opening of a new factory. Similarly, the work of Fernandez and Sune
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45 (2009) proposed that losing a repository had a negative effect on organizational memory,
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47 especially if the repository was highly centralized.
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52 These studies were similar in that the structures were considered retention facilities of
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54 codified knowledge that were proposed to reduce knowledge loss, as also discussed by Levy
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(2011), who considered the act of documenting a successful strategy of knowledge retention. However, this view was not supported by studies conducted in multiple manufacturing and service firms that pointed out how relying solely on standard operating procedures, information systems, or codification of knowledge in databases could undermine knowledge retention and lead to knowledge loss (Daghfous *et al.*, 2013).

Organizational Context: Structure

The organizational context played a key role in organizational forgetting studies, where it was proposed that, together with time, the space where organizational members operated had a direct impact on learning and forgetting—i.e., “the impact of forgetting on organizations is contingent on its context” (Martin de Holan and Phillips, 2004a: 425). In the current organizational forgetting literature, research has discussed the contribution of structure to organizational forgetting.

Structure. Structure refers to the organizational size, infrastructures, and level of bureaucratization. In the knowledge loss literature, the contribution of organizational structure to organizational forgetting (n=4, 11%) was discussed by Daghfous *et al.* (2013), who suggested that infrastructure capabilities and strategic coordination among organizational units led to knowledge loss if they were not properly developed, since knowledge was proposed to reside in units (i.e., individuals, groups, organization) and their relationships. The study of Carmona and Gronlund (1998) in two large automobile manufacturers in Spain and Sweden reached similar conclusions, proposing that organizational structure drove organizational forgetting and influenced the success or failure of innovative projects due to hierarchy pressure, resource constraints, and lack of teams’ formal recognition, which caused more difficulties in carrying out proper learning.

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3 The role of structure and culture was extensively discussed in empirical studies taking a
4 cultural historical activity theory perspective (Blackler *et al.*, 1999; Engeström *et al.*, 1990).
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6 These studies suggested analyzing collective learning and forgetting in terms of the cultural and
7 organizational infrastructure that a community used and the related activities that its members
8 enacted. According to this perspective, organizational forgetting occurred through the
9
10 disintegration or fall into disuse of the community's collective infrastructure for learning or
11
12 because of the disassociation and disorientation of members. Communities, dialogue,
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14 (re)engagement, and (re)orientation were proposed to mitigate knowledge loss in these studies.
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16 Similarly, collective forgetting was proposed to manifest when once-useful memories lost their
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18 practical usefulness or the past became uprooted due to changes beyond recognition of social
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20 relations and memories (Foroughi and Al-Amoudi, 2019).
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28 In the unlearning literature (n=9, 22%), research proposed that organizational size
29 influenced unlearning and consequent performance, showing that increased bureaucratization
30 interfered with learning from mistakes (Daneke, 1985), made it more difficult to unlearn larger
31 amounts of existing knowledge (Casillas *et al.*, 2010), and provided less opportunity for
32
33 unlearning to innovate (Leal-Rodriguez *et al.*, 2015) or implement strategic change (Mezias *et*
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35 *al.*, 2001). Downsizing in response to environmental changes was suggested to facilitate
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37 organizational change and adaptation (Miller *et al.*, 2012), together with startups (Barkema and
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39 Vermeulen, 1998), spinouts (Cirillo *et al.*, 2014), or spinoffs (Ito and Rose, 1994) that provided a
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41 clean slate and facilitated unlearning through the separation of business units. Additionally,
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43 changes to hierarchical structure were proposed to influence the formation of an information-
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45 seeking culture and participative learning systems that promoted unlearning (Carlsson, 1991).
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CONCLUSION

Although no unified theories of organizational forgetting emerged, in this systematic literature review we identified key research studies that reflect how knowledge depreciation, knowledge loss, and unlearning were conceptualized and discussed in the organizational forgetting literature over the past half century. Taken as a whole, these research studies allowed us to identify current influencing factors and criticalities related to organizational forgetting and its several unexplored areas.

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TABLE 1

Systematic Literature Review: Planning, Organizing and Reporting*

Step	Details
1. Planning	Identification of the need for and significance of a systematic literature review on organizational forgetting and collection of evidence of this specific need to develop research questions and review protocol
2. Organizing	<ul style="list-style-type: none"> <li data-bbox="380 407 1919 448">• Review period Initial online search in October 2014 through mid 2019 <li data-bbox="380 448 1919 488">• Search type Online systematic review in EBSCO and Google Scholar databases <li data-bbox="380 488 1919 610">• Keywords Searched in titles and abstracts: Organizational forgetting, organizational unlearning, unlearning, organizational knowledge loss, knowledge loss, organizational knowledge depreciation, knowledge depreciation, dissipation of knowledge, suspension of knowledge, purging of knowledge <li data-bbox="380 610 1919 691">• Searched journals Top management journals and specialty outlets as listed in Table 2, grouped according to Association of Business Schools listing criteria <li data-bbox="380 691 1919 773">• Exclusion criteria Appeared multiple times, published in niche journals, not peer-reviewed, published in languages other than English, out of scope such as, e.g., focusing on individual forgetting related to memory issues <li data-bbox="380 773 1919 813">• Article count A final total of 111 contributions: 103 (93%) articles in 48 journals and 8 (7%) books/book chapters <li data-bbox="380 813 1919 1260">• Coding <ul style="list-style-type: none"> <li data-bbox="688 813 1919 854">• Electronic contributions downloaded and entered into Mendeley©. <li data-bbox="688 854 1919 1097">• Review of each contribution by first author following an inductive theorizing process of several iterative phases of data reduction, display, and conclusion drawing/verification (Miles and Huberman, 1994) that included a certain degree of flexibility, active interrogation of data, and constant comparison (Strauss and Corbin, 1998). Creation of a short summary incorporating details of influencing factors, modes, focus, methodology, research setting(s), and level of analysis. Creation of publications distribution and chronological map of the literature (Table 2). <li data-bbox="688 1097 1919 1211">• Themes that met the requirements of recurrence, repetition, and forcefulness emerged in an iterative way (Owen, 1984) and were grouped into four clusters: individuals, processes, tools, and organizational context. <li data-bbox="688 1211 1919 1260">• Analysis reviewed by second author with additional comments from third author.
3. Reporting	Creation of charts (Figure 1) and author-centric and concept-centric tables (Salipante <i>et al.</i> , 1982; Webster and Watson, 2002) and development of a literature-driven organizing framework (Figure 2) to serve as a foundation for understanding existing criticalities and related agenda for future research (Table 4 and Table 5).

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*Based on Tranfield *et al.* (2003), Webster and Watson (2002).

TABLE 2

List of Journals, Article Count, Author(s), and Related Focus

Journal title (N=48)	Article count (N=111)	Author(s)	Focus**
Economics, Econometrics, and Statistics	3, 3%		
American Economic Journal	1	David and Brachet (2011)	KD
American Economic Review	1	Benkard (2000)	KD
Review of Economics and Statistics	1	Hirsch (1952)	KD
General Management, Ethics and Social Responsibility	30, 26%		
Academy of Management Journal	3	Barkema and Vermeulen (1998); Barker <i>et al.</i> (2001); Shaw <i>et al.</i> (2005)	U, U, KL
Academy of Management Review	2	Daneke (1985); Mena <i>et al.</i> (2015)	U, U
Administrative Science Quarterly	2	Hedberg <i>et al.</i> (1976); Hatch and Schultz (2017)	U, U
British Journal of Management	1	Lopez and Sune (2013)	KD
Business Horizons	1	Klammer <i>et al.</i> (2019)	U
European Business Review	1	Tabassum Azmi (2008)	U
European Management Review	1	Mariano and Casey (2016)	KL
Journal of Business Research	3	Norman (2004); Gutierrez <i>et al.</i> (2015); Leal-Rodriguez <i>et al.</i> (2015)	KL, U, U
Journal of Management	1	Meschi and Metais (2013)	KD
Journal of Management Inquiry	6	Droege and Hoobler (2003); Easterby-Smith and Lyles (2011); Martin de Holan (2011); Casey and Olivera (2011); Zahra <i>et al.</i> (2011); Antonacopoulou and Sheaffer (2013)	KL, KL, U, U
Journal of Management Studies	5	Lyles and Thomas (1988); Klein (1989); Coopey and Burgoyne (2000); Gaur <i>et al.</i> (2011); Eckardt <i>et al.</i> (2014)	U, U, U, U, KL
Management Decision	1	Jafari <i>et al.</i> (2011)	KL
MIT-Sloan Management Review	2	Martin de Holan <i>et al.</i> (2004); Parise <i>et al.</i> (2006)	KL, KL
Scandinavian Journal of Management	1	Yildiz and Fey (2010)	U
Human Resource Management and Employment Studies	2, 2%		
Industrial and Labor Relations Review	1	Kleiner <i>et al.</i> (2012)	KD
Frontiers in Psychology*	1	Kluge and Gronau (2018)	KL
Information Management	2, 2%		
International Journal of Information Management	1	Casillas <i>et al.</i> (2010)	U
International Journal of Project Management	1	Wong <i>et al.</i> (2012)	U

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Journal title (N=48)	Article count (N=111)	Author(s)	Focus**
Innovation	3, 3%		
European Journal of Innovation Management	1	Klammer and Gueldenberg (2019b)	KL+U
Journal of Product Innovation Management	1	Akgün <i>et al.</i> (2007)	U
Public Personnel Management*	1	Calo (2008)	U
Management Development and Education	7, 6%		
Management Learning	7	Pratt and Barnett (1997); Carmona and Gronlud (1998); Massingham (2008); Tsang (2008); Ciuk and Kostera (2010); Schmitt <i>et al.</i> (2011); Howells and Scholderer (2016)	U, KL, KL, U, KL, KL, U
Marketing	1, 1%		
Journal of Business and Industrial Marketing	1	Sinkula (2002)	U
Operation Research and Management Science	9, 8%		
IEEE Transactions on Engineering Management	1	Baloff (1970)	KD
International Journal of Production Research	2	Sule (1983); Smunt (1987)	KD, KD
Management Science	6	Bailey (1989); Argote <i>et al.</i> (1990); Darr <i>et al.</i> (1995); Martin de Holan and Phillips (2004b); Thompson (2007); Boone <i>et al.</i> (2008)	KD, KD, KD, KL, KD, KD
Operation and Technology Management	2, 2%		
International Journal of Technology Management*	1	Starbuck (1996)	U
Manufacturing and Service Operations Management	1	Agrawal and Muthulingam (2015)	KD
Organization Studies	34, 31%		
Business Information Review*	1	Ward and Wooler (2010)	KL
Human Relations	1	Tsang and Zahra (2008)	U
International Studies of Management & Organization*	1	Markóczy (1994)	U
Journal of Information and Knowledge Management*	1	Carty and Walsh (2007)	KL
Journal of Knowledge Management	8	Levy (2011); Daghfous <i>et al.</i> (2013); Joe <i>et al.</i> (2013); Zhao <i>et al.</i> (2013); Massingham (2018); Sumbal <i>et al.</i> (2018); Klammer and Gueldenberg (2019a); Levallet and Chan (2019)	KL, KL, KL, U, KL, KL, U, KL
Journal of Organizational Change Management	2	Treleven and Sykes (2005); Fernandez and Sune (2009)	KL, KL
Organization	1	Feldman and Feldman (2006)	KL
Organization Science	5	Epple <i>et al.</i> (1991); Anand <i>et al.</i> (2012); Cattani <i>et al.</i> (2012); Cirillo <i>et al.</i> (2014); Haunschild <i>et al.</i> (2015)	KD, KD, KL, U, KL

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Journal title (N=48)	Article count (N=111)	Author(s)	Focus**
Organization Studies	2	Cutcher <i>et al.</i> (2019); Foroughi and Al-Amoudi (2019)	U, KL
Organizational Dynamics	1	Nystrom and Starbuck (1984)	U
The Learning Organization	9	Fiol and O'Connor (2017a, 2017b); Tsang (2017); Mariano <i>et al.</i> (2018), Becker (2018b, 2019); Kluge <i>et al.</i> (2019); Sharma and Lenka (2019); Volland (2019)	U, U, U, KL+U, U, U, U, U, U
VINE*	2	Jennex (2014); Bratianu and Leon (2015)	KL, KL
Strategy	10, 9%		
Journal of Business Strategy*	1	Scalzo (2006)	KL
Journal of Management and Organization*	1	Cegarra-Navarro <i>et al.</i> (2012)	U
Long Range Planning	1	Mezias <i>et al.</i> (2001)	U
Strategic Management Journal	5	Reitzig and Wagner (2010); Conti (2014); Younge <i>et al.</i> (2015); Lant <i>et al.</i> (1992); Ito and Rose (1994)	KL, KL, KL, U, U
Strategic Organization	2	Martin de Holan and Phillips (2004a); Miller and Martignoni (2015)	KL, KL
Book/Book Chapters	8, 7%		
		Dewey (1938); Hedberg (1981); Engeström <i>et al.</i> (1990); Huber (1991); Carlsson (1991); Blackler <i>et al.</i> (1999); Argote (2013); Becker (2018a)	U, U, KL, U, U, KL, KD, KL+U

*Not listed in Association of Business Schools listing. **KD = knowledge depreciation; KL = knowledge loss; U = unlearning.

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TABLE 3

Mapping the Literature

Modes	Foci	Decade	Key contributions		Key insights	Influencing factors
			Conceptual	Empirical		
Accidental	Knowledge depreciation	1950		Hirsch (1952)	A first article published in the economics literature discusses how production interruptions have a negative effect on learning curves in the manufacturing industry. It proposes that lot size and frequency of production influence knowledge depreciation.	Processes: Production mechanisms
		1960				
		1970		Baloff (1970)	The focus remains on manufacturing with an article on deviancies from expected productivity patterns that result in productivity depreciation.	Processes: Production mechanisms
		1980		Sule (1983); Bailey (1989); Smunt (1987)	During this decade, manufacturing studies continue to emphasize the influence of production phases on depreciation (Smunt, 1987; Sule, 1983). A study proposes that amount learned and passage of time explain depreciation (Bailey, 1989).	Processes: Production mechanisms
		1990		Argote <i>et al.</i> (1990); Epple <i>et al.</i> (1991); Darr <i>et al.</i> (1991); Darr <i>et al.</i> (1995)	Argote <i>et al.</i> (1990) and Epple <i>et al.</i> (1991) continue to focus on manufacturing, while Darr <i>et al.</i> (1995) conduct preliminary investigations in the service industry. Contrasting findings emerge on whether turnover influences depreciation. First hypotheses suggest that organizations with skilled workers are more affected by depreciation in the presence of high turnover rates and that organizations with a lower level of technology could be affected by depreciation more than technologically sophisticated organizations.	Individuals: Turnover Processes: Production mechanisms Tools: Physical and electronic repositories
		2000		Benkard (2000); Thompson (2007); Boone <i>et al.</i> (2008)	Turnover continues to be examined in aircraft production (Benkard, 2000), shipbuilding (Thompson, 2007), or in the service industry (Boone <i>et al.</i> , 2008) but contrasting findings still remain.	Individuals: Turnover

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Modes	Foci	Decade	Key contributions		Key insights	Influencing factors
			Conceptual	Empirical		
		2010	Argote (2013)	David and Brachet (2011); Anand <i>et al.</i> (2012); Kleiner <i>et al.</i> (2012); Lopez and Sune (2013); Meschi and Metais (2013); Agrawal and Muthulingam (2015)	The literature does not seem to clarify the role of turnover on depreciation since contrasting findings still remain (David and Brachet, 2011; Lopez and Sune, 2013). Similarly, the literature proposes that depreciation may have a more marginal role than previously suggested (Kleiner <i>et al.</i> , 2012). A group of studies investigates routines (Anand <i>et al.</i> , 2012) or technology (Agrawal and Muthulingam, 2015) in relation to depreciation. Preliminary explorations at the interorganizational level of analysis start appearing in the literature (Meschi and Metais, 2013). During this decade, Argote publishes her book on organizational learning, which contains a specific chapter on organizational forgetting.	Individuals: Turnover Processes: Production mechanisms Tools: Physical and electronic repositories
Accidental	Knowledge Loss	1950				
		1960				
		1970				
		1980				
		1990		Engeström <i>et al.</i> (1990); Carmona and Gronlud (1998); Blackler <i>et al.</i> (1999)	First articles on knowledge loss start appearing during this decade. Their focus is on the organizational context that is proposed to influence knowledge loss (Engeström <i>et al.</i> , 1990; Blackler <i>et al.</i> , 1999; on organizational structure see also Carmona and Gronlud, 1998).	Organizational context: Structure
		2000	Droege and Hoobler (2003); Martin de Holan and Phillips (2004a); Feldman and Feldman (2006); Calo (2008)	Norman (2004); Martin de Holan and Phillips (2004b); Martin de Holan <i>et al.</i> (2004); Treleaven and Sykes (2005); Shaw <i>et al.</i> (2005); Scalzo (2006); Parise	During this decade, interest increases with the work of Martin de Holan and Phillips on accidental and purposeful organizational forgetting. Most articles remain empirical, with some exceptions (e.g., Droege and Hoobler, 2003; Feldman and Feldman, 2006). Similarly to the knowledge depreciation literature, a substantial group of articles includes discussions of turnover (Shaw <i>et al.</i> , 2005; Calo, 2008; Parise <i>et al.</i> , 2006; Scalzo, 2006). Some articles start providing more in-depth discussions of knowledge loss (Fernandez and Sune, 2009; Massingham, 2008) or address managerial agency-related issues (Treleaven and Sykes, 2005;	Individuals: Turnover Individuals: Managerial agency Organizational context: Structure

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Modes	Foci	Decade	Key contributions		Key insights	Influencing factors
			Conceptual	Empirical		
				<i>et al.</i> (2006); Carty and Walsh (2007); Massingham (2008); Fernandez and Sune (2009)	Carty and Walsh, 2007). Other articles focus at the interorganizational level of analysis (Norman, 2004).	
		2010	Ward and Wooller (2010); Easterby-Smith and Lyles (2011); Schmitt <i>et al.</i> (2011); Mariano <i>et al.</i> (2018)	Reitzig and Wagner (2010); Levy (2011); Ciuk and Kostera (2010); Jafari <i>et al.</i> (2011); Daghfous <i>et al.</i> (2013); Joe <i>et al.</i> (2013); Cattani <i>et al.</i> (2012); Eckardt <i>et al.</i> (2014); Jennex (2014); Conti (2014); Younge <i>et al.</i> (2015); Haunschild <i>et al.</i> (2015); Miller and Martignoni (2015); Bratianu and Leon (2015); Mariano and Casey (2016); Sumbal <i>et al.</i> (2018); Massingham (2018); Foroughi and	Empirical articles continue to appear in the literature. Several of these articles keep a focus on turnover-induced knowledge loss (Ward and Wooller, 2010; Joe <i>et al.</i> , 2013; Eckardt <i>et al.</i> , 2014; Bratianu and Leon, 2015; Sumbal <i>et al.</i> , 2018; Massingham, 2018), also discussed from a conceptual perspective (Schmitt <i>et al.</i> , 2011). Some articles discuss agent-based models (Miller and Martignoni, 2015). One article proposes ways for managers to prevent knowledge loss (Mariano and Casey, 2016). A group of articles provides more in-depth discussions of knowledge loss that include several potential drivers and outcomes (Ciuk and Kostera, 2010; Daghfous <i>et al.</i> , 2013; Cattani <i>et al.</i> , 2012; Haunschild <i>et al.</i> , 2015). A group of articles offers methods to calculate knowledge loss risks (Jafari <i>et al.</i> , 2011; Jennex, 2014), and others provide insights at the interorganizational level of analysis (Reitzig and Wagner, 2010; Conti, 2014; Younge <i>et al.</i> , 2015). Of note is the suggestion to frame the literature from cognitive, behavioral, or social perspectives (Easterby-Smith and Lyles, 2011) and a first review on the role of managers in accidental and purposeful organizational forgetting (Mariano <i>et al.</i> , 2018).	Individuals: Turnover Individuals: Managerial agency

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Modes	Foci	Decade	Key contributions		Key insights	Influencing factors			
			Conceptual	Empirical					
Purposeful	Unlearning	1930	Dewey (1938)	Al-Amoudi (2019); Levallet and Chan (2019)	The first use of the term “unlearning” is traced back to the work of Dewey.	Processes: Behavioral changes Organizational context: Structure			
							1940		
							1950		
		1960	Hedberg <i>et al.</i> (1976)	The role of the external environment is discussed in relation to unlearning.					
					1970				
		1980	Hedberg (1981); Nystrom and Starbuck (1984); Daneke (1985); Lyles and Thomas (1988); Klein (1989)	Unlearning becomes popular due to the work of Hedberg (1981) on how organizations learn and unlearn. Subsequent work discusses how behavioral changes (Lyles and Thomas, 1988) or organizational context (Daneke, 1985; Klein, 1989) influences unlearning. Practitioners have a chance to read about unlearning through the work of Nystrom and Starbuck (1984).					
					1990		Huber (1991); Starbuck (1996)	Carlsson (1991); Lant <i>et al.</i> (1992); Ito and Rose (1994); Markóczy (1994); Pratt and Barnett (1997); Barkema and Vermeulen (1998)	Huber (1991) publishes a popular review on organizational learning that contains a section on unlearning. Starbuck (1996) keeps publishing about unlearning. Other articles discuss emotional issues (Pratt and Barnett, 1997) and organizational context in relation to unlearning (Carlsson, 1991; Ito and Rose, 1994; Barkema and Vermeulen, 1998; Lant <i>et al.</i> , 1992; Markóczy, 1994).
					2000				

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Modes	Foci	Decade	Key contributions		Key insights	Influencing factors
			Conceptual	Empirical		
			and Zahra (2008); Tabassum Azmi (2008)		appearing in the literature (Coopey and Burgoyne, 2000) with articles proposing the removal of managers and managerial teams to fast unlearn (Sinkula, 2002; Barker <i>et al.</i> , 2001; Mezias <i>et al.</i> , 2001).	
		2010	Yildiz and Fey (2010); Martin de Holan (2011); Casey and Olivera (2011); Zahra <i>et al.</i> (2011); Antonacopoulou and Sheaffer (2013); Zhao <i>et al.</i> (2013); Mena <i>et al.</i> (2015); Howells and Scholderer (2016); Fiol and O'Connor (2017a, 2017b); Tsang (2017); Becker (2018a, 2018b, 2019); Kluge and Gronau (2018); Klammer and Gueldenberg (2019a); Kluge <i>et al.</i> (2019); Sharma and Lenka (2019)	Tsang (2008); Casillas <i>et al.</i> (2010); Gaur <i>et al.</i> (2011); Cegarra-Navarro <i>et al.</i> (2012); Wong <i>et al.</i> (2012); Cirillo <i>et al.</i> (2014); Gutierrez <i>et al.</i> (2015); Leal-Rodriguez <i>et al.</i> (2015); Hatch and Schultz (2017); Cutcher <i>et al.</i> (2019); Klammer <i>et al.</i> (2019); Volland (2019); Klammer and Gueldenberg (2019b)	During this decade, more conceptual work is produced (Casey and Olivera, 2011; Antonacopoulou and Sheaffer, 2013), with a few syntheses of the literature published (i.e., Becker, 2018a, 2018b; Kluge and Gronau, 2018; Klammer and Gueldenberg, 2019a; Kluge <i>et al.</i> , 2019). Initial critiques to unlearning (Howells and Scholderer, 2016) and responses to these critiques (Tsang, 2017) start appearing in the literature. The work of Zhao <i>et al.</i> (2013) and Wong <i>et al.</i> (2012) keep the discussion on learning and unlearning cycles alive. <i>The Learning Organization</i> publishes special issues on unlearning (e.g., Nguyen, 2017; Fiol and O'Connor, 2017a, 2017b; Tsang, 2017; and e.g., Becker, 2019; Kluge <i>et al.</i> , 2019; Sharma and Lenka, 2019), while a top-tier article published in the <i>Academy of Management Review</i> extends the unlearning discussion to purposeful manipulations of events that undermine the collective mnemonic traces and generate unlearning (Mena <i>et al.</i> , 2015). Several articles continue to link managerial agency to unlearning (Martin de Holan, 2011; Gutierrez <i>et al.</i> , 2015), with work examining how organizations deal with uncertainty following the departure of members from top management teams (Gaur <i>et al.</i> , 2011). Articles discussing unlearning in relation to the organizational context (Cegarra-Navarro <i>et al.</i> , 2012; Leal-Rodriguez <i>et al.</i> , 2015) or profession (Becker, 2018a, 2018b) and articles at the interorganizational level of analysis continue to appear (Tsang, 2008; Yildiz and Fey, 2010; Casillas <i>et al.</i> , 2010; Zahra <i>et al.</i> , 2011; Cirillo <i>et al.</i> , 2014). Of note, an increase of empirical work was published during this decade (e.g., Hatch and Schultz, 2017; Cutcher <i>et al.</i> , 2019; Volland, 2019; Klammer and Gueldenberg, 2019b).	Individuals: Managerial agency Organizational context: Structure

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FIGURE 1. Publications Distribution

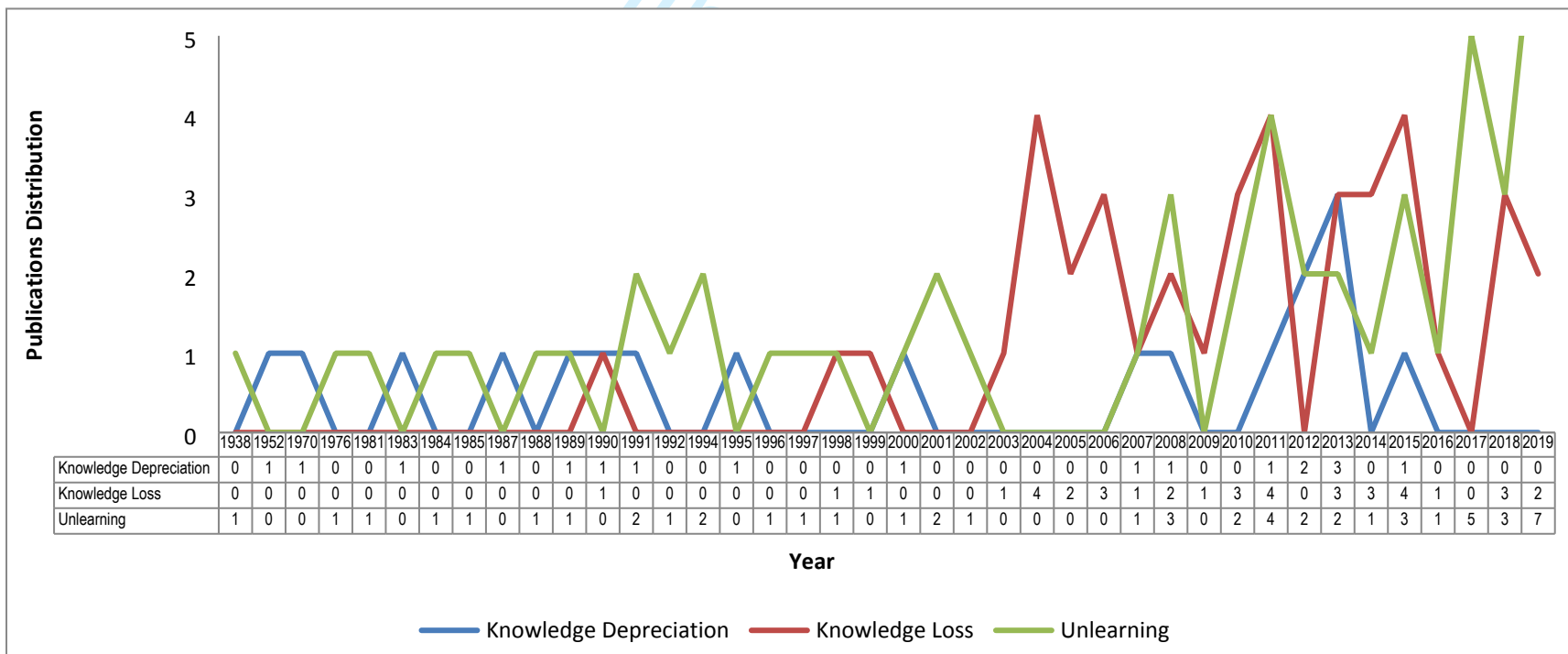
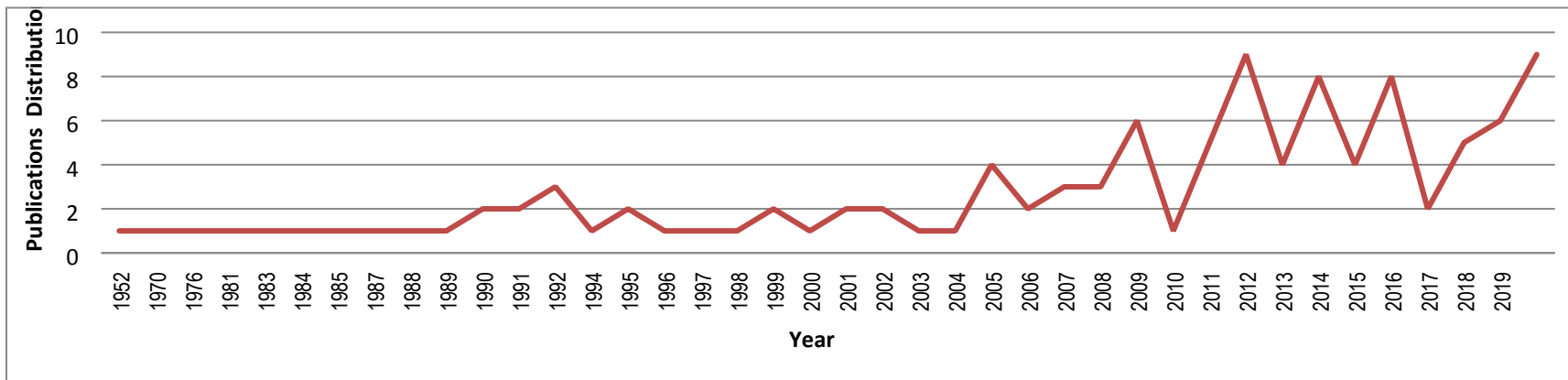
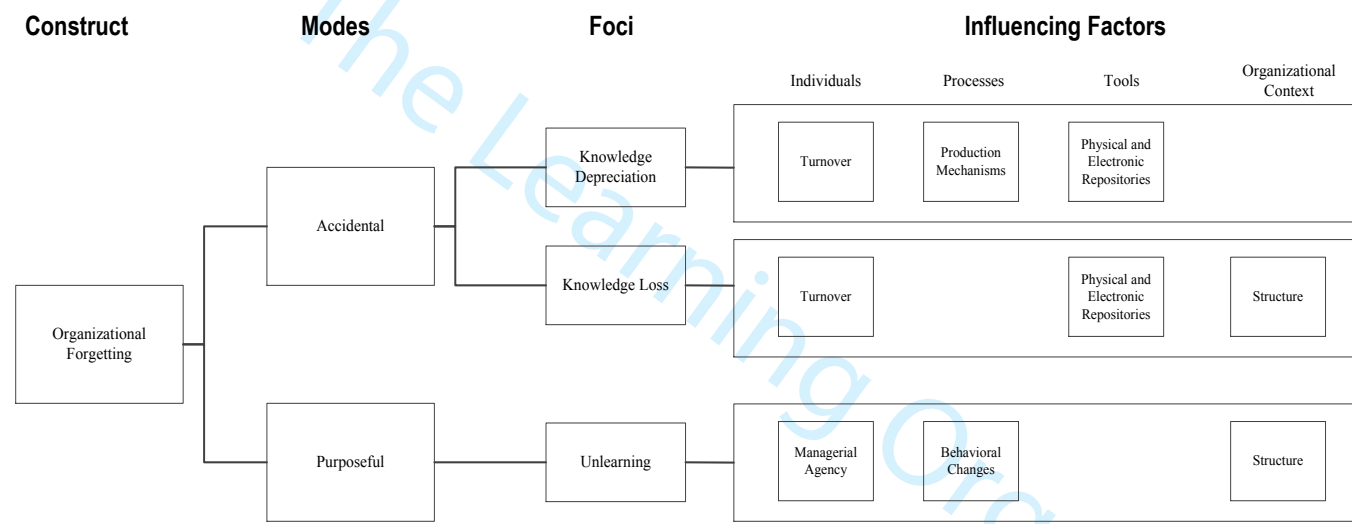


FIGURE 2

Organizing Framework of Current Organizational Forgetting Literature



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