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Susanna Mansikkamäki

Organizational aging and performance 2.0

Broadening the view

JYVÄSKYLÄ UNIVERSITY
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ABSTRACT

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This dissertation investigates the relationship between organizational age and performance. Age (usually defined as the time since founding) is broadly recognized as a factor affecting organizational performance and has become a standard variable to include in statistical models of performance. The existing theoretical and empirical work on the topic, however, has fallen short in explaining why age is sometimes positively and other times negatively related to performance in the results of empirical work, even when using the same performance indicator. It is this puzzle of the dual role of age as both a performance-enhancing and hindering factor that motivated this study.

The dissertation consists of an introductory chapter and four essays. The introductory chapter presents relevant literature on the age–performance relationship and the two concepts separately. Moreover, it points out the key shortcomings of the existing work that the four essays then aim to address. These shortcomings relate to the incomplete understanding of the factors that underlie the observable age–performance patterns (because it is not age as such, but the processes it represents, such as learning or routine formation, that causes the performance effects) and the tendency to approach age as a solely universal and deterministic force. Regarding views of organizational performance, the last shortcoming is the shortage of studies investigating the development of individual performance dimensions separately but simultaneously.

The four essays of the dissertation contribute to filling the gaps in the insufficiently understood areas mentioned above. Three of the essays also provide insights specific to their individual topics, including growth–profitability dynamics, performance consequences of member turnover, and the relationship between survival and success. The most significant contribution of the work as a whole, however, arises from updating the universal deterministic view of aging to one taking a semideterministic approach. The results from the essays support the idea that while there are universal deterministic tendencies related to organizational development with age, such forces are also modified by context-specific factors and potentially also organizational actions. This updated view not only serves a deeper understanding of the age–performance relationship but also makes age a highly potential concept for explaining within-industry or within-population differences in organizational performance.

Keywords: organizational age, organizational performance, heterogeneous aging

TIIVISTELMÄ (ABSTRACT IN FINNISH)

Mansikkamäki, Susanna
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Tässä väitöskirjassa tarkastellaan organisaation iän ja suorituskyvyn suhdetta. Iän vaikutus suorituskykyyn on laajalti tunnistettu aiemmassa kirjallisuudessa ja se esiintyykin nykyisin usein muuttujana organisaation suorituskykyä selittävissä tilastollisissa malleissa. Olemassa oleva teoreettinen ja empiirinen tutkimus ei kuitenkaan ole täysin pystynyt selittämään, miksi tutkimuksissa havaittu iän vaikutus suorituskykyyn on toisinaan positiivinen ja toisinaan negatiivinen silloinkin, kun tutkimuksissa käytetty suorituskykymittari on sama. Tämän tutkimuksen motiivina on ymmärtää paremmin tätä iän kaksijakoista roolia suorituskykyä parantavana ja heikentävänä voimana.

Tutkimus koostuu johdanto-osasta ja neljästä esseestä. Johdanto-osa esittelee organisaation ikää ja suorituskykyä käsittelevää aiempaa kirjallisuutta ja siinä esiintyviä keskeisiä puutteita. Näitä puutteita ovat iän ja suorituskyvyn suhteen taustalla vaikuttavien tekijöiden (iän vaikutus suorituskykyyn tapahtuu sen edustamien prosessien kuten oppimisen ja rutiinien muodostumisen kautta) puutteellinen ymmärtäminen sekä taipumus nähdä ikääntyminen puhtaasti universaalina ja deterministisenä prosessina. Lisäksi organisaation suorituskykyyn liittyvissä tutkimuksissa on yksittäisten erillisten suorituskyvyn dimensioiden yhtäaikaisen kehityksen tarkastelu jäänyt vähäiseksi. Näitä kolmea puutetta tutkimuksen neljä esseetä pyrkivät paikkaamaan.

Yllä mainittujen puutteiden paikkaamisen lisäksi kolme tutkimuksen neljästä esseestä edistää myös esseekohtaisiin tarkempiin tutkimusaiheisiin liittyviä tutkimusalueita. Näitä ovat yrityksen kasvun ja kannattavuuden välinen dynamiikka, organisaation jäsenten vaihtuvuuden suorituskykyvaikutukset sekä selviytymisen ja menestyksen välinen suhde. Kokonaisuutena tutkimuksen keskeisin kontribuutio on kuitenkin universaalin deterministisen ikäkäsityksen päivitys vain osittain deterministiseen: Esseiden tulokset tukevat ajatusta siitä, että vaikka organisaatioissa kiistatta tapahtuu iän myötä universaalia kehitystä, kontekstitekijät muovaavat tätä kehitystä ja se voi olla muokattavissa myös organisaation oman toiminnan avulla. Tämä päivitetty näkökulma sekä syventää ymmärrystä organisaation iän ja suorituskyvyn suhteesta että tekee iästä potentiaalisen konseptin populaation tai toimialan sisäisten yritysten suorituskykytasoerojen selittämiseen.

Asiasanat: organisaation ikä, organisaation suorituskyky, heterogeeninen ikääntyminen

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LIST OF ORIGINAL ESSAYS

I Mansikkamäki, S. Organizational aging and performance: Underlying drivers, contextual factors, and implications for future research. Unpublished manuscript.

II Mansikkamäki, S. Firm growth and profitability: The role of age and size in shifts between growth–profitability configurations. Unpublished manuscript.

III Mansikkamäki, S., & Mansikkamäki, A. Knowledge gains and efficiency losses: A life course approach to member turnover and organizational performance. Unpublished manuscript.

IV Mansikkamäki, S., Peltoniemi, M., & Lamberg, J.-A. "It's not how old you are but how you are old": Trajectories of Sustainable Survival. Unpublished manuscript.

AUTHOR'S CONTRIBUTION IN THE CO-AUTHORED ESSAYS

In both of the co-authored essays (III and IV), the author carried the main responsibility of the studies. The more specific work division is presented below.

Essay	1. Research problem and literature	2. Research design and data	3. Data analysis, results and writing
Essay III Mansikkamäki, S., & Mansikkamäki, A. Knowledge gains and efficiency losses: A life course approach to member turnover and organizational performance.	The author defined the research question and mapped the relevant literature.	The author carried the main responsibility of research design, Akseli Mansikkamäki participated in planning the computer model used. Akseli Mansikkamäki also wrote the Python code used in the analyses.	Akseli Mansikkamäki ran the final versions of the simulations. The author interpreted the results and wrote the manuscript. Akseli Mansikkamäki revised the final manuscript.
Essay IV Mansikkamäki, S., Peltoniemi, M., & Lamberg, J.-A. "It's not how old you are but how you are old": Trajectories of Sustainable Survival.	The author provided the original research idea and an early version of the essay. All three authors then contributed to the further development of the study's idea and identification of relevant literature.	From the initial version provided by the author, all three authors of the paper contributed to the further development of the paper design.	Together with the author, Mirva Peltoniemi and Juha-Antti Lamberg significantly contributed to the construction of the typology and the theorization in the paper. The author wrote the first draft of the current version of the essay which was then revised and supplemented by the two other authors.

FIGURES

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CONTENTS

1 INTRODUCTION

The central concept of this dissertation is organizational age. More precisely, the study focuses on the organizational age–performance relationship. The term *firm age*[1] increasingly appears in academic publications within the fields of economics and management (see Coad, Holm, et al., 2018). Together with size, which is the other basic organizational demographic characteristic, age has become somewhat of a standard variable to control for when investigating organizational performance.

The discussion on firm, or organizational, age, however, has changed its focus over the years. The interest in the concept of age itself has mostly faded since the change of the millennium, and age has become more of a taken-for-granted type of variable that is often included in performance studies, but mostly in a non-central role (Bakker & Josefy, 2018). The peak of interest in age itself took place in the discussions in the 1980s and 1990s on the role of firm age in firm growth and survival, mostly within organizational ecology (e.g., Barron et al., 1994; Freeman et al., 1983; Ranger-Moore, 1997) and industrial economics (e.g., Evans, 1987, Dunne & Hughes, 1994; Dunne et al., 1989) research fields. The theoretical understanding of the effect of age on organizational performance also is largely rooted in those early discussions with recent advancements of theory being scarce.

Considering that the popularity of using the age variable as a control indicates that its potential role as a performance-affecting variable is widely accepted and that the association between the two (age and performance) is also often found to be significant (Bakker & Josefy, 2018, p. 524), the eroded interest in the topic of organizational age itself is somewhat surprising. This is because the theoretical understanding of the age–performance relationship remains incomplete (Bakker & Josefy, 2018; Carroll & Khessina, 2019; Hannan et al., 2011, Chapter 7).

In order to understand the organizational age–performance relationship, one must look for the underlying mechanisms that cause the age-related

[1] Most of the research on organizational aging is conducted in the firm context.

performance patterns, because age is ultimately only a number (i.e., time since founding): It is not age as such but the processes taking place over time and thus going hand in hand with age, that drive the performance effects (Coad, 2018; Thornhill & Amit, 2003). Various different types of development take place over time, leading to age-related performance effects, for example, routine formation and development (Amburgey et al., 1993; Hannan & Freeman, 1984), learning (Sørensen & Stuart, 2000), and easing access to resources (Rao & Drazin, 2002). This age-related development has both positive and negative performance consequences as organizations become more productive with experience but at the same time, they also lose their flexibility (e.g., Barron et al., 1994; Coad et al., 2013; Sørensen & Stuart, 2000). It is this duality of the role of age as both an enhancing and a hindering force for organizational performance where the current theoretical understanding appears to fall short. Whereas the theory provides explanations for both positive and negative outcomes of aging and acknowledges the dual role, it remains unclear when the positive or negative consequences predominate over each other.

The initial motivation for this study arose from this inadequate state of the current understanding of the relationship between organizational aging and performance: Whereas empirical studies have provided mixed findings, for example, on the widely studied relationship between an organization's age and its survival likelihood (Baum & Shipilov, 2006), the current state of theory does not fully explain the source of the seemingly opposing findings. In other words, the study arises from the curiosity to understand the complex relationship between organizational aging and performance, a relationship that seems to exist but the underlying mechanisms of which are currently only partially understood.

The study consists of four essays and this introductory chapter. The introductory chapter first discusses the previous work on the organizational age–performance relationship and introduces the traditional theoretical approaches generally relied on when reasoning on aging. The concepts of age and performance are addressed also separately, followed by a discussion of the limitations to the current understanding of the topic. After the introduction of the relevant parts of previous literature (in chapters 2 and 3) on which the study builds, Chapter 4 turns the focus to the four essays by addressing the specific aim of each individual study and commenting on how the method selected in each study fits the attempt to achieve the aim. The purpose of that chapter is to clarify how and why the dissertation became a collection of four methodologically rather different studies. Chapter 5 introduces the four individual essays and Chapter 6 discusses their combined contribution that goes beyond what is achieved by each study in isolation. Chapter 7 then concludes the work with a summary of the specific contribution of the essays in isolation and as combined and addresses the importance of the work and its results for research, practice, and policy.

The four essays of the work proceeded gradually from the interest to advance the incomplete understanding of the organizational age–performance relationship. Each of the four essays contributes to advancing the understanding

in the area of one or more of the shortcomings of the existing work (all further addressed in later chapters of the work). Two of these shortcomings arise from the context of the age–performance relationship: the lack of clear understanding of the specific mechanisms behind the observed age–performance patterns and the overlooking of the potential interorganizational heterogeneity of the aging process. The third point relates to approaches to organizational performance, namely, the lack of studies investigating how individual performance dimensions develop separately but simultaneously.

Essay I is a literature review and remains solely in the age–performance context. The other three essays, in addition to contributing to the three shortcomings addressed above, also contribute to their specific settings of firm growth–profitability dynamics (Essay II), effects of member turnover in an organization (Essay III), and the relationship of organizational survival and success (Essay IV). The most significant contribution of the work, however, arises from the notion made in Essay I (and further addressed in Essays III and IV) of there being various factors that create differences in the performance consequences of aging in different contexts or for different organizations. Such heterogeneity has been only limitedly addressed before as aging is generally seen as a universal deterministic process driven by time alone. The view of aging as a combination of the universal deterministic development (driven by environmental selection) and contextual factors and voluntaristic actions that modify this development broadens the traditional view. This increases the depth and scope of understanding the sources of the different performance consequences of aging. Furthermore, this approach makes age a highly useful concept when aiming to explain performance differences of organizations within an industry or population, an approach that is further elaborated in Chapter 6.

2 BACKGROUND: ORGANIZATIONAL AGE AND PERFORMANCE

The early discussions on organizational age and performance focused on the mortality and growth of organizations/firms of different ages. Regarding growth, there is broad evidence of a negative age dependence of firm growth (Coad, 2009, p. 85; Yasuda, 2005), although some studies have resulted in the opposing finding of a positive age dependence (e.g., Shanmugam & Bhaduri, 2002). Accordingly, strong evidence of young organizations facing the highest mortality risk emerges from the literature (e.g., Box, 2008; Freeman et al., 1983; Yang & Aldrich, 2017), although some studies find the risk growing with age (either constantly or as the result of a non-linear age-dependence pattern that shows both decreases and increases over the organizational life trajectory; e.g., Esteve-Pérez & Manñez-Castillejo, 2008; Fackler et al., 2013; Ranger-Moore, 1997). Furthermore, although the high failure risk of young organizations (firms) is widely acknowledged, older organizations are not immortal, and they are eventually replaced by new ones that are more suited to the current environment (Hannan & Freeman, 1989; for more on this development, see section 2.1).

It is clear from the existing empirical work that age is believed to affect a variety of dimensions of organizational performance. As Bakker and Josefy (2018, p. 524) note in their recent review, the different performance indicators against which the age effect has been tested are vast in number, although this is mostly because of the popularity of age as a control variable. Among the studies that have age in a more central role (rather than a mere control variable), the initially popular topics of survival/failure and growth have also gained interest among more recent studies (e.g., Anyadike-Danes & Hart, 2018; Coad, Frankish, et al., 2016; Rousselière, 2019). Another point of interest in age-related work has been the relationship between age and innovation (e.g., Balasubramanian & Lee, 2008; Hansen, 1992; Sørensen & Stuart, 2000), inspired by the famous early observations of Schumpeter (1949/1934/1911, 1954/1942) on the role of new

entrepreneurial firms versus large established firms as creators of innovations.[2] However, with the topic of organizational aging rarely located within the main focus of recent scholarly inquiries, the topic (age–innovation relationship) lacks systematic investigation (Pellegrino, 2018, p. 182). Financial performance, a highly popular indicator of performance in management studies in general (Carton & Hofer, 2006, pp. 25–35; Goerzen & Beamish, 2005, p. 340), has somewhat surprisingly received only a little attention in the discussions regarding organizational age, although it too has been addressed (e.g., Capasso et al., 2015; Loderer & Waelchli, 2010; Majumdar, 1997).

The innovation-related results have provided mixed evidence, suggesting both an increase (Sørensen & Stuart, 2000) and a decrease (Hansen, 1992) in innovative output with age. Huergo and Jaumandreu (2004) even found a highly non-linear trend of innovation with age. Cucculelli (2018), however, has recently suggested that some of the age-related development (concerning innovations) recognized in previous work could result from other underlying time-related factors, namely the tenure of the chief executive officer and the product tenure (time since the last product launch; Cucculelli, 2018). In addition to the rate of innovation, the quality of innovation has also been studied with firm age. The quality (i.e., closeness to the prevailing environmental demands) appears to decrease with age (Balasubramanian & Lee, 2008; Sørensen & Stuart, 2000), but at the same time firms' innovation efforts become less risky as they age (Coad, Segarra, & Teruel, 2016). Pellegrino (2018) has further shown that the constraints of innovation (i.e., the shortage of financial resources, the lack of qualified personnel, and market structure- and demand-related obstacles), that firms face, differ between firms of different ages (Pellegrino, 2018).

Whereas the early discussions regarding organizational age and performance were mainly interested in the rate (and its variability[3]) of growth and survival among firms of different ages in different industry/population and geographical settings, the research has broadened beyond looking at the rates, just like in the case of the age–innovation studies addressed above. Firm growth studies, for example, have investigated the persistence of growth with age (Coad, Daunfeldt, & Halvarsson, 2018), and the work on firm failure has found that there are differences in the reasons for failure (i.e., different types of deficiencies related to resources, managerial ability, or environmental fit of the organization that precede failure) between young and old organizations (Kücher et al., 2020; Thornhill & Amit, 2003). The age effect is also not necessarily direct but can arise from a moderating role. Studies have, for example, suggested that the age of an

[2] The well-known theories called Schumpeter Mark I and II suggest that entrepreneurs are the driving force of innovation of a nation (Mark I) but also that it is large companies with resources to invest in research and development that are the most significant actors for innovation (Mark II). In the industry context, these two theories have been used to describe two different types of industrial development: one with "creative destruction" where new entrepreneurial firms enter and disrupt the incremental industry development, making prior innovations less (or non-) valuable, and the other with "creative accumulation" where large established firms accumulate their expertise and resources and create barriers to entry, making the entry of new firms difficult (Breschi et al., 2000, p. 389).

[3] Evans (1987), for example, showed that the variability of growth decreases with age.

organization has a moderating effect on the relationship between internationalization and subsequent survival and growth (e.g., Carr et al., 2010; Sapienza et al., 2006; Yan & Williams, 2021). The results of these studies have been mixed, with age suggested having a negative, non-existent, or inverted U-shaped moderating effect on post-internationalization growth, whereas non-existent, negative, and inverted U-shaped effects have been recorded for survival (for a summary, see Yan & Williams, 2021).

To summarize the state of empirical work covering the organizational age–performance relationship, the existing work has produced mixed findings regarding the studied performance variables, although some patterns, such as the decreasing mortality risk and growth rate when aging from young to old, have been identified as the most common outcomes (in comparison to relationships to the other direction). The studies have also remained fragmented with no larger-scale joint efforts to clarify the state of the relationships since the early efforts of the organizational ecology field to understand the changes in organizational mortality rates with age (see, e.g., Baum & Shipilov, 2006, for a summary of these studies). In any case, it can be stated that organizations both improve and deteriorate with age. This is well illustrated in the findings of Coad et al. (2013) on the evolution of various financial and other indicators with age. Their results on Spanish manufacturing firms of all ages showed that firms appear to improve as they age when performance measures such as productivity, profits, size, debt and equity ratios, and the ability to turn sales growth into profits or productivity growth are utilized. At the same time, their results indicated a worsening performance with age when the performance measures of interest were profitability, sales growth, profits growth, productivity growth, or the ability to turn employment growth into other types of growth (sales, profits, or productivity). They also found that fast growth is more common among young firms than it is among old ones, but there is no age-related difference in the likelihood of experiencing a fast decline.

With the results from empirical studies reflecting the dual role of age as a performance booster and hindrance, the interesting question lies in when and why the positive or negative effects dominate. In order to answer this question, one must look beyond the observed performance evolution to the underlying age-related mechanisms that cause changes in performance levels. The current understanding of why and from where the age effects arise is mainly rooted in the theorizations conducted under two different lines of discussion, organizational ecology, and industry evolution–related work that builds mostly on industrial and evolutionary economics. These influential theoretical approaches to the topic are addressed next, followed by a note on the life cycle stage models of organizations. The life cycle stage models are often associated with organizational aging but as is further explained below, remain detached from the more direct discussions of organizational age (introduced first) for both methodological and theory-related reasons.

After the introduction of the theories in section 2.1, section 2.2 makes a note of the relationship of age with another demographic variable often linked to

organizational age, namely organizational size. While size is not the main interest of this study, age and size are often considered intertwined variables in scholarly discussions, and a note on this relationship is thus relevant when discussing the age effects. The chapter ends with a section (2.3) on the limitations to the current understanding of the organizational age–performance relationship.

2.1 Theoretical approaches to age and performance

The field allocating the most direct attention to organizational aging at the theoretical level has been organizational ecology. The second line of literature having significantly contributed to the understanding of differences between young and more mature organizations arises from the industrial organization setting, mainly from the work on industry evolution and technological development. The following sections introduce the approaches to organizational aging arising from these two lines of work that generally form the basis of discussion on the underlying reasons for the age effects observed in organizational performance (Coad, Holm, et al., 2018, p. 7; Sørensen & Stuart, 2000). A note is also made on the literature that has introduced different life cycle stage models of organizations. This literature remains largely separate from the current discussion of firm age but it merits a mention as the life cycle concept is intuitively strongly associated with the age concept.

2.1.1 Organizational ecology-based views

The field of organizational ecology (Hannan & Freeman, 1977, 1989), with its aim to observe and explain population dynamics over time through a focus on the births and deaths of organizations and organizational forms,[4] has formed the arena of the most direct theorization of organizational aging. Within the field, the discussion related to organizational aging has mostly taken place in the context of organizational mortality rates. The field has provided theoretical explanations for three different mortality risk patterns identified in empirical investigations of different populations of organizations. A schematic presentation of the three patterns, the liability of newness (a), the liability of adolescence (b), and the liability of obsolescence/senescence (c), is provided in Figure 1.

[4] The definition of an organizational form is not clear-cut, but in general "[o]rganizational forms constitute polythetic groupings, in that members of the form share common core features but may differ with respect to peripheral features (McKelvey 1982)" (Baum, 1999, p. 545). Traditionally organizational populations and, implicitly, organizational forms, have been defined through industry categories or product markets (e.g., automobile producers or microbrewers and brewpubs), but more recently an identity-based definition, where the membership of an organizational population arises from the membership of cognitive categories formed and employed by audiences for grouping similar organizations, has been suggested (Hannan et al., 2011; Hsu & Hannan, 2005).

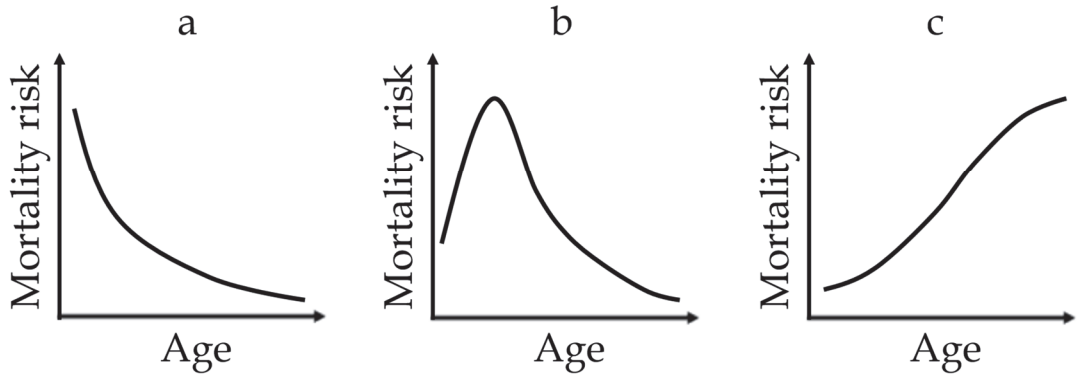

FIGURE 1 A schematic presentation of the liabilities of newness (a), adolescence (b), and obsolescence/senescence (c)

The *liability of newness* pattern (identified empirically by, e.g., Carroll & Delacroix, 1982; Delacroix et al., 1991; Freeman et al., 1983; pattern *a* in Figure 1) refers to a situation where new organizations face the highest risk of failure with the mortality risk falling with age. The logic explaining this pattern arises from the highly influential insights of Arthur Stinchcombe (1965) on the liabilities faced by new organizations. According to his view, new organizations are more vulnerable than older ones because they need to rely on general skills until the members learn their roles, whereas in older organizations the incumbent members are already familiar with the skills and routines needed for well-ordered functioning of the organization and can also teach these skills to their successors. Moreover, new organizations need to invent internal roles as well as reward and sanction structures and also define the relations that connect the member roles. Until this, they function inefficiently. Further sources of the liability of newness are the need to rely on relations among strangers, which increases the uncertainty experienced until the relationships of trust develop, and the lack of external legitimacy and strong exchange relationships (Aldrich & Auster, 1986; Singh, Tucker, & House, 1986; Stinchcombe, 1965) that require time to develop.

Whereas the initial discussion of organizational age and mortality rates within the organizational ecology field relied on the seminal work of Stinchcombe on the liability of newness, later findings of an inverted U-shaped mortality hazard with age (e.g., Brüderl & Schüssler, 1990; Rao & Neilsen, 1992; Singh, House, & Tucker, 1986; pattern *b* in Figure 1) led to the *liability of adolescence* hypothesis. This view suggests that the highest risk of mortality is not at the very beginning but somewhat later, in the "adolescence" of the organizational life trajectory. Organizations start with "initial goodwill, psychological commitment, financial investment and positive prior beliefs" that lower the likelihood of immediate dissolving of social relationships (Baum, 1989, p. 2; Levinthal & Fichman, 1988). During the initial "honeymoon period," the initial resources and the positive prior beliefs of decision-makers form a buffer against failure, and only after the resources run out and sufficient cumulative negative feedback on the organizational performance has been collected to make

the exit decision, does the failure risk peak (Fichman & Levinthal, 1991; Brüderl & Schüssler, 1990)[5].

The liability of newness and the liability of adolescence views share the idea of decreasing mortality risk with age (from the beginning or from adolescence onwards). The third view is in contrast with this thought. The liability of aging pattern, consisting of the liabilities of obsolescence and/or senescence (identified empirically by, e.g., Baum & Mezias, 1992; Barron et al., 1994; Ranger-Moore, 1997; pattern c in Figure 1), suggests that the mortality risk increases with age. This is because organizations face structural inertia that makes adapting to changing environments difficult.

Organizations are formed to fit the prevailing environment and reflect their founding conditions (Stinchcombe, 1965). With growing inertial forces that make organizations slow to change (Hannan & Freeman, 1977), changes taking place in the environment over time (and consequently with age) degrade an organization's fit to the new, changed, environmental conditions (Barron et al., 1994; Carroll, 1983, p. 313). The inertial forces that slow down organizations' ability to change arise from both internal and external pressures. Internal pressure arises at least from sunk costs in assets that cannot be easily transferred to new tasks or functions, constraints in information flow to the decision-makers, political dynamics that would be disturbed by a change in structure, and the difficulty in changing the procedures and task allocation that have become normative standards (Hannan & Freeman, 1977, pp. 931–932, 1984, p. 149). The external sources of pressure are at least barriers (legal and fiscal) to market entry and exit, constraints to the information availability, binding exchange relations, and threats to organizational legitimacy that can arise if a structural change is attempted (Hannan & Freeman, 1977, p. 932, 1984, p. 149).

It is noteworthy, however, that whereas inertia increases organizational rigidity, it is the "side effect" of the accumulation of the two features, reliability and accountability, that aid access to resources and allow maintaining the commitment of clients and organizational members and are thus required for surviving in the environmental selection process (Hannan & Freeman, 1984, 1989). Reliability and accountability require reproducible routines and structures with little variation, and inertia arises from this stability (Hannan & Freeman, 1984; Péli et al., 2000).

This process of inertial forces causing an organization to fall behind in the development of its environment refers to the *liability of obsolescence*. Aging organizations may also suffer from the *liability of senescence*. Senescence arises from similar causes to the liability of obsolescence, for example, "the

[5] The views by Brüderl and Schüssler (1990) and Fichman and Levinthal (1991) differ in that Fichman and Levinthal (1991) assume that the initial rising mortality risk takes place at both the organizational and the population level, but Brüderl and Schüssler (1990) suggest that at the organizational level, there is initially no failure risk because of the initial buffers and then a decreasing mortality risk from adolescence onward. This shows as an inverted U-shaped pattern of mortality risk with age at the population level because there is interorganizational variance in the duration of initial resources and the amount of information on the organizational performance required by the decision-makers before making the closure decision.

accumulating rules, routines, and structures" (Barron et al., 1994, p. 387). Here, however, the effect is not dependent on the environment (like with the liability of obsolescence that only arises if the environment changes) but follows directly in the form of increased internal inefficiency (Barron et al., 1994; Hannan, 1998).

The three liability patterns forming the basis of discussion of age-related dynamics within the organizational ecology field were initially seen as competing (Ranger-Moore, 1997, p. 905), but have more recently been accepted as complementary (e.g., Baum & Shipilov, 2006; Hannan, 1998; Hannan et al., 2011). The field of organizational ecology provides the broadest and most systematic effort to understand the underlying dynamics of the organizational age–performance relationship and the underlying logic of the three liability patterns are applied in work addressing organizational age also outside the organizational ecology field and beyond the mortality rate context.

2.1.2 Industry evolution–related views

The second line of work significantly contributing to the understanding of the role of organizational age as a performance-affecting factor comes from the industrial organization context,[6] where firm survival patterns have been explained through two different viewpoints: models of learning and selection and rationales building on the technological change of an industry (Agarwal & Gort, 1996). Both lines of discussion link aging (implicitly or explicitly) to firm performance development. The learning-by-doing view roots in Jovanovic's (1982) industry evolution model where non-optimally scaled firms enter the market uncertain about their own productivity, learning about it as time passes.[7] Based on this learning, firms either scale up toward their true efficient size or scale down or exit, depending on whether the expectations of their true efficiency are exceeded or fallen short of. In this process, the efficient firms survive and grow whereas the inefficient ones decline and exit. This development reflects what is also known as the "up-or-out" development (Haltiwanger et al., 2013), where entering new firms either survive and grow fast or exit the market shortly after entry.

The above-described learning models present industry evolution as a process of firms adjusting to the prevailing technological environment. However, the other view of industry evolution that contributes to the understanding of organizational aging, the technological change-related discussion, sees innovation as the source of technological change that drives the industry evolution (see Dosi et al., 1995, p. 418, for more detailed notes on the differences between these two views). The technological change view builds on the industry life cycle framework (Gort & Klepper, 1982) and the related literature on

[6] But the discussion of technological change extends to and overlaps with work from technology management and organizational learning.
[7] In Jovanovic's (1982) model, learning takes place passively as firms operate. Ericson and Pakes (1995) have extended the idea and introduced a model where learning can also take a more active form, with firms' investments in learning potentially affecting their productivity.

technological cycles (Baum et al., 1995) in its approach to innovation, technological change, and industry evolution. This discussion is rarely interested in age directly but makes a distinction between industry entrants and incumbents in the tradition of Schumpeter (see footnote 2). This parallels a division between young and mature firms for newly founded firms, although diversifying entrants have existed already before entry.[8]

The technological change logic links the relative performance advantage of industry entrants and incumbents to different developmental stages of the industry or different stages of technology cycles. With technologies (and industries) evolving in cycles where the periods of incremental evolution of dominant technology become disrupted with new technological breakthroughs (e.g., Abernathy & Clark, 1985; Nelson & Winter, 1982; Tushman & Anderson, 1986), new entrants are in a more advantageous position during the entrepreneurial regime of the industry, when competition in the industry focuses on radical advances of technology, whereas incumbent firms have the advantage during the routinized regime when the competition focuses on incremental improvements of the existing technologies (e.g., Agarwal et al., 2002, pp. 972–973; Audretsch, 1995, p. 165; Winter, 1984). The economics-oriented explanation for this development arises from the change in entry barriers as the industry develops. The initially low start-up costs rise when the competition in process innovations drives prices down and profitable entry (as well as survival) becomes increasingly difficult. Market power then concentrates to successful incumbents until profitable entry opportunities eventually arise again because of the incumbents' low incentive for product innovation (Agarwal et al., 2002, p. 973; Klepper, 1996).

The evolutionary theory–related explanation, on the other hand, relates to the tendency of incumbent firms to rely on local search (i.e., search in areas that are close to their established areas of expertise) in their search for new technology, as the organizational routines guide the behavior of the organization toward continuity (e.g., Nelson & Winter, 1982; Sørensen & Stuart, 2000; Stuart & Podolny, 1996). This rigidity of organizational routines is driven by various factors, such as the general tendency of behavior to stabilize after routines and structures become established, political frictions that put pressure on stability, the self-interest of employees to sustain the relevance of their already obtained expertise, and the obligations toward existing customers (Sørensen & Stuart, 2000, p. 86). Moreover, the tendency toward local search is likely to result from the benefits that it bears. As time passes, organizations become more efficient in their routines as they learn by doing and experimenting (Levitt & March, 1988), and knowledge is most beneficial for innovation efficiency when it is cumulative (Cohen & Levinthal, 1990; March, 1991). Experimentation with alternative technologies also becomes increasingly less rewarding, and thus less likely, when an organization's competency with the current technology cumulatively

[8] Also in the organizational ecology context, many studies addressing organizational age have operationalized age as a tenure in the population of interest instead of an absolute age (Hannan et al., 1998, p. 289).

increases (Levinthal, 1991a, p. 142).[9] While enhancing efficiency in the specific technological areas, this development also increases the risk of a competency trap, where the developed capabilities turn into rigidities if the environment changes in a way that makes the organization's areas of expertise obsolete (i.e., there is a competence-destroying technological breakthrough; Leonard-Barton, 1992; Levitt & March, 1988).

To summarize the main message on industry entrants and incumbents (implicitly young and old organizations), the Jovanovic (1982) type models of learning and selection, introduced at the beginning of this section, generally suggest that firms either improve their efficiency with age (at least in the periods immediately after entry) or exit. The latter view on innovation and technological change, on the other hand, suggests a dual role for age, similar to the views arising from organizational ecology introduced in the previous section, that acknowledges age as both beneficial and harmful for performance. According to this latter view, organizations become more efficient in what they do as they age (in line with the idea of the liability of newness) but at the same time, they lose flexibility, their range of opportunities decreases, and they face the risk of obsolescence and decline in the face of revolutionary technological innovations (in line with the idea of liability of obsolescence).

2.1.3 A note on the life cycle stage models of organizations

In addition to the approaches introduced above, different life cycle stage models of organizations have formed a popular approach for explaining organizational development over time. Such models have been broadly applied within the field of management and organization studies, for example in the studies of strategy (e.g., Miller & Friesen, 1984), entrepreneurship (e.g., Hanks et al., 1994), and finance (e.g., Faff et al., 2016). The models suggest that the development of an organization over time takes place through distinct life cycle stages,[10] and organizations in different stages systematically differ in their activities, strategies, structures, and contexts (Quinn & Cameron, 1983; Miller & Friesen, 1984). The life cycle stage models are linked especially to firm growth, which is a common attribute of a stage in the models, and also, for example, innovation and profitability (also used as stage attributes in some studies; see Levie and Lichtenstein, 2010, for a review).

The early work on the life cycle stage models closely relates to the age concept as it assumes a linear progression through the sequence of the stages of the life cycle over time, and age has also been utilized as a stage attribute

[9] A parallel but more simplified view on the evolutionary explanation of the increase in efficiency that comes with accumulating skills and knowledge is presented in the idea of an organizational learning curve where production costs drop with increased output as the result of learning (Henderson, 1979, pp. 106-107; Levinthal, 1991b, p. 397).

[10] There is no consensus on the number of the developmental stages. In their review, Levie and Lichtenstein (2010) concluded that the most common number of stages is between three and five. Miller and Friesen (1984), for example, constructed a corporate life stage typology based on prior work on the topic and suggested five stages: birth, growth, maturity, revival, and decline.

(Dickinson, 2011; Stubbart & Smalley, 1999). More recent work on the topic, however, takes a clear step away from the age concept as this later work discards the initial assumption of linear progress through a specific number of stages in a predefined order as empirical tests of the life cycle stages have failed to provide support for it (e.g., Clarke et al., 2014, p. 239–241; Levie & Lichtenstein, 2010; Stubbart & Smalley, 1999). For example, in their empirical test of a corporate life cycle stage model, Miller and Friesen (1984) identified different stages of development, indicated by differing configurations of strategy, structure, situation, and decision-making style, but they also concluded that there was no common sequence in which the firms went through these stages.

Because organizations appear to not move between the stages in the same one-way sequence (see Levie & Lichtenstein, 2010), the link between the stages of the models and firm age remains vague. Moreover, despite the age connection of the early work on the stage models, their influence on the current understanding of organizational age seems to have been left in the shadow of the other two theoretical approaches introduced in the previous sections. This, combined with the more recent stage models diverging from the age concept by abandoning the assumption of linear progress through the stages in a predefined order as explained above, leaves the life cycle stage models largely beyond the scope of further discussion in this dissertation that addresses the limitations to the prevailing understanding of the age–performance dynamics. However, because of the connection of the early work to the age concept and, more importantly, because of the intuitive association between age and the life cycle concept, this line of work merits being acknowledged here.

It is also noteworthy that the life cycle metaphor that is at the heart of the early stage models also loosely underlies the organization ecology and industry evolution–based views of organizational aging, [11] as they suggest that organizations experience similar development over time.[12] This metaphor also partly sets the limitations to the current understanding of the age–performance relationship that this dissertation strives to loosen (this is further explained on p. 31 in section 2.3.2).

2.2 A note on the organizational age–size relationship

Organizational size is not within the main focus of this research. Yet, the topic of size is hard to ignore when discussing organizational age. The average firm size grows with age (e.g., Angelini & Generale, 2008; Cabral & Mata, 2003; Segarra & Teruel, 2012), and young firms thus tend to be smaller than older firms. Size and

[11] O'Rand and Krecker (1990, pp. 254–258) further discuss the life cycle analogy at the organizational level.

[12] The metaphor, however, is applied much more loosely than in the early life cycle stage models that view organizational development as resulting from a prefigured program. The other two theories rely on evolutionary thinking that places population or industry dynamics at the heart of the engine of the development (see Van de Ven & Poole, 1995).

age also are often considered "as alternative measures of the same underlying phenomenon" in the literature (Coad et al., 2013, p. 173). Just like new organizations face the liability of newness, small organizations suffer from the liability of smallness, arising from the difficulty to access capital resources and skilled employees as well as the lack of legitimacy (Aldrich & Auster, 1986; Baum & Oliver, 1991). Similarly, the organizational ecology rationale suggests that it is not only the increasing age but also size that leads to accumulating structural inertia and the consequent performance effects (Hannan & Freeman, 1977, 1984). Also the relative advantage during the different stages of the industry evolution, addressed in the previous section, is not just a question of being a recent entrant vs. an incumbent but also relates to being small vs. large (Acs & Audretsch, 1988).[13] Empirical work, whereas providing broad support for young firms facing the highest failure rates but also the highest growth rates, has linked similar dynamics to small firms as well (e.g., Coad, 2009, p. 42; Cefis & Marsili, 2006; Yasuda, 2005).

The early investigation of the age patterns of organizational death rates in the field of organizational ecology research often did not control for organizational size (e.g., Carroll & Delacroix, 1982). This led to a concern over the age-related results from such models potentially being driven by size instead of age because of the above-described close relationship between the two variables. Barron et al. (1994) stated the need to control for size to reveal the true age-dependence pattern, showing that the age pattern in their data changed when size was controlled for (compared to when it was not).

Since the early investigations, size has become a standard variable to control for in investigations of organizational age effects (Bakker & Josefy, 2018, p. 523). This practice, however, can also be problematic for grasping the full age effect if we define age in the traditional meaning of time since founding. As noted by Coad (2018, pp. 19–20) in his review, if there is a correlation between age and size, it is the size that grows with age and not vice versa because the progress of age depends on time only. Then, with size growing with age, size would be a mediating variable between age and performance, and controlling for size would control away part of the age effect (that takes place through the size effect but also other mediators), resulting in biased results if the full effect of age is of interest (Coad, 2018, pp. 19–20). In this study, I approach size, in line with this last thought, as one potential mediator between age and performance, not as a competing or alternative measure to age.

[13] Moreover, this line of discussion is based on the Schumpeterian distinction (see footnote 2) between new entrepreneurial firms and *large* incumbents. It is noteworthy, however, that even though entrepreneurial firms are often small, small size alone does not equal being entrepreneurial (Dolfsma & van der Velde, 2014).

2.3 Limitations of the current understanding

As mentioned in the introduction, the motivation and starting point of this dissertation is the incomplete state of the current understanding of the effect of aging on organizational performance. This subsection introduces the two key limitations that create ambiguity in the current understanding of the organizational age–performance relationship introduced above. These limitations are the apparent confusion over what are the underlying mechanisms of the age-performance relationship and the insufficient consideration of possible interorganizational differences (as well as other contextual differences) in the process of organizational aging.

2.3.1 Confusion over the underlying mechanisms and potential problems

Whereas the age–performance relationship is often found to be significant in empirical work, the age of an organization as such is likely to have very little, if any, effect on organizational performance. Instead, it is the various underlying processes (such as routine formation or learning) that take place in time (i.e., with age) and cause the observed effects (Coad, 2018; Thornhill & Amit, 2003). One of the apparent problems in the current state of understanding the age–performance relationship is that there seems to be no consensus among scholars on what these underlying mechanisms are. The results of Essay I indicate that there is a broad range of mechanisms assumed to relate to age. Similar findings were introduced by Bakker and Josefy (2018) in their recent review on firm age. They note (pp. 523–524) that studies that use age as a control variable often provide no explanation for why age is included[14] and among the work that provides a rationale, age represents a variety of different factors or processes, ranging from experience and legitimacy to information availability, among many others. The noteworthy point is that the rationale(s) referred to as potential reasons for the age effect vary between studies.

The between-study divergence in the reasons to accommodate the age variable creates problems for reasons similar to those already addressed in the discussion of the organizational age–size relationship. For example, if age is controlled for in a study with the assumption that it represents (and captures the potential effect of) some specific variable or process such as experience, there is a high likelihood that it is not just experience but also a variety of other time-related mechanisms that get controlled for. And as long as it is not clear what exactly it is that age represents, adding age as control means that we do not know what the effects that get controlled for are. This is problematic for the correct interpretation of the results of statistical models.

Moreover, experience, for example, is sometimes presented as a mechanism captured by the age variable (e.g., Lahiri, 2010) and other times viewed as separate from the age effect (e.g., Desai, 2008). In the latter case, adding both age

[14] In many lines of research, age has become a standard variable to control for.

and experience as independent or control variables in a regression model predicting organizational performance would lead to a situation where part of the full age effect gets controlled away, if experience is situated in the causal route from age to performance as a mediator, just like in the size example from Coad (2018) introduced in the discussion on the age–size relationship above. This, of course, might also be a purposeful practice, if the aim lies in the investigation of a partial effect.

The variability of the factors and processes that age is suggested to represent is likely to arise partially from the convenience of using age as the representative of time-related development because age data is often easier to obtain than it is to measure processes such as experience accumulation directly. Age is also a convenient variable for statistical modeling because it is always an exogenous variable (i.e., it is only affected by time and not by other variables in the model). The problem, however, is that the assumptions made on the relationship between age and the various time-related development that age is assumed to proxy for in studies of organizational performance are rarely tested (this is also one of the findings of Essay I). Studies have shown that age is associated with various time-related processes (development of organizational features over time) predicted by the traditional theories introduced earlier in the chapter, for example with legitimacy (Ruef & Scott, 1998), speed of change (Le Mens et al., 2015a), and technological obsolescence (Jain, 2016). Yet, testing if such processes drive the observed age effect on performance is rarely done in empirical studies of performance. With much of the empirical work building on assumptions, the knowledge of which mechanisms and to what extent underlie the age effect has remained ambiguous.

Furthermore, the ambiguity on which mechanisms underlie the age–performance relationship may be further increased by the changes in the business environment since the development of the traditional theories addressed earlier in this chapter. It is possible that the value of age as an indicator of reliability and legitimacy, for example, has eroded with the increased appreciation of novelty and youthfulness, at least in some contexts (see Bakker & Josefy, 2018, p. 513).

In addition to the question of which mechanisms underlie the age effect and whether the assumptions drawn from the early work on the topic still hold, a relevant open question relates to the duration and the potentially time-varying strength of the effect of the assumed mechanisms since such temporality is rarely addressed in the existing studies (a finding of Essay I, see also Bakker and Josefy, 2018, p. 526). For example, learning (which is often associated with aging), is likely to slow down with age because of the tendency of firms to adopt the most important knowledge first (Agarwal & Gort, 2002, p. 185). Similarly, the findings of Geroski et al. (2010) show that the effect of founding conditions[15] on survival decreases over time, and Ranger-Moore (1997) suggests that organizational inertia accumulates at a decreasing rate. Such observations are in line with the

[15] The organizational ecology theory suggests that founding conditions affect the characteristics that an organization develops at founding and this together with structural inertia and changes in the environment leads to the liability of obsolescence.

tendency of the age effects on performance to be strongest in the early years after founding (Coad, 2018).

2.3.2 Limited view of interorganizational heterogeneity

In addition to the confusion arising from the diverse (and rarely tested) meanings given to age in the empirical context, also the theoretical understanding of organizational aging remains in an incomplete state: The empirical work does not fully explain why the observed performance patterns with age vary between studies. For example, although the three liability patterns shown in Figure 1 are recognized as complementary in the discussions within organizational ecology and beyond, not all of the three liabilities can be true at the same time[16] (Hannan et al., 2011, p. 152), and theory has fallen short in explaining when each of the patterns holds.

The shortage has been acknowledged within the organizational ecology field and a handful of scholars have continued to work to advance the theory. Hannan's (1998) formalizations involving endowment, imprinting, structural inertia, capability[17], and positional advantage (i.e., concepts underlying the age–mortality hazard) show how different assumptions applied to these five concepts lead to differently shaped mortality hazards with age. While such work aims at clarifying the mechanisms underlying the differently shaped patterns of mortality hazard (presented in Figure 1), "it does not lead to a grand unification of theoretical ideas" (Carroll & Khessina, 2019, p. 531). Subsequent work by Hannan and colleagues (Hannan et al., 2011; Pólos & Hannan, 2002) has suggested that a change from the traditional first-order logic to reasoning with non-monotonic logic[18] could be a solution for unifying the theories underlying the different age–mortality patterns under one general formalization.

Whereas the reasons for interpopulation heterogeneity in the age-related liability patterns have not been fully explained, interorganizational heterogeneity in the aging process has been largely overlooked in general discussion and theorization on age, even though it has been identified in some individual studies. Baum and Shipilov (2006, p. 67), for example, note that newly founded organizations are a largely heterogeneous group in terms of stable relationships and resource access, even though studies relying on the liability of newness hypothesis tend to implicitly assume them being similar (i.e., lacking legitimacy, resources, and stability). Similarly, while learning is one of the mechanisms

[16] Bakker and Josefy (2018, p. 517) note that if an organization was to suffer from all three liabilities, the discussion of age dependence would largely lose its relevance as such a situation could be described merely as a "liability of existence".
[17] Capability refers to routine execution and problem-solving abilities.
[18] The non-monotonic logic system is introduced in Hannan et al. (2011) and Pólos and Hannan (2002). Following the non-monotonic logic, what appears as contradictions between premises do not necessarily lead to inconsistencies (as happens in the case of the different age-liability patterns when using first-order logic). Within the non-monotonic reasoning framework, "[s]witches between explanatory principles follow the generic guidelines: When different principles give conflicting results, inferences should be based on the most specific principles that apply; and when conflicting principles do not differ in specificity, no inference should be drawn" (Pólos & Hannan, 2002, p. 136).

linked to the age effects of performance, many studies (e.g., Argote, 2012, p. 15; Argote et al., 2021; Pisano et al., 2001) have noted that there is significant variation in the learning rates of organizations. In the literature on technological change, the traditional view of old firms fading away in the face of radical technological innovation, in the spirit of creative destruction (Hill & Rothaermel, 2003), has been updated as not so black and white in some of the recent literature that has recognized significant differences in the ability of incumbents to respond such changes (Eggers & Park, 2018).

From among the studies investigating the age–performance relationship directly as well, several examples of interorganizational differences in the outcomes of aging appear. For example, Henderson (1999) has reported that technology strategy affects the shape of firms' failure probability and sales growth with age, and Baum and Oliver (1991) have noted that institutional linkages create survival benefits, especially for young firms (compared to older ones), suggesting that young firms with such linkages may be able to largely avoid the liability of newness effects. Moreover, Amburgey et al. (1993) have suggested that the rise of the mortality risk after an organizational change they observed arises from challenges related to the liability of newness partly reappearing after a change.

The theoretical work that discusses the different age-related liability patterns has recognized the potential role of interorganizational heterogeneity as a factor affecting the outcome. This is apparent from the discussions on the need to control for potentially unobserved heterogeneity in studies of organizational mortality when investigating the effects of age. Yet, this discussion has focused on the risk of the age dependence patterns observed at the population level potentially arising from the mere differences in static mortality risk at the organizational level between different organizations (i.e., from a selection effect instead of the development observed at the population level taking place at the organizational level; Levinthal, 1991b)[19], or on the lack of controlling for more specific sources of unobserved heterogeneity, such as organizational size that, as already mentioned, tends to correlate with age, potentially leading to biased results for age dependence (Barron et al., 1994; Hannan, et al., 1998). This discussion has largely ignored the potential between-organization differences in the aging process itself and the possibility of multiple different age–mortality patterns arising from a single population of organizations. Such consideration, however, could reveal interesting intra-population (or intra-industry) dynamics, as is illustrated, for example, by Henderson's (1999) findings on organizations' growth and failure patterns with age depending on the technology strategy that they follow.

[19] If a population consists of firms with different but constant mortality probabilities (i.e., the probability differs between firms, but remains unchanged at the level of an individual organization), it is possible that a decreasing mortality hazard is observed at the population level because the organizations with the highest probability exit early and the remaining ones have lower probabilities (Carroll & Hannan, 2004, p. 4; Levinthal, 1991b). In such a scenario, the age-related development observed at the population level is not present at the organization level.

The most recent attempts to unify the liabilities of newness, adolescence and obsolescence under one model (Le Mens et al., 2011; 2015b) have, however, recognized the need to go to the organizational level (instead of focusing on selection at the population level) to understand the dynamics of the age-related performance patterns. This work extends the random walk model first introduced by Levinthal (1991b), where the resource stock of an organization (modified by resource flows over time) defines the severity of mortality risk (when the stock erodes, the risk rises), and acknowledges the possibility of within-population heterogeneity in the failure hazards. These advancements, however, have yet to spread to the broad discussion on firm or organizational age, because most empirical work continues to derive from the older theorizations that leave little room for intra-population or intra-industry heterogeneity in the organizational aging process.

The influential fields of research underlying the theoretical understanding of the organizational age–performance relationship (introduced earlier in the chapter), organizational ecology, and the industry evolution discussions, have traditionally focused on understanding the population or industry level dynamics (i.e., not the level of individual organizations). Moreover, organizational ecology, as well as industrial and evolutionary economics (underlying the industry evolution-related theorizations), all emphasize a deterministic perspective where the fate of organizations is largely dictated by environmental determinism and only little room is left for strategic choice (Astley & Van de Ven, 1983; Lewin & Volberda, 1999). These theoretical starting points are likely the underlying reason for the views of the aging process having been built around the idea of aging as a deterministic and universally similar process. The different theoretical approaches to aging loosely build on the life cycle idea by assuming similar developmental processes unfolding over time (as noted earlier in the chapter), and as O'Rand and Krecker note:

> Life cycle and the maturational or growth processes it invokes become an economical way (recall Adams 1979) to characterize the passage of time, but it simultaneously raises the salience of orderly processes and logical similarities among individuals (population units) while masking the potential heterogeneity or volatility accompanying this process.[20]

Even the empirical studies that do not build strongly on the above-addressed research traditions mostly adopt such a deterministic view on aging. In addition to the influence of the theoretical approaches beyond their specific research fields (the work on aging within organizational ecology, for example, is commonly cited in discussions on aging also outside of the organizational ecology field), there is a second likely reason for this tendency. This reason is the temporal and causal roles of age getting mixed in age-related reasoning (Bakker & Josefy, 2018, p. 527; Grzymala-Busse, 2011). In the temporal role, age is only affected by time. That is, if we define age, for example, as the time since founding, no other variable than time affects it. In the purely temporal role, however, age

[20] O'Rand & Krecker (1990, p. 257)

is also unlikely to cause anything. Instead, it is the processes or development (e.g., learning) taking place with age that causes the effect observed in performance. Yet, these underlying processes are susceptible to other variables. As already noted, learning rates, for example, vary between organizations. Thus, attaching causal meanings to age means that it is no longer immune to other variables (this is discussed in Essay I).

The limitations of the current understanding of organizational age and the age–performance relationship introduced in this chapter form the motivation for and serve as an important point of the contribution of the four essays of the dissertation. Pointing out the lack of attention to the potential between-organization heterogeneity in the aging process, however, is not to say that there would be no deterministic development related to age. Quite contrarily, it is the dynamics between the traditionally addressed deterministic development shared between organizations and the potential between-organization differences that the study investigates. The following chapter addresses the two key concepts of the study, age and performance.

3 THE KEY CONCEPTS

Whereas both organizational[21] age and performance may appear as rather straightforward concepts at first glance, the lack of consensus on how to operationalize them adds ambiguity to the discussion of the concepts. This section provides a general overview of these two central concepts of the dissertation, and the end of both sections describes how the concepts are approached in this dissertation.

3.1 Organizational age

Organizational age is generally understood as the length of existence, usually since founding. The common unit of measurement is a year, but also shorted units, such as months (e.g., Brüderl & Schüssler, 1990) or even days (e.g., Amburgey et al., 1993) have been used. It is not completely clear, however, what counts as the "birth" date of an organization and extant work involving organizational or firm age has shown differences in this regard. The start date of calculating age varies from the date of incorporation (e.g., Demirkan et al., 2013) or a self-reported founding time (e.g., from a survey or a company website; Chakrabarti & Mitchell, 2013; Schimke et al., 2013) to the first employee (e.g., Anyadike-Danes & Hart, 2018), initial public offering (e.g., Borghesi et al., 2007), and the first product release in the focal industry (e.g., Tschang & Ertug, 2016), among others (see Bakker & Josefy, 2018, pp. 524–525; Coad, 2018, pp. 27–28).[22] It is also noteworthy that the count of age does not always start from founding or other early sign of activity. Many studies focusing on individual industries or

[21] An organization is understood in the common meaning of an organized group of individuals pursuing common goals or purposes (excluding multipurpose and multifunction groups such as families; Stinchcombe, 1965, p. 142).
[22] This information is also often not clearly (or at all) reported in studies utilizing the age variable.

populations have used industry tenure as the measure of age (Coad, 2018, p. 28; Dobrev & Carroll, 2003, p. 547; Hannan et al., 1998, p. 289).

With the lack of systematic investigation, it is not clear how the differences in the start point of counting age affect the age–performance results. However, the use of measures such as the initial public offering, which are not necessarily very close to the organizational founding date[23], has received criticism (Coad, 2018, p. 28). Starting somewhat after the actual founding of the organization, such measures could miss relevant development. The liability of newness dynamics, for example, are suggested to pertain to the very early stage of an organization's existence (Yang & Aldrich, 2017). On the other hand, the findings of Loderer and Waelchli (2010) on the firm age–profitability relationship, with age calculated from the initial public offering, remained robust after changing the age measure to years since incorporation. Mitchell's (1994) results from a setting where age is calculated from the tenure of activity in the focal product market (i.e., diversifying entrants have existed already prior to this point) showed that the age effect on firms' dissolution rate was significant only for start-up firms but not for diversifying entrants. This latter result implies that it may be problematic to utilize the industry tenure as an age measure because it measures different things for start-up firms and diversifying firms in the industry (Bakker & Josefy, 2018).

In conclusion, age measures the time from some significant point in an organization's life, but there is no absolute consensus on what this point is. At the practical level, the variation in the practice is also likely to relate to the difficulty to access information on age (Coad, Daunfeldt, & Halvarsson, 2018, p. 55; Headd & Kirchhoff, 2009, p. 548), at least prior to the rather recent development of including age in official statistical databases (Coad, Daunfeldt, & Halvarsson, 2018, p. 55; Decker et al., 2014, p. 3). While the founding date information has recently been better available in different databases, this does not mean that measuring would have become unproblematic. As Bakker and Josefy point out (2018, p. 525), the founding dates of individual firms are not always consistent between different databases because of the difficulty in distinguishing between whether a new firm is born or an old one is continuing in case of many events that firms may encounter (e.g., spinoffs or mergers).

In this dissertation also, there is variation in how age is defined in the terms of measurement. This variation arises from the different aims of the four essays included. Essay I is a literature review study that includes a diversity of different age measures (i.e., as long as an article addressed organizational age or the difference between young and old organizations and met the other inclusion criteria, it was included regardless of the measure). This choice was an easy one because many studies do not clearly describe how age is defined or where the required information came from and setting restrictions for inclusion in this regard would have been difficult. In Essays III and IV (consisting of a computer simulation study and a conceptual study, respectively) age is not operationalized.

[23] For example, Ritter (2022) reports a median age of 8 years at the time of the initial public offering for US firms in 1980–2021.

In these two studies, it remains as a theoretical concept that refers to the time since the origin of the organizational activities.

Essay II is the only one of the studies where empirical data is utilized. The study follows the recent trend of utilizing archival databases to access age information by utilizing firm-level data from Statistics Finland. In the study, the age measure is the legal age of the enterprise (independent legal unit). The downside of this measure is that it is based on firm identifier codes that are given to new enterprises but in some cases (e.g., mergers or acquisitions), it is possible that an existing entity continues under a new identifier. This point is addressed with the limitations of the study at the end of Essay II.

3.2 Organizational performance

Explaining variation in organizational performance has been "one of the more enduring themes in the study of organizations", especially within management studies but also elsewhere (March & Sutton, 1997, p. 698). The word performance refers to "[t]he quality of execution of [...] an action, operation, or process" (Oxford English Dictionary, n.d.). In practice, the evaluation of such quality has taken many forms in the organizational context. In a review of organizational performance, Richard et al. (2009) identified 207 different measures for organizational performance within those 213 journal articles covered by the review that included a performance measure (or measures). Similar notions on the multitude of performance measures were made earlier in the context of new ventures by Brush and Vanderwerf (1992) who found 35 different measures for performance among 34 surveyed studies and by Murphy et al. (1996) who identified 71 different measures from the 51 studies that they reviewed. Clearly, there is a large variation in the specific measures with which the quality differences of organizations are assessed in studies of organizational performance.

In a narrow meaning, organizational performance refers to financial and operational performance (Venkatraman & Ramanujam, 1986). In their review, Richard et al. (2009, p. 722), for example, distinguish between organizational performance and organizational effectiveness, the former referring to financial performance, product market performance, and shareholder return, and the latter covering the same elements but also other internal outcomes that are thought to link to operational benefits "and other external measures that relate to considerations that are broader than those simply associated with economic valuation (either by shareholders, managers, or customers), such as corporate social responsibility." In other words, the narrow approach to performance excludes the part sometimes labeled as effectiveness and remains in the financial and operational domains.

In the broader meaning, organizational performance covers also the effectiveness dimension (i.e., performance is an interchangeable term with effectiveness). An example of such an approach is well illustrated in Boudreau's

(2003) description of the editorial objectives of Management Science's (the academic journal) Organizational Behavior, Performance, Strategy and Design department:

> Organizational performance is defined broadly, including organizational survival, competitiveness, financial performance, productivity, and flexibility, as well as less traditional outcomes such as sustainability, social responsiveness, and societal contribution.[24]

In this dissertation, I approach organizational performance in this broader meaning, although the individual studies of the dissertation vary in the scope in which performance is addressed. Figure 2 presents the different domains of performance conceptualization as presented by Venkatraman and Ramanujam (1986). The outermost circle (which also includes the two narrower approaches) represents the broad conceptualization of performance. Essay IV addresses performance at all three levels whereas the focus in the three other studies remains at the level of the two inner circles (Figure 2).

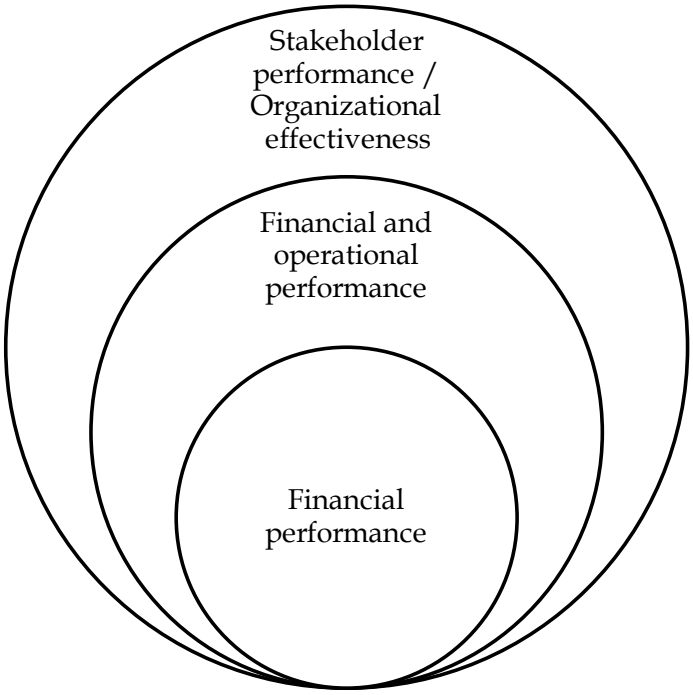

FIGURE 2 Performance domains (Venkatraman & Ramanujam, 1986, pp. 802–804; Carton & Hofer, 2006, pp. 56–57)

Relevant questions for performance evaluation also relate to the time frame and to the question of from whose perspective performance is evaluated (Cameron & Whetten, 1983; Richard et al., 2009). That is, the performance of an organization may appear different if assessed from the viewpoint of owners vs. that of, for example, employees, and the assessment of performance is likely to differ for a

[24] Boudreau (2003, p. xi)

short period (e.g., a year) compared to a longer time frame (e.g., a decade). Performance is also likely to be somewhat context-specific (i.e., there is no one-size-fits-all type of universal best measure; Richard et al., 2009). These are probably also the reason for the vast number of different measures utilized in studies of organizational performance (an issue addressed at the beginning of this chapter). With no one measure that would best suit all time frames, stakeholder perspectives, and other contexts, finding different measures in different studies makes sense.

Although the plethora of different performance measures reflects the multidimensionality of organizational performance, the existing literature has had differing views of how the individual performance dimensions (e.g., growth, profitability, customer satisfaction) constitute the overall organizational performance. Miller et al. (2013) present a framework of three different conceptual approaches to firm performance as the construct of multiple dimensions. These include "performance as a latent construct," "performance as a domain of separate constructs" and "performance as an aggregate construct" (p. 950). The first one (the latent construct approach) sees the overall organizational performance being captured by the shared variance between the individual performance dimensions. The second one (the separate constructs approach) views the overall performance as a collection of the individual performance dimensions that are separate and only loosely related as parts of the organizational performance domain (i.e., there is no higher-level multidimensional construct but just a collection of individual dimensions). The third approach (the aggregate construct approach) is in line with the latent construct approach in that it acknowledges the existence of the multidimensional construct of overall performance. Here, however, the overall performance is a composite that includes not only the shared variance of the individual dimensions but also the nonshared variance parts (some mathematical combination of the individual dimensions is utilized to measure the overall performance; Miller et al., 2013, p. 950). In other words, the difference between the latent and the aggregate model is in the relational direction between the individual dimensions and overall performance. In the latent model, the overall latent construct reflects itself in the multiple individual dimensions whereas in the aggregate case, it is the individual dimensions that form the construct of overall performance (Law et al., 1998, p. 747).

Figure 3 presents the difference between the two approaches that acknowledge the overall organizational performance as a distinct construct (as mentioned, in the separate construct approach the overall performance does not exist as a distinct construct but only as a loose label of the broader performance domain) as they are described in Law et al. (1998). In the figure, the gray area represents the part considered to represent the overall organizational performance. As stated, for the latent model (on the left side in Figure 3), this is the shared variance between the individual dimensions and for the aggregate model (on the right side in Figure 3) this is both the shared and nonshared parts of the variance.

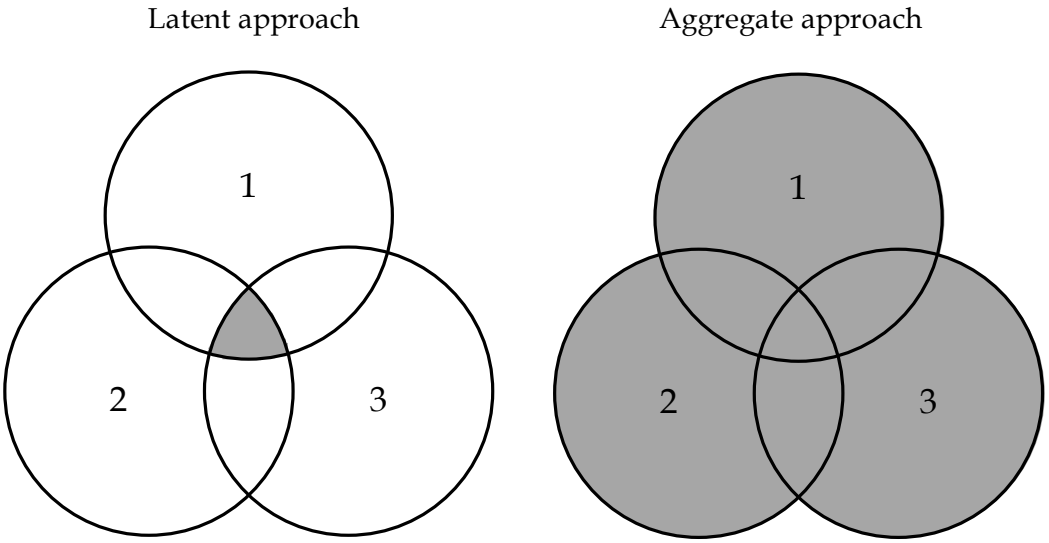

FIGURE 3 The latent and aggregate models of overall performance illustrated with three performance dimensions (Law et al., 1998)

Wong et al. (2008) argue that organizational performance cannot be treated as a true scientific multidimensional construct and it should not be treated as such when building (and testing) hypotheses on its relationship with other constructs. This is because the relationships between the overall construct of organizational performance and its various dimensions are scientifically undefined (p. 751). Indeed, treating organizational performance as a latent multidimensional construct does not seem justified as prior work with the multiple individual performance indicators implies that the various measures of performance are mostly distinct from each other and the results from studies with different performance indicators differ from each other (Carton & Hofer, 2006, pp. 36–27). In other words, it does not seem like there would be an underlying latent variable that reflects itself in the various individual performance dimensions (and further in the specific measures). In the latent model of a multidimensional construct, the multidimensional construct "is conceptualized as the commonality among the [individual] dimensions" (Law et al., 1998, p. 751) and it does not make sense to approach organizational performance this way when there appears to be a very little commonality among the dimensions (Miller et al., 2013, p. 959).

Just as with the latent construct approach, there are problems with conceptualizing organizational performance as an aggregate multidimensional construct. Treating performance as an aggregate construct involves the use of a mathematical combination of the individual dimensions to assess the overall multidimensional construct (Law et al., 1998; Miller et al., 2013). This is difficult with no clear guidance from theory on how the individual dimensions should be weighed when combining them in the aggregate measure. Moreover, as mentioned earlier in this section, the best measure(s) for assessing organizational performance are likely not universal but depend on the context in which

performance is assessed (e.g., from whose viewpoint it is evaluated). Thus, the mathematical specifications for the relations between individual performance dimensions and the overall composite measure would likely vary between studies. In conclusion, from among the three conceptual approaches to organizational performance addressed above, the separate constructs approach, where the individual performance dimensions are seen as conceptually distinct and only loosely related, makes the most sense and provides the most rigorous approach to organizational performance (Miller et al., 2013). The separate construct approach is also the approach applied in this dissertation.

The critique on the use of organizational performance as a multidimensional construct (that is reflected in or constructed from the individual dimensions as in the latent and aggregate models above) is not to say that organizational performance as a "general label" for the various individual performance dimensions (separate constructs) would not matter or would not be legitimate (Wong et al., 2008). Quite the contrary, looking only at one separate dimension of performance (e.g., growth) gives a very narrow view of how the organization is doing (compared to when multiple dimensions are addressed together), and it makes sense to think of the individual dimensions as members of the same general group of organizational performance (as in the separate construct approach), even when the relationship of these dimensions with the group label (e.g., overall organizational performance) is or cannot be explicated.

The common practice in studies approaching organizational performance through the separate construct approach methodology, however, is to assess distinct individual performance variables in separate analyses (Miller et al., 2013). While this practice advances the understanding (e.g., the development and affecting factors) of individual performance dimensions or indicators (e.g., growth), it only does so for one dimension or indicator at a time. Thus, interesting dynamics between the different dimensions may remain hidden. Gimeno et al. (1997) have, for example, shown that firms can survive at different levels of economic performance (i.e., it is not only the "fittest" firms that survive) and a study looking at only the survival dimension of organizational performance would miss such qualitative differences between the surviving firms.

Following the separate construct approach to organizational performance, this study treats individual performance dimensions as separate and distinct. Yet, to grasp a broader view of performance than is typical with the separate construct approach (where the individual dimensions usually get attention one at a time), three of the four essays focus on the separate but simultaneous development of individual performance dimensions. Essay I follows the more traditional approach of viewing the separate dimensions separately. This is because the study is a review study and most of the discussion on the organizational age–performance relationship has taken place in the context of individual performance dimensions (e.g., survival or growth) that have been investigated separately.

Because the selection of the specific performance measures utilized is largely related to the specific aim of each essay (the measures applied vary

between the essays), these choices will be addressed in the following chapter. The chapter explains how the aims of the individual essays arise from the broader endeavor of the dissertation to advance the understanding of the organizational age–performance relationship. It also comments on the methodological choices made in each essay to reach these aims.

4 RESEARCH AIMS AND METHODS

The four studies of the dissertation rely on different methodological choices. Essay I is a review study, Essay II is a quantitative descriptive study, Essay III is a computer simulation, and Essay IV is a conceptual study. These methodological choices were made to best respond to the specific research questions and aims that were set for each individual study as is explained in the following.

The initial motivation for the work was the puzzle of the benefits of aging sometimes reflecting on organizational performance whereas other times the disadvantages of aging dominate the performance effect, even within the same performance dimension (e.g., survival; as explained in Chapter 2). Because it is the examination of the underlying mechanisms that may shed light on how or why the observed outcomes of organizational processes arise (Pajunen, 2008), the logical starting point for the first essay was to survey the potential mechanisms from prior work. Essay I starts with the questions of *which mechanisms underlie the age–performance relationship*[25] and *from where the differences observed in the age–performance relationship between different contexts arise*. The study presents a systematic literature review of studies investigating the age–performance relationship in the context of three different performance dimensions, survival/failure, growth, and change. The specific focus of the study is on the rationales (see footnote 25) that the authors of the reviewed pieces of work provide for the results.

The separate construct approach to organizational performance, where individual performance dimensions are distinct and usually analyzed in separate analyses, is the most common one (compared to other approaches introduced in Chapter 3.2; Miller et al., 2013), also within the studies addressing organizational age and performance. Thus, it makes the most sense to focus on separate performance dimensions in the review (Essay I). Three dimensions, namely survival/failure, growth, and change, were selected in order to gain insights more broadly than focusing on one dimension would allow but to also keep the

[25]In practice, this question turned into the form *of which rationales are suggested to underlie the age–performance relationship* since, as it turned out, in most cases the explanation was not presented on a very detailed level.

scope of the study manageable. Growth and survival/failure were selected as the performance indicators of interest because, as explained in Chapter 2, they have been of interest since the early work on the age–performance relationship both within organizational ecology and the discussions oriented more toward economics. Change was selected as the third dimension of interest because like growth and failure, it has also been a recurring theme within the age–performance studies (see Baum & Shipilov, 2006). Its role is also theoretically interesting because of the contradiction between the organizational ecology theory that sees the adaptation of incumbent organizations to environmental changes unlikely because any core changes would threaten organizational survival by resetting the liability of newness clock (Hannan & Freeman, 1977, 1984) and adaptation-based theories that see (adaptive) change as beneficial and feasible and adaptive change thus being worth pursuing instead of something to avoid (Carroll & Khessina, 2019; Singh, House, & Tucker, 1986).

The aim of Essay II lies in understanding the dynamics between the individual performance dimensions over time. The two performance dimensions investigated are growth and profitability which are the two most widely used (by the number of articles) dimensions in investigations of organizational performance in management research (see e.g., Carton & Hofer, 2006, p. 35). The aim of the essay is to better understand the mutual dynamics between these two dimensions that are usually investigated in isolation. It addresses the question of *how firms move between different performance configurations over time.* The configurations refer to different combinations of high and low levels (relative to other firms within the same industry) [26] of growth and profitability. The differences in this development (i.e., movements between the performance configurations) are also investigated separately for various different age and size groups to assess the potential role of age and size in performance development.

Essay II is the only one of the four essays that utilizes empirical data (firm-level data from Statistics Finland). Instead of the more traditional approach of hypothesis testing, the study observes patterns arising from the data by utilizing origin/destination tables where the initial and final performance states (i.e., performance configurations at the start and end of the observation period of interest) are cross-classified (see, e.g., Anyadike-Danes & Hart, 2018). With studies investigating the separate but simultaneous development of the individual performance dimensions being rare and the extant literature thus providing limited guidance on how the between-dimension dynamics materialize over time, such a descriptive approach provides a suitable approach for the endeavor of beginning to clarify these understudied dynamics.

Essays III and IV build on the foundation established by Essay I, with its notions on the sources of potential interorganizational heterogeneity of the aging process. Essay III investigates the possibility of an organization to counter the obsolescence brought by aging. With its basis in prior observations on how the renewal of human capital can potentially provide organizations a tool for countering age-related obsolescence and rigidity (Jain, 2016; Tschang & Ertug,

[26] The categorization schema utilized in the essay comes from Davidsson et al. (2009).

2016), the study aims to assess this suggestion by investigating *how the effects of member turnover (i.e., inflow and outflow) on organizational performance unfold over the organizational life course*.

The method utilized in Essay III is a computer simulation. The simulation approach is superior to more traditional approaches because it allows the observation of the simultaneous development of interdependent processes, which is difficult to achieve with more traditional methods.[27] The renewal of the human capital of an organization is a complex process affecting the organization in multiple ways, and it has both positive and negative consequences (which are further discussed in the essay). Thus, the ability to simultaneously track the multiple interrelated processes, which the simulations approach allows, provides a possibility to understand the effects of member turnover (i.e., inflow and outflow) at a level that would be difficult with other methods.

Essay IV consists of a conceptual study that addresses the qualitative differences of organizational survival (i.e., aging, as continued survival is inherently linked to increasing age). The motivation for the study arises from the tendency of studies on organizational survival (or failure) to present survival as the desired outcome. The "quality" of survival is rarely addressed, although some of the surviving organizations can continue to exist in a "permanently failing" state where they continuously present poor financial performance or fail to meet other performance goals (Meyer & Zucker, 1989). It is the qualitative aspect of continued existence (i.e., aging or survival) that the study attempts to clarify.

The conceptual approach adopted in Essay IV supports the study's attempt to lay the groundwork for a theory on the different modes in which an organization can survive (i.e., age). Conceptual studies "seek to bridge existing theories in interesting ways, link work across disciplines, provide multi-level insights, and broaden the scope of our thinking" (Gilson & Goldberg, p. 128). This is the goal of Essay IV as well as it aims to show the shortcomings of the current view of organizational survival and shows how viewing the phenomenon from multiple levels (i.e., organizational and societal) simultaneously provides a richer view of the phenomenon and advances our understanding of it.

Ultimately, the aims of the four studies also have the broader goal of addressing the shortcomings in the current understanding of organizational age and performance addressed in the prior chapters. These shortcomings include confusion over which mechanisms are actually driving the observed performance effects of aging and the limited consideration of interorganizational heterogeneity of the aging process addressed in section 2.3. The third shortcoming is the limited consideration of the simultaneous but separate development of the different performance dimensions addressed in section 3.2. Table 1 shows which of these three each essay aims to tackle. The contribution

[27] As Harrison et al. (2007, p. 1229) note (related to the limitations of traditional approaches to theory development): "Even when the individual processes are well understood, analyzing their interdependent behavior poses difficulties, because the processes involved may interact in complicated and unforeseen ways."

made to advancing the understanding in these areas is addressed in the next chapter.

TABLE 1 Targeted contribution of the four essays in relation to the shortcomings of the current understanding of organizational age and performance

Shortcoming addressed	**Essay I**	**Essay II**	**Essay III**	**Essay IV**
Confusion over the mechanisms behind the observed age effects on performance	X		X	
Limited consideration of the interorganizational heterogeneity of the aging process	X		X	X
Limited consideration of the simultaneous but separate development of performance dimensions		X	X	X

5 OVERVIEW OF THE ESSAYS

This chapter provides an overview of the four essays of the dissertation. Two of the essays (Essay I and Essay II) are single-authored. For the two coauthored essays (Essay III and IV), the author's contribution is explained at the beginning of this dissertation after the list of essays. All four essays are unpublished manuscripts.

The following sections and Table 2 provide a summary of the essays, including the research aims, background literature, data, methods, main results, and contributions of the studies. The contribution of each individual essay to the broader endeavor of the dissertation to tackle the shortcomings of the understanding of organizational age and performance is addressed at the end of the introduction of each essay and summarized at the end of the chapter in Table 3. The next chapter then further elaborates on this broader contribution of the dissertation.

TABLE 2 A summary of the four essays

Essay	Essay I	Essay II	Essay III	Essay IV
Research aim	1. To identify the underlying forces behind the age–performance relationship that drive the positive or negative performance consequences of aging 2. To identify the sources of contextual effects that shape the age–performance relationship	1. To observe how firms move between growth–profitability configurations (consisting of different combinations of high and low levels of growth and profitability) 2. To investigate differences in the movements between firms of different ages and sizes	Investigate the role of member turnover (a potential tool for countering age-related obsolescence), on organizational performance over the life course of an organization	To lay the groundwork for understanding survival as a multifaceted process that can take place in various qualitatively different states
Background literature	Various streams of literature addressing the age–performance relationship from the disciplines of management, economics, and sociology	Competing/complementary views of the firm growth–profitability relationship from the resource-based view of the firm and industrial and evolutionary economics	Literature on employee mobility, learning by hiring, and employee turnover from the strategic management and human relations management disciplines, combined with insights from organizational culture and identity and transactive memory	Insights from multiple lines of work addressing organizational survival and sustainability
Data	164 journal articles reviewed	66,135 Finnish firms (221,992 firm-year observations) in multiple industries	-	-
Method	Systematic literature review	Descriptive quantitative analysis with origin/destination tables	Computer simulation	Conceptual study
Main results	1. Reveals the vast variety of rationales thought to	1. The state of high profitability and high	1. Member turnover benefits organizational performance	1. Shows the shortcomings of the common tendency to

	underlie the age–performance relationship and the lack of testing the related assumptions 2. Identifies different types of contextual factors that affect the relationship	growth more likely results from pursuing high profitability (with low growth) than from the position of high growth (with low profitability) first 2. Avoiding non-profitable growth becomes increasingly important with age 3. Firm size can be an asset or a hindrance to future performance, depending on the current profitability	at the later stages of the organizational life trajectory but is harmful at the beginning, at least if no major changes take place in the environment 2. Optimal balance (turnover rate) for the positive and negative consequences of turnover is challenging to find because also contextual factors (and not just the life trajectory state) affect it	treat survival as a solely positive outcome 2. Presents a typology of qualitatively different modes of organizational survival 3. Further theorizes how an organization might end up in each of the survival modes
Central contribution as an independent study	1. Maps the broad variety of potential individual factors driving the age–performance relationship 2. Identifies the lack of testing of the age-related assumptions and raises examples of better practices from the existing literature 3. Identifies sources that cause interorganizational (or other intercontextual) heterogeneity in the age–performance patterns	1. Provides insights into how the mutual dynamics of firm growth and profitability vary with firm age and size 2. Illustrates the strength of investigating the development of individual performance dimensions *simultaneously* (both in general and in understanding the age-related dynamics)	1. Illustrates the interplay of positive and negative consequences of member turnover through a simultaneous investigation of the various mechanisms that link the turnover process to organizational performance 2. Shows that the relative benefits/harms of member turnover to organizations vary depending on the stage of the organizational life course, and are also affected by contextual factors	1. Enriches studies on organizational survival, failure, and longevity by shedding light on the plurality of the qualitative states of survival 2. Shows that the alignment with the environment, often seen as a source of success at the organizational level, can be harmful at the societal level

5.1 Essay I – Organizational aging and performance: Underlying drivers, contextual factors, and implications for future research

Essay I is a review of 164 scientific articles that provide empirical or conceptual/theoretical results on the relationship between organizational age and performance. The performance indicators included in the study are survival/failure, growth, and change of organizations (as was explained in the previous chapter) and the scope of the survey is broad, with studies included from both management and economics as well as from the finance and sociology disciplines. The study focuses on the rationales that the authors suggest are underlying the obtained age-related results.

The approach of identifying the forces that potentially underlie the positive and/or negative consequences of aging arises from the aim of bringing clarity to the dual role of age as both a positive and a negative force. The second goal of the study is to identify the sources of contextual effects that create interorganizational or intersample differences in the observed age–performance relationships. This goal arises from the attempt to distinguish between the temporal (not affected by other variables) and causal (potentially affected by other variables) roles of age addressed in Chapter 2.3.2 and further discussed in Essay I.

The collection of articles reviewed was constructed with a keyword search in the Web of Science database. For the main analysis, the results on the age effect on (or association with) the outcome variables of interest were collected from the studies. The rationale provided for the results was also recorded. From there, the single drivers (e.g., learning) suggested to underlie the age–performance relationship were extracted, and the contextual factors implied to potentially affect the observed age–performance pattern/result also were identified (the results and rationales, as well as the extracted drivers and contextual factors, are presented in the supplementary material accompanying the essay).

The key findings of the study include the identification of the vast variety of potential drivers that cause the observed age effects. These drivers arise from five broad types of development, including factors related to (1) resources and capabilities, (2) learning, knowledge, and experience, (3) rigidity, flexibility, adaptability, responsiveness, and innovativeness, (4) other internal development, and (5) external relationships. While the identified drivers are generally in line with the theoretical approaches to organizational aging introduced in Chapter 2.1, the most important part of the results is the identification of the contextual factors that are not directly age-related but cause variation in the age–performance relationship between organizations or samples of organizations. These findings imply that both the initial level of maturity and the rate of maturing vary between organizations (or types of organizations) and various factors (e.g., the choice of a technology strategy) can also affect the shape of the observed age–performance pattern.

The main contribution of the study is in responding to two of the limitations of the existing understanding of the age–performance relationship addressed in section 2.3. First, to ease the confusion over the underlying mechanisms, the study maps the plethora of potential individual drivers of the effect of age on organizational performance. Moreover, as the suggested drivers vary between studies and tend to rely on assumptions instead of tested mechanisms, the study also raises examples from previous literature for better practices (than relying on mere assumptions) to aid improvements in the future. Second, to advance the insufficiently addressed heterogeneity of the aging process, the study also takes a step toward understanding where the heterogeneity between organizations or samples arises from by mapping potential contextual factors affecting the performance outcomes of the aging process.

5.2 Essay II – Firm growth and profitability: The role of age and size in shifts between growth–profitability configurations

Essay II investigates the dynamics between firm growth and profitability. The study has an empirical orientation, and it aims to shed light on how firms move between different growth–profitability configurations. The configurations refer to different combinations of high and low levels (relative to other firms in the same industry) of growth and profitability. The role of age (and size) in the movements between the categories is also studied.

The data utilized in the essay come from the financial statement data panel and business register, gathered and maintained by Statistics Finland, and cover over 66,000 Finnish firms (over 220,000 firm-year observations). The study starts with a partial replication of the work by Davidsson et al. (2009) and cross-classifies firms based on their beginning- and end-of-period growth–profitability configuration for one- and three-year observation periods to make sense of their movements in the growth–profitability space during short- and medium-term periods. After investigating the full data, the analysis is conducted separately for subgroups formed based on firm age and firm size (six age groups and six size groups are utilized).

The results confirm the original findings of Davidsson et al. (2009) on the performance state with high (relative to others) growth and profitability resulting more likely from initial profitability (with low growth) than from initial growth (with low profitability). The study also broadens the understanding of the role of age and size in the movements between the performance configurations. First, the results show that the optimal[28] growth strategy differs for firms that are very young and small, compared to other firms. Second, the benefits (or lack of them) of firm size for end-of-period performance depend on the initial profitability level of the firm.

[28] Optimal, if the goal is to reach the state of high growth and high profitability and avoid the state of low growth and low profitability.

Furthermore, the study illustrates the strengths of the non-common approach to organizational performance where the development of individual, separate, performance dimensions are investigated simultaneously. That is, the study reveals such growth–profitability dynamics that would have remained hidden had the dimensions been investigated in separate analyses or had they been combined to form a single numerical measure. This notion is of specific importance for firm growth studies that tend to remain within the growth domain and ignore the different "success levels" (i.e., profitability) of growth between firms. Consequently, regarding the shortcomings discussed in section 2.3, the study's main contribution lies in understanding the separate but simultaneous development of individual performance dimensions.

5.3 Essay III – Knowledge gains and efficiency losses: A life course approach to member turnover and organizational performance

Essay III investigates member turnover (i.e., member inflow and outflow) as a potential tool for organizations to counter age-related rigidity and obsolescence. The study utilizes the mutual learning computer simulation model from March (1991) for conducting a simulation analysis on how member turnover affects organizations over their life course.

In order to understand the full range of effects that the member turnover process has on organizations, the points of focus are the development of organizational knowledge (i.e., the correctness of the knowledge that the organization has of its environment) and internal cohesion (i.e., the alignment between the member and organizational beliefs) as the literature suggests that member turnover affects organizations through these two dimensions. Moreover, also the development of average member tenure[29] is included in the investigation to assess potential further effects that the other two dimensions do not reach.

The results of the study indicate that the member turnover process involves a trade-off between knowledge benefits and loss of efficiency. The mutual balance of these consequences changes over the organizational life trajectory so that at the very early stage of organizational life trajectory, turnover is solely harmful to the organization (at least if no major changes take place in the environment), but the positive consequences start to materialize later on and the benefits intensify with time. Further investigations with the model also show that finding an optimal turnover rate is challenging because contextual factors (such as how fast the organization and its members learn, how turbulent the environment is, and to what extent the incoming individuals share the organizational beliefs, to begin with) affect the balance between the positive and negative performance consequences of turnover.

[29] Member tenure provides a proxy for assessing the number of disruptions caused by member replacement in the history of the organization.

The central contribution of the study is in elucidating the sources and balance between the positive and negative performance consequences that member turnover has on organizations. The study, however, contributes also to easing all three shortcomings listed in Table 1 in the previous chapter. First, the results indicate that the renewal of human capital does indeed work as a tool for countering obsolescence at the later stage of organizational life.[30] This notion contributes to the idea of interorganizational heterogeneity in the aging process by acknowledging that the actions taken by organizations can counter the negative effects of aging. Second, the study demonstrates the strength of viewing different performance dimensions separately but simultaneously to get a comprehensive understanding of the investigated phenomenon. For example, focusing on the organizational knowledge dimension alone would have left a large part of the negative consequences of member turnover in the dark.

Finally, for a better understanding of the mechanisms underlying the organizational age–performance relationship, the study provides an example regarding the need to pay more attention to the duration of the effect of the mechanisms (a point addressed in section 2.3.1). That is, as March (1991) suggests, the benefits of initial knowledge variation run out after the learning opportunities they provide have been exhausted. After this, beneficial learning continues only if the organization takes an effort to create more variation. Thus, older organizations that have exhausted the initial variation benefit from member turnover as it creates internal variation.

5.4 Essay IV – "It's not how old you are but how you are old": Trajectories of sustainable survival

Essay IV is a conceptual study. The essay starts from the notion of studies of organizational survival and failure tending to see survival as the desired option and neglecting the point that organizations can survive in very different qualitative modes. The study argues that the tendency to overlook the qualitative variation of surviving organizations likely arises from the tendency of researchers to "attribute the striving of humans for immortality to the firms they study" (Josefy et al., 2017, p. 770) and the intertwined role of survival and success in many management and organization theories. That is, the same forces driving success are often seen as forces that also improve survival chances.

To address the issue of overlooking the qualitative side of survival, the study starts from the notion of organizations sometimes surviving in underperforming states where they do not meet their financial or other performance goals, even for long periods of time (e.g., DeTienne et al., 2008; Gimeno et al., 1997; Meyer & Zucker, 1989). Surviving in such a mode of delayed

[30] As noted when explaining the motivation of the study in Chapter 4, the initial motivation of the study partly arises from prior work that provides indications of human capital renewal potentially countering organizational obsolescence and rigidity.

death not only erodes the organization's own resources but is also harmful at the higher level of the economy or society because it ties up resources that could be used more efficiently in other organizations. This thought of survival causing harm at the societal level is further extended in the essay to consider organizations' contribution and extraction at the societal level also more broadly. Extraction refers to the use of resources without contributing back to society in an equal amount whereas contributive organizations create societal wealth or other societal benefits to compensate for the resources that they take.

Resulting from the discussion on the qualitative differences of surviving organizations, the essay presents a typology of organizational survival that builds on two dimensions, viability and sustainability, and presents four different modes of survival that form as a combination of these two dimensions. The viability dimension refers to the survival likelihood of the organization, whereas the sustainability dimension differentiates between the contributive and extractive organizations addressed above. The typology and the related discussion in the essay illustrate that among the organizations that are best aligned with their environment, those commonly considered as most successful, only some qualify in the category of being sustainably successful. Furthermore, a discussion on the dynamics that would guide organizations toward each mode of survival reveals the paradox of the society itself sometimes encouraging organizations toward extractive practices that destroy societal value.

The central contribution of the study is in illustrating the negative aspects of survival that are often overlooked in the existing work of organizational survival, failure, and longevity. Understanding the qualitative differences between surviving organizations is important, especially when drawing policy implications from research results since not all survival is successful.

While not addressing aging directly, the continuous process of survival is inherently linked to aging. Thus, the study's contribution to the broad topic of this dissertation arises in the context of two of the limitations of the existing work on organizational age and performance listed in Table 1 (at the end of Chapter 4). First, the study builds on the idea of heterogeneity of the aging process between organizations (i.e., organizations can survive in various different performance modes). Second, the study promotes the "separate but simultaneous" approach to the investigation of organizational performance by showing that when the dimensions of viability and sustainability are considered simultaneously, the tension between what is considered desirable performance from an organization-centric perspective vs. from a societal perspective becomes revealed in a way that exposes the shared and non-shared domains of these two views.

Table 3 below summarizes the broader contribution of all four essays to the overall research topic by elaborating on how the individual essays reach the targets set in Table 1 (on page 44) regarding the different shortcomings of the current understanding of organizational age and performance. This broader contribution is further discussed in the following chapter.

TABLE 3 Contribution of the essays in relation to the shortcomings of the current understanding of organizational age and performance.

Shortcoming addressed	**Confusion over the mechanisms behind the observed age effects on performance**	**Limited consideration of the interorganizational heterogeneity of the aging process**	**Limited consideration of the simultaneous but separate development of performance dimensions**
Essay I	1. Tracks and maps the vast number of individual drivers suggested to underly the age–performance relationship. 2. Raises examples of testing the mechanisms to encourage better practices (than relying on assumptions of the causal route from age to performance).	Maps potential contextual factors that affect the performance consequences of aging and takes a step toward understanding the sources of between-organization or -sample heterogeneity in age-driven performance development.	
Essay II			Illustrates the strength of investigating individual, separate, performance dimensions simultaneously by showing how the approach reveals performance dynamics (also in the context of different firm age groups) that remain hidden with more traditional approaches.
Essay III	Shows the need to acknowledge the temporality of the mechanisms associated with aging by highlighting how the initially "automatic" learning eventually stops if learning opportunities are not created.	Identifies the renewal of organizational members as a factor that creates interorganizational heterogeneity in the performance consequence of aging (i.e., organizations can counter the negative effects of aging).	Shows how simultaneously investigating the knowledge and efficiency dimensions of performance reveals a change in the dynamics between positive and negative consequences of member turnover over time.
Essay IV		Builds a typology of the different modes of survival (i.e., aging), illustrating how aging organizations can follow various different performance paths.	Shows how considering the viability and sustainability dimensions simultaneously reveals the shared and non-shared domains of desirable performance from the organization-centric and societal perspectives.

6 COMBINED CONTRIBUTION OF THE STUDIES

The previous chapter summarized the four essays and pointed out their contribution as independent studies and in relation to three shortcomings of prior work on organizational aging and performance addressed in Chapters 2.3 and 3.2 and listed in Table 1 (in Chapter 4). Combined, the essays serve a broader cause than what is reflected in the results of each individual study and this chapter further elaborates on this contribution that arises from the results addressed in Table 3 at the end of the previous chapter.

6.1 Insights for the methodological approaches to age and performance

Regarding the first (of those listed in Tables 1 and 3) shortcoming of the existing literature on organizational age and performance, namely the confusion over the mechanisms behind the observed age effects on performance, the contribution most strongly arises from Essay I that lays the groundwork for future endeavors to clarify the mechanisms on the causal route from age to performance by mapping the plethora of drivers believed to underlie this relationship and by giving examples on testing the mechanisms in the future. Essay III more subtly joins the effort of revising the practices related to using age as the representative of different time-related processes by addressing the potential non-linearity of learning (i.e., learning is dependent on the available learning opportunities)[31], a common process linked to aging in empirical studies.

Regarding the third (in Tables 1 and 3) shortcoming of the existing literature on organizational age and performance, limited consideration of the simultaneous but separate development of performance dimensions, three of the essays (II-IV) demonstrate the strength of this approach by showing how it can

[31] This is not a novel finding of the study as such but addressing it with respect to age is important as the empirical work on age often ignores the potential non-linearity when linking different time-related processes to aging (see page 27).

reveal such interesting dynamics in the simultaneous development of two different performance dimensions that would be difficult or impossible to reveal with other types of approaches to performance. The approach as such is not unique to the study[32] but it is rarely applied in the age context. Yet, it could have much to give in this context for understanding organizational differences beyond the context of single performance dimensions that is usually applied, especially when combined with the idea of the aging process being heterogeneous between organizations (further elaborated in the next section).

Whereas these notions represent the lessons that can guide the methodological side of the age–performance studies toward practices that could clarify the ambiguities in the current understanding of the topic as well as broaden the understanding in the future, the most significant combined contribution of the work is to the theoretical understanding of the age–performance relationship. This contribution relates to the second (in Tables 1 and 3) shortcoming of the previous literature on organizational age and performance, limited consideration of the interorganizational heterogeneity of the aging process, and is addressed in the next section.

6.2 Insights for the theoretical understanding of the age–performance relationship – Interorganizational heterogeneity of the aging process

Three of the four essays (I, II, and IV) of the dissertation address the interorganizational (and intercontextual) heterogeneity of the organizational aging process, a topic largely ignored in the current discussions of aging (the second limitation listed in Tables 1 and 3). Essay I lays the cornerstone of addressing this limitation in prior work by pointing out that age is not immune to other variables (as is commonly assumed) if it is given causal meanings as the representative of organizational processes (e.g., routine formation or increasing level of reliability). Moreover, Essay I elucidates age as a process that has both shared and differing aspects between organizations (and contexts) by summarizing the forces that (are suggested to) drive the common development that causes the observed age–performance patterns at the industry- or population-level, as well as the factors that cause differences in this development between organizations or contexts.

The findings of the first essay suggest that organizations may differ in the level of their initial maturity as well as the rate of maturing, the essay also identifies factors that shape the age–performance patterns. Many of these shaping factors relate to specific features of the organization or its environment. However, there is also an indication that actions, such as renewing human capital (Tschang & Ertug, 2016), could be used in shaping the age effect. It is from here

[32] Essay II adopts the approach from Davidsson et al. (2009) whose work is partially replicated in the study, and Essays III and IV then continue to apply the approach.

that Essay III continues to break the paradigm of organizational aging as a purely deterministic and universal force. Essay III investigates the role of human capital renewal as a tool for preventing performance deterioration driven by the liability of obsolescence. The results of the essay also support this thought of the forces of aging being preventable.

Essay IV further builds on the thought that while there may be universal tendencies of organizational development taking place over time (i.e., organizations will fall behind in the development of their environment and consequently deteriorate if no preventing actions are taken), this is an oversimplified presentation of what actually happens to organizations over time. In other words, organizations can continue to survive (i.e., age) in various qualitative modes.

As implied in Table 3 (on page 53), the three essays (I, III, and IV)[33] cumulatively contribute to the understanding of organizational aging as a process with between-organization heterogeneity as follows:

1. Essay I builds the foundation for understanding aging as a process of both shared and differing between-organization or between-context aspects.
2. Essay III extends the idea of interorganizational heterogeneity in the organizational aging process by showing that renewal actions can be used for preventing age-related deterioration.
3. Essay IV further illustrates the role of aging as not only a universal deterministic process but involving the organizational-level heterogeneity dimension as well by illustrating the various qualitative modes in which an organization can continue to survive.

To sum up this main general contribution of the essays in furthering the theoretical understanding of organization aging, this dissertation suggests that aging should not be viewed solely as a universal deterministic process like it now appears in most age-related discussions. Instead, context-specific and voluntaristic aspects also play a role in how the effects of aging unfold and affect organizations and their performance.

A valid question regarding the between-organization heterogeneity of aging and its performance consequences, however, is why it matters. The studies utilizing the age variable or discussing organizational aging are usually interested in the general development represented or caught by the age variable in the population or industry under investigation. Whether or how much an individual organization deviates from the observed central tendency is not a question of interest in such investigations. Moreover, from the point of view of organizational performance studies, stating that there is variation among organizational performance levels (even between organizations of the same age),

[33] Essay II does not directly contribute to the understanding of the between-organization heterogeneity of aging. As discussed in the previous section, its role in this regard is more technical in illustrating the strength of the "separate but simultaneous" approach to performance dimensions which is then adopted in Essays III and IV.

comes as no surprise. The following sections address these concerns and elucidate why addressing the interorganizational heterogeneity of aging matters.

6.2.1 Why does it matter? The organizational aging studies perspective

The studies addressing organizational age have traditionally been interested in the average effect of age in a population or industry. Potential interorganizational variation of the development has thus largely remained beyond the scope of the studies. The major theoretical explanations of how and why age is linked to organizational performance outcomes (introduced in Chapter 2) also come from among attempts targeted to explain industry- or population-level outcomes. However, as explained in section 2.3.2, the most recent attempts to explain the patterns of the liabilities of newness, adolescence and obsolescence/senescence under one unified theory (Le Mens et al., 2011, 2015b) have identified the need to go to the level of an individual organization in the theorization[34] in order to achieve the unification.

But addressing between-organization heterogeneity is not of importance just for the sake of theory. The importance of addressing the possibility of multiple age–performance patterns is well illustrated by Henderson's (1999) findings on the mortality and growth patterns of firms in the US personal computer industry. His results show that the patterns differ for firms following an industry standards-based technology strategy, compared to those following a proprietary technology strategy. This is because industry standards provide legitimacy which smoothens the liability of newness effect (i.e., the two types of firms start from a differing level of legitimacy) but may also inhibit technology development to the full potential (i.e., the upper limit for improvement in terms of growth is different for the two types of firms). Now, if one was to start from the traditional setting of searching for one universal age–performance pattern for the whole industry, such differences would remain hidden. Moreover, looking for one general pattern in a population that in reality includes two distinct patterns would result in biased results.

Another example of the strength of acknowledging the potential between-organization heterogeneity of aging comes from Bird and Zellweger (2018), who investigated Swedish private firms. They found that spousal-run firms initially have a relative growth advantage when compared to sibling-run firms, but this difference narrows with age. They suggest that the difference arises from different relational embeddedness attributes (e.g., trust) between the two types of entrepreneurial teams (i.e., the two types of firms differ in the level of initial maturity) but the problems that the sibling-run firms initially encounter are smoothed out as the firm becomes established.

Considering the above examples, the summarized view of age-related literature of firms first rushing to overcome the liability of newness, until they reach a more routinized state where their activities stabilize, and finally may or may not deteriorate with the liability of aging (from the survey by Coad, 2018, p.

[34] Which allows heterogeneity within the population.

37), seems inadequate. While acknowledging the possibility of aging firms to avoid the liability of aging state, the heterogeneity of organizations is not fully embraced by this view. As the above examples point out, heterogeneity can take place at all stages of the process.

Acknowledging the potential interorganizational heterogeneity broadens the view of the organizational age–performance relationship and allows a more nuanced understanding of the aging process. While the traditional approach to organizational aging sees age as a concept that catches the average/universal development that organizations experience with time, the broadened view presented here places age more strongly in the discussions of within-industry/population dynamics as well. Age could play an important role in understanding the broadening or narrowing performance differences between organizations, as the examples above illustrate.

6.2.2 Why does it matter? The organizational performance studies perspective

Although much of the discussion above focuses on the interorganizational heterogeneity of aging, the intention of this work is not to say that the homogeneous part of aging would not matter. It is quite clear from the extant works' frequent finding of a significant statistical relationship existing between organizational age and some performance indicator that there is common performance-affecting development taking place in organizations over time. Thus, the goal here is to suggest that there are both universal deterministic tendencies in the aging process and opportunities for organizations to deviate from them. When approaching age from this semideterministic point of view, it becomes a potentially powerful concept for understanding the performance differences of organizations as well as their development over time, as is explained next.

In the context of explaining firm failure, scholars have begun to recognize the need to combine the single-lens theories relying on either the deterministic or voluntaristic perspective into integrative frameworks that accommodate both types of forces, in order to provide more robust explanations of failure than could be reached with the single-perspective theories (e.g., Amankwah-Amoah, 2016; Khelil, 2016; Mellahi & Wilkinson, 2004). While such an integrated approach enhances the robustness of explanation in the case of failure vs. survival (survival being the other side of the failure coin here), this likely holds for other performance differences between organizations as well. The idea of heterogeneous aging could serve as the backbone of a broader framework explaining such performance differences as it facilitates the balance between population-level determinism (captured by the homogeneous development of organizations in a population with age) and organizational-level voluntarism (reflected in the heterogeneity of the between-organization development with age).

The basic thought here is that organizations show universal development over time (e.g., easing of the liability of newness forces) that is driven by

environmental determinism and defines the susceptibility of the organization to environmental selection. However, such development is modified, or even countered, at the organization level by (more or less purposeful) choices or contextual factors (e.g., selection of the technology strategy) and renewal efforts (e.g., renewing the human capital of the organization) that affect the strength of the deterministic forces as illustrated by the examples in previous chapters. Considering that the clearest connection between organizational age and performance is observed in the early years of the organizational life course (up to about seven years of age; Coad, 2018), it is likely that the balance of these two forces changes over time, with the deterministic forces mattering more at a young age.

As pointed out earlier in the chapter, it comes as no surprise that organizations (even those of the same age) do not all perform at the same level. Indeed, there are many existing concepts utilized in explaining organizational performance differences. Probably closest to the discussion here comes the discussion surrounding the concept of *strategic renewal* that "describes the process that allows organizations to alter their path dependence by transforming their strategic intent and capabilities" (Schmitt et al., 2018, p. 85). In his survey of the literature on firm-level aging, Coad (2018, p. 37) concludes that the phase of decline at an older age (caused by the liability of aging) can be avoided with strategic renewal.

Indeed, strategic renewal is likely a key factor for countering age-related liabilities and creating between-organization differences in performance levels. However, whereas strategic renewal relates to the idea of heterogeneous aging, its scope is narrower. In the example from Bird and Zellweger (2018), introduced in the previous section, where the relative difference between spousal-run and sibling-run firms narrows, the development is not a result of renewal actions but merely results from the development that takes place over time (i.e., easing of the relational challenges in sibling-run firms), even when neither type of firm takes any purposeful actions toward it. As this example illustrates, the strength of the heterogeneous aging approach lies in revealing the role of not just actions but also non-action (i.e., influential development taking place separately from active actions) in the emergence of and changes in performance differences between organizations over time. Thus, it has the potential to increase the comprehensiveness of answering the central question of management research: Why do some organizations perform better than others?

7 CONCLUDING REMARKS

This introduction chapter and the four essays that form the dissertation discuss organizational aging and performance, the specific focus being the relationship between the two. The introduction presents the common theoretical approaches to the organizational age–performance relationship and the key limitations of the current understanding of this relationship. Moreover, the introduction part discusses the conceptualization and operationalization of the two key concepts of the work, organizational age and performance. This discussion shows the three key points that form the basis of the contribution of the four essays: (1) Confusion over the mechanisms behind the age–performance connection, (2) limited consideration of between-organization heterogeneity of the aging process, and (3) limited consideration of the simultaneous but separate development of individual performance dimensions.

Essay I, a review study, contributes to a better understanding of the mechanisms driving the performance effect of aging by revealing the variety of individual drivers that scholars assume to underlie the relationship. It also addresses the variety of factors (arising from the reviewed literature) that may cause interorganizational (and other intercontextual) differences in the observable age–performance patterns. Essay II illustrates the benefits of investigating different dimensions of performance separately but simultaneously when assessing organizational performance. This approach is then used also in the last two essays. Essay III addresses the potential heterogeneity of the aging process between organizations by elucidating one potential tool for affecting the seemingly deterministic forces of aging, member turnover. The essay also illustrates how the duration of the processes associated with performance-affecting age-related development matters by noting that renewal through member turnover is only effective after the initial learning opportunities from heterogeneous beliefs of members are exhausted. Essay IV further embraces the interorganizational heterogeneity of the aging process by building a typology of organizational survival and further theorizing on how and why organizations continue to survive (i.e., age) in the different qualitative modes presented in the typology. In addition to the three limitations listed above, the individual essays

also contribute to a better understanding of firm growth–profitability dynamics (Essay II), the balance between the positive and negative consequences of member turnover on organizations (Essay III), and the understanding of the qualitative side (instead of mere length) of organizational survival (Essay IV). This section further concludes the contribution of the dissertation to research, practice, and policy, and addresses the limitations of the work.

7.1 Implications for research, and limitations of the study

While the original motivation for the study sprung from a desire to understand the root causes of the seemingly contradictory role of age as a force that improves as well as hinders performance, the study ended up contributing to organizational performance studies more broadly. The approach to aging as a heterogeneous process between organizations creates a basis for understanding the differences in organizational performance levels at an increasingly nuanced level. The approach sees aging not only as the universal deterministic development (driven by various processes that take place over time) that aging is traditionally associated with but also recognizes the forces (arising from contextual factors and organizational actions) creating between-organization heterogeneity in the process. Such a view allows for combining the deterministic development, driven by environmental forces and defining the vulnerability of the organization to the environmental selection, and the voluntaristic side of purposeful actions in affecting this development, without forgetting the contextual effects. Such an approach not only extends the understanding of the dynamics of organizational aging (as discussed in section 6.2.1) but also provides the backbone for understanding the performance differences between organizations, and their development over time, at an increasingly comprehensive level (as discussed in section 6.2.2).

At a more practical level, the study also paves the way for and makes suggestions for methodological practices that would clarify current ambiguities related to the understanding of organizational aging and broaden the perspective of the age–performance relationship (i.e., building more robust links between age and the processes that it is used as the proxy for and considering more than one performance dimensions simultaneously in the evaluation, as discussed in section 6.1). Especially the building of more robust links between the age variable and the variables or processes that it is suggested to represent is desperately needed in the near future as it appears that age is a highly popular control variable but currently also very loosely applied as the representative of almost any time-related development at the organizational level.

Further testing is required also in the interorganizational heterogeneity aspect promoted in the study. As stated, the central contribution of the study lies in updating the traditionally deterministic view of organizational aging to a semideterministic one through the acknowledgment of the various factors that cause between-organization, or between-context, heterogeneity of the process

and its performance consequences. The study, however, is just the first step in breaking the paradigm of deterministic and universal aging and shaping a framework of heterogeneous aging that could explain interorganizational performance differences. Essay I supports this endeavor by collecting the assumed drivers of the age effects and factors creating interorganizational or other intercontextual differences in the effects, but large-scale systematic work is still needed for testing the assumptions and finding relevant heterogeneity-creating factors. Such an endeavor will be far from easy because the age effect potentially materializes differently at least between populations (see e.g., Baum & Shipilov, 2006, pp. 64–66) and cohorts (Aldrich & Ruef, 2006, chapter 8) of organizations. Moreover, the difficulty to measure the underlying forces (e.g., routine formation and accumulation) driving the age effect likely has contributed to the broad use of age as a proxy for many forms of time-related development (instead of directly addressing them) in the first place (Coad, 2018, p. 14). While difficult, the broadened understanding of organizational performance differences should be worth the effort. Also, as Hannan et al. (2011, pp. 298–299) note in the organizational ecology context, many times before, even when possible ways of meeting the new demands of theory for data were not apparent, scholars have identified ways of "shifting away from the easy and conventional ways of doing things" (p. 298). Still, the central limitation of this dissertation is that while the heterogeneous aging concept reflected in the work provides a way forward for the theoretical understanding of organizational aging that has remained in a rather stagnated stage for a long time, and a way for a richer understanding of performance differences between organizations, the picture painted here of aging as a heterogeneous process requires further validation from a large-scale empirical effort.

Considering the broadness of the topic of the study, the dynamics between organizational aging and performance, there remain also unexplored areas for future research that have remained outside of the scope of the work here. For example, here age was approached in its traditional role as an objectively measurable variable. As explained in section 3.1, age, both traditionally and in this dissertation, is approached as an objective measure of time since the "start" (founding or some other impactful early event) of the organization. Yet, there is also a subjective side to defining age as the lack of consensus on what is the starting point from which age should be counted and the difficulty in differentiating between a continuing existing organization and a new organization on some occasions (points addressed in section 3.1) leaves room for interpretation. As both experience and youth may signal desired qualities in certain situations, organizations may want to present themselves as older or younger than an objective evaluation from some official data might make them (Bakker & Josefy, 2018, p. 513).[35] Thus, an interesting topic for future studies to

[35] For example, the University of Jyväskylä started its operation as a university in 1966, but it considers the year 1863 as its founding year. This is the year when its predecessor, Finnish Teacher Seminary, was founded (University of Jyväskylä, n.d.).

address is the socially constructed side of the aging phenomenon (i.e., how and for what purposes organizations construct the understanding of their own age).

Moreover, whereas the essays of the dissertation identify a broad range of factors creating interorganizational or intercontextual differences in the performance consequences of organizational aging, a further factor to consider as a potential creator of intercontextual differences is the changing historical setting. As pointed out in the discussion of the limitations of the current understanding of the organizational age–performance relationship on page 28, many of the virtues traditionally associated with old age are linked to stability and may thus be losing their relevance as the world is becoming increasingly fast-paced. In this sense as well, the work done here for supporting further testing of the links between age and the processes for which it is used as the proxy in empirical studies is even more relevant.

7.2 Implications for practice

The contribution of the study is aimed primarily at the theory and research of organizational aging and performance. Yet, in addition to the contribution to the theory and research addressed above, the study and its results bear value also for practice. From this viewpoint, the most concrete results to utilize in practice come from the context of the individual essays. Essay II provides insights on the best strategies to achieve the state of simultaneous high growth and profitability, while Essay III increases the understanding of performance consequences of member turnover, clarifying when it is harmful and when it is beneficial for organizational performance.

A less direct but important message for practice arises also from the idea of aging as a process with between-firm heterogeneity. Just as the extension of the theoretical understanding of organization aging to acknowledging the interorganizational heterogeneity serves research on the topic by providing a lens through which the performance differences of organizations are revealed at a more comprehensive level than before, it serves practitioners as well. Understanding which factors create differences between organizations can aid firms to better asses their advantages and disadvantages in comparison to competitors and thus aid in strategizing.

Even without the competition aspect (i.e., comparison to competitors), the notion that the forces of aging are reversible or modifiable gives practitioners new opportunities for enhancing organizational performance. This can take place, for example, by making initial choices that buffer against the liability of newness (as noted in Essay I) or modifying the aging process later on through renewal actions such as member turnover (as illustrated by Essay III).

7.3 Implications for policy

In addition to research and practice, the study contributes to policy. Essay IV directly addresses the shared and non-shared domains of desirable performance between organizational and societal perspectives and makes the important point that the societal level "rules of the game" sometimes encourage organizations to engage in activities that are beneficial for the organizations themselves but harmful to society. From the policy viewpoint, the question set for future research (in Essay IV) on what encourages an organization toward the mode of existence (i.e., aging) that involves contribution at the societal level is highly relevant, because, ideally, the incentive structure in place would be designed to encourage organizations toward the mode of existence that benefits not only themselves but society as well.

In addition, the increased understanding that the heterogeneous aging concept could provide on organizational performance differences in the future is interesting from an economic perspective. Most business firms die young (e.g., Anyadike-Danes & Hart, 2018) and the loss of economic contribution from the exits at a cohort level is greater than the contribution from the growth of the surviving firms (Coad et al., 2020). On the other hand, the work addressing "underperforming" or "permanently failing" organizations (e.g., DeTienne et al., 2008; Gimeno et al., 1997; Meyer & Zucker, 1989) notes that organizations can exist in poor states of performance even for very long periods. Thus, policy interventions for preventing the economic loss from new firm exits, as well as any such efforts to support those older firms that struggle, are effective only if targeted at firms that are only temporarily struggling. In other cases, the efforts would just delay the exit and keep resources tied in a deficient use. While the work here does not provide direct comprehensive guidance on who is most likely to present acceptable performance in the long run (or how they do it), the heterogeneous aging concept provides a base for furthering the understanding of which factors (and actions) contribute to the performance differences over time.

YHTEENVETO (SUMMARY IN FINNISH)

Tämän väitöskirjan alkuperäisenä tavoitteena oli organisaatioiden iän (iällä viitataan aikaan organisaation perustamisesta tarkasteluhetkeen) ja suorituskyvyn suhteen aikaisempaa parempi ymmärtäminen. Tähän tavoitteeseen väitöskirja pyrkii tämän johdanto-osan ja neljän tutkimusesseen kautta. Aiempi tutkimus on tunnistanut iän olevan suorituskykyyn vaikutta tekijä. Ikä on myös suosittu muuttuja organisaation suorituskykyä selittävissä malleissa, mutta suhteen taustalla vaikuttava dynamiikka tunnetaan puutteellisesti.

Johdanto-osa esittelee aiempaa organisaatioiden ikääntymiseen ja suorituskykyyn liittyvää tutkimusta ja ennen kaikkea osoittaa ne aiemman tutkimuksen aukot, joita neljä tutkimusesseetä pyrkivät paikkaamaan. Nämä tutkimusaukot ovat iän ja suorituskyvyn suhteen taustalla vaikuttavien tekijöiden puutteellinen ymmärtäminen ja ikääntymisprosessiin liittyvän yritysten välisen heterogeenisuuden puutteellinen huomioiminen. Lisäksi organisaatioiden suorituskykyä on harvoin tutkittu tarkastelemalla suorituskyvyn eri dimensioiden kehitystä erillisinä mutta yhtäaikaisesti, jolloin eri dimensioiden välinen dynamiikka on jäänyt osin pimentoon.

Ensimmäinen tutkimusessee (Essay I), kirjallisuuskatsaus, pyrkii paikkaamaan kahta ensimmäistä yllä mainituista kolmesta aukosta kartoittamalla niitä mekanismeja tai tekijöitä, joita aiempi tutkimus ehdottaa ikääntymisen suorituskykyvaikutusten taustalla olevan (ikä sinällään on vain numero ja vaikutus tapahtuu erilaisten mekanismien, kuten oppimisen ja rutinoitumisen, kautta). Lisäksi tutkimus kartoittaa aiemmasta tutkimuksesta niitä tekijöitä, jotka mahdollisesti aiheuttavat eroja havaituissa suorituskykytrendeissä organisaatioiden välillä. Tutkimuksen keskeinen kontribuutio on ikääntymiseen liitettyjen lukuisten erilaisten tekijöiden ja prosessien tunnistaminen. Lisäksi tutkimus osoittaa, että vaikka ikääntymistä yleisesti pidetään universaalina deterministisenä prosessina, joka etenee lineaarisesti ajan myötä, se ei tosiasiassa ole sitä silloin, kun iälle annetaan rutinoitumisen tai oppimisen kaltaisia merkityksiä, sillä nämä prosessit eivät ole identtisiä eri organisaatioiden ja kontekstien välillä.

Toinen tutkimusartikkeli (Essay II), määrällinen empiirinen tutkimus, tarkastelee yritysten liikkeitä erilaisten kasvu–kannattavuuskonfiguraatioiden välillä. Tutkimus liittyy kolmanteen yllä luetelluista aiemman tutkimuksen aukoista ja osoittaa, kuinka yksittäisten suorituskykydimensioiden tarkastelu erillisinä mutta yhtäaikaisesti paljastaa sellaista suorituskykydimensioiden välistä dynamiikkaa, joka muunlaisia lähestymistapoja käytettäessä jäisi helposti pimentoon. Kaksi viimeistä tutkimusartikkelia (Essay III ja Essay IV) hyödyntävät tätä lähestymistapaa.

Kolmas tutkimusartikkeli (Essay III), tietokonesimulaatiotutkimus, jatkaa siitä ensimmäisessä tutkimusartikkelissa tehdystä huomiosta, että ikääntymisprosessi ei ole samanlainen kaikille organisaatioille. Tutkimuksen tulokset osoittavat, että jäsenvirta (jäsenten vaihtuvuus) tarjoaa organisaatioille yhden mahdollisen työkalun ikääntymiseen liittyvän negatiivisen kehityksen torjumi-

seen. Myös neljäs tutkimusessee (Essay IV) ottaa lähtökohdakseen ensimmäisessä tutkimuksessa esitetyn ajatuksen ikääntymisprosessin erilaisuudesta eri organisaatioissa ja konteksteissa. Tutkimus on käsitteellinen tutkimus, joka käsittelee organisaatioiden erilaisia selviytymismoodeja sekä sitä, miten ja miksi organisaatiot eri moodeihin päätyvät.

Sen lisäksi, että tutkimus paikkaa organisaatioon ikään ja suorituskykyyn liittyvän tutkimuksen aukkoja yllä esitetyllä tavalla, tutkimuksen keskeinen kontribuutio kokonaisuutena on perinteisen, deterministisen, ikäkäsityksen päivitys vain osittain deterministiseen. Tutkimus osoittaa, että vaikka ikään kiistatta liittyy determinististä universaalia kehitystä, kontekstitekijät muovaavat sitä ja organisaatio pystyy myös omalla toiminnallaan vaikuttamaan kehitykseen. Tämä lähestymistavan päivitys ei pelkästään syvennä näkemystä organisaation ikääntymisprosessista ja iän ja suorituskyvyn suhteesta vaan tuo myös uuden, aiempaa ymmärrystä täydentävän, näkökulman siihen, miten organisaatioiden väliset kasvavat tai kaventuvat suorituskykyerot ajan myötä muodostuvat.

Tutkimuksen keskeinen tavoite oli edistää erityisesti organisaation iän ja suorituskyvyn suhteeseen liittyvää tutkimusta ja teoriaa. Tähän liittyvän yllä esitetyn kontribuution lisäksi yksittäisten tutkimusesseiden tulokset tuottivat kuitenkin myös erityisesti käytännön toimijoiden näkökulmasta mielenkiintoisia tuloksia omissa tutkimuskonteksteissaan. Erityisen mielenkiintoisia tästä näkökulmasta ovat toisen tutkimusesseen (Essay II) huomiot siitä, miten yritysten erilaiset kasvustrategiat vaikuttavat nopean kasvun ja korkean kannattavuuden yhtäaikaiseen saavuttamiseen sekä kolmannen tutkimusesseen (Essay III) huomiot siitä, milloin jäsenten vaihtuvuus on hyödyllistä ja milloin haitallista organisaatioille. Neljäs tutkimusartikkeli (Essay IV) puolestaan tarjoaa erityisesti yhteiskunnallisesta näkökulmasta mielenkiintoisen näkökulman siihen, milloin organisaation toiminta palvelee sekä sen omia että yhteiskunnan etuja ja milloin jommankumman tai molempien edut eivät toteudu.

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III

KNOWLEDGE GAINS AND EFFICIENCY LOSSES: A LIFE COURSE APPROACH TO MEMBER TURNOVER AND ORGANIZATIONAL PERFORMANCE

by

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IV

"IT'S NOT HOW OLD YOU ARE BUT HOW YOU ARE OLD": TRAJECTORIES OF SUSTAINABLE SURVIVAL

by

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