

The effectiveness of agile leadership in practice: A comprehensive meta-analysis of empirical studies on organizational outcomes

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Abstract

PURPOSE: The COVID-19 pandemic and the digital transformation have hastened the demand for enterprises to be more flexible and adaptive in a fast-changing environment, making agile leadership a prominent business trend. Agile leadership improves innovation efficiency, employee performance, and team effectiveness. However, there is limited research on agile leadership's effects on organizational outcomes. Thus, this study provides a meta-analytic review of the impact of agile leadership on organizational outcomes that cover various common dimensions like operational, employee, customer, financial, and social environments. **METHODOLOGY:** The study has two phases: the first phase performs bibliometric literature analysis, and the second phase performs meta-analysis. In the bibliometric literature analysis, 74 articles that were published between 2004 and 2023 were identified from Scopus and Google Scholar, and their type of publication, year of publication, countries involved in agile leadership research, keywords involved, and their association are examined. For the meta-analysis, 24 articles that performed empirical research were chosen from which the various independent and dependent variables studies, along with their standard regression coefficients (β) and correlation coefficients (γ) that represent the relationship between agile leadership or agile leaders and that of other factors, were extracted and examined. **FINDINGS:** The study found that there was a significant rise in publications on agile leadership after 2020, and Turkey, the United States, and Indonesia were involved more than other countries. Moreover, agile leadership is studied more in terms of operational outcomes and employee outcomes. The results of the meta-analysis indicate that agile leadership has a strong relationship with factors like interpersonal trust ($\beta=0.93$), organizational performance ($\beta=0.90$), organizational effectiveness ($\beta=0.89$), individual career success ($\beta=0.89$) and innovation management ($\beta=0.81$). Thus, it is clear that agile leadership has a stronger impact on operational outcomes than employee outcomes. Agile leadership characteristics such as digital innovation, trust, competency, result orientation, and wisdom are significant for organizational growth, team collaboration, team effectiveness, and organizational innovation. **IMPLICATIONS:** Identifying agile leadership concepts helps assess the progress of empirical research, improve leadership theories and models, and identify potential growth opportunities. The success of agile leadership depends on factors like a company's culture, industry, and size, and this can be studied further. Furthermore, organizations may need to adjust their strategies on customer service, financial management, and investment so that they better reflect the values of agile leadership. **ORIGINALITY AND VALUE:** This study classifies numerous different research models that shed light on the efficiency of agile leadership based on a comprehensive literature review that serves as the basis for this study. In addition, this study identifies potential problem areas that need to be fixed, and as a result, it makes a contribution to the research on agile leadership.

Keywords: agile leadership, organizational outcomes, operational outcome, employee outcome, interpersonal trust, leadership practice, organizational performance, meta-analysis, digital transformation, innovation management, employee performance, interpersonal trust, team effectiveness, COVID-19, strategic flexibility

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INTRODUCTION

Leaders are an essential asset for the enterprise because they greatly influence organizational performance (Porkodi, 2022a) and employee engagement (Porkodi & Tabash, 2022; Porkodi, 2022b). Specifically, an agile leadership team that applies agility techniques and concepts is required for responding to change, staying competitive, and sustaining growth in the ever-changing business world. In today's fast-paced business world, companies need to be flexible and able to adapt to changing market conditions to stay competitive. In addition, the COVID-19 outbreak has brought forth uncommon situations in a global environment that is already dynamic, which need leaders to adopt fresh approaches to their leadership methods as the traditional styles are already insufficient (Aftab, Waheed, Khalid, Aftab, & Adnan, 2022; Edmondson, 2021; Lenart-Gansiniec, Sypniewska, & Chen, 2023). However, the COVID-19 pandemic has shown that traditional HRMPs are already insufficient, which entails the need to rethink and reformulate them in the direction of more effective innovation while also allowing organizations to survive COVID-19-like crises.

The term "agile leadership" is a method of administration that places an emphasis on collaboration, flexibility, and adaptability in managing teams and organizations (Ribeiro & Fernandes, 2010). An organization's leadership goals under an agile framework are to foster creativity, flexibility, and steady progress. Also, agile leadership focuses on developing the skills and mindsets essential to an organization's successful transition to a new operating model. Agile leaders may establish guiding principles, create strategies, and create procedures that will facilitate an orderly transition to organizational agility (Attar & Abdul-Kareem, 2020). The agile methodology, which was created for software development but has subsequently been adapted to many other fields, is strongly related to this practice. The Agile Manifesto, developed by a group of software engineers in 2001, emphasizes four core values: people and interactions, working software, customer collaboration, and adapting to change, and serves as the foundation for this methodology (Gren & Ralph, 2022). Consequently, agile leadership entails fostering an atmosphere where teams can react quickly to changing conditions and client demands (Horney, Pasmore, & O'Shea, 2010).

According to earlier studies, businesses that use agile leadership techniques are better equipped to accelerate innovation efficiency (Chen, Tee, & Chang, 2022b), improve employee performance (Ahmed & Elali, 2021), and achieve team effectiveness (Akkaya & Bagieńska, 2022). It was also reported that agile leaders with strategy flexibility play a crucial role in the success of digital transformation (Fachrunnisa, Adhiatma, Lukman, & Ab Majid, 2020). Agile leadership has been shown to have a positive impact on organizational performance (Akkaya & Sever, 2022), business resilience (Indiarti & Lantu, 2022), and business sustainability (Anggadwita, Suganda, Azis, & Profityo, 2021). Besides, Akkaya, and Üstgörül (2020) reported that in contemporary models of leadership, women exhibit more of the attributes of agile leadership. Challengingly, agile leaders must be able to act swiftly in times of crisis, even when information is lacking, and the potential for harm is high, and must be combined with other leadership styles based on the organization type and leaders' position (Foote, 2013; Grzesik & Piwowar-Sulej, 2018).

Very little study has been done on the efficacy of agile leadership on the outcomes of organizations in a variety of circumstances. This literature review aims to summarize all the evidence reported so far about the effectiveness of agile leadership. In this study, organizational outcomes have been broken down into different dimensions for a better and more in-depth analysis of an organization's performance and success. These dimensions include 1) *financial outcomes* that focus on the organization's financial performance, such as revenue and return on investment (ROI); 2) *customer outcomes* that measure how successfully the firm meets customer requirements and expectations, such as customer satisfaction and retention; 3) *operational outcomes* that focus on how efficiently the organization works, such as productivity and innovation; 4) *employee outcomes* that focus on how well the organization engages and supports its employees, such as employee satisfaction, retention, and performance; 5) *social and environmental outcomes* that focus on how an organization affects society and the environment, such as corporate social responsibility and community involvement. Assessing the impact of agile leadership on an organization's outcomes across these dimensions helps to provide a comprehensive understanding of the organization's overall success and areas for improvement.

Thus, the main objective of this meta-analytic review is to assess the effectiveness of agile leadership in achieving organizational outcomes. It seeks to identify the factors significantly influenced by agile leadership and categorize the dimensions of organizational outcomes improved through meta-analysis. To fulfill this research objective, this study addresses the following research questions (RQs):

- RQ1: What are the various components and dimensions of organizational outcomes influenced by agile leadership and how are they categorized?
- RQ2: How does agile leadership impact organizational outcomes?
- RQ3: To what extent does agile leadership affect various dimensions of organizational outcomes?
- RQ4: What recommendations can be made to improve the effectiveness of agile leadership and what topics should be explored in future research?
- RQ5: How can the mediation and moderation model be developed to understand better the role and impact of agile leadership in organizations?

The paper is structured as follows: Section 2 discusses the various literature reports on agile leadership. Section 3 presents the research methodology and discusses the steps followed in study selection. Section 4 discusses the bibliometric analysis for the synthesis. The meta-analysis performed for the selected articles is explained in Section 5. Section 6 discusses the findings from the study, the novel conceptual model proposed for agile leadership, the theoretical and practical implications, and the limitations of the study. Section 7 concludes the research work.

RELATED WORKS

According to existing studies, agile leadership must be applied in an organization to achieve the best results and organizational agility (Hauhia, 2018; Joiner, 2019; Joiner, 2017). Though “agile leadership” is the primary term used by many researchers, other similar leadership styles are described in the literature. Greineder and Leicht (2020) revealed that servant leadership, transformational leadership, shared leadership, emergent leadership, and visionary leadership are classified as pertinent agile leadership styles. The results of various research studies indicate that agile leadership has a significant positive impact on employees’ high involvement and performance (Jassmy & Katea, 2022a; Örnek & Camcı, 2021), work motivation (Setiawan, Goesmania, Riyanti, & Prasetyaningtyas, 2021), customer services (Kraume, Voormanns, & Zhong, 2019), faster ROI (O’Connor & Duchonova, 2014), and improving productivity (Parker, Holesgrove, & Pathak, 2015). Thus, developing agile leaders is a primary responsibility of the organization for its organizational sustainability (Hooi & Tan, 2021), sustainable growth (Johnson & Kruse, 2019; Joiner & Josephs, 2007), navigating unprecedented change (Patel, 2020) and in handling crises (Rigby, Elk, & Berez, 2020). Also, organizations in all industries need to develop a high level of agility to survive unprecedented change and complexity (Joiner, 2009).

Moreover, it was revealed that agile leadership has a greater impact on responsive innovation (Klopper & Pendergast, 2017) and sustainable business performance (Yazıcı, 2020). Avery (2004) said that agile workplaces are the best places to develop a sense of responsibility as a way to lead and work with others. Due to its significance, agile leadership has been a necessary curriculum in military education (Gehler, 2005). Thus, the key to making an agile transition work is to keep a constant balance between old work principles and new work principles (Gren & Lindman, 2020). Several authors reported that in the future, businesses that are better able to find and use leaders who can adapt to different cultures will have an edge over their competitors (Caligiuri, 2013; Cleveland & Cleveland, 2020). Also, according to the findings of the study, there is evidence to suggest that the socio-economic intervention was responsible for providing the techniques and tools necessary to strengthen the dynamic capacities of the organization (Haddad, Bonnet, & Tabchoury, 2020).

Several studies have insisted that trust, result orientation, flexibility, collaboration, and individual responsibility are the significant characteristics of agile leaders (Taş, 2022). The significance of the CEO’s network effect on digital transformation and agile leadership was examined by Chen, Chang, Baudier, and Tee (2022a). Both for-profit and nonprofit sectors need flexible and agile leaders (McPherson, 2016). The significance of agile leadership in various sectors like hotel management (Lundqvist, Wallo, Coetzer, & Kock, 2022), healthcare (Şahin & Alp, 2020), and education (Özdemir, 2023) were also studied in the literature. Bäcklander (2019) reported that the flexibility of an agile leader helps to balance autonomy and alignment in software development organizations. According to Breakspear (2017), agile leadership will be necessary for future school-leadership success as it provides optimism and a dynamic approach to educational development. Fang, Armstrong, and Nguyen (2017) said that tourist spots should focus on building strong, flexible leadership to get an edge over their competitors. Ibrahim, Ebraheem, and Mahfouz (2022) reported that agile leadership has a greater impact on job reputation in hospital management. Education reforms rely on educators’ ability to drive learning progress and innovation, with leadership development being a priority but not as much as teacher reform (Awad & Al Adwan, 2023). The study on agile leadership in the educational sector revealed that school administrators’ agile leadership traits significantly

predicted the effectiveness of the school. Wibowo et al. (2023) reported that both agile leadership and job satisfaction positively impact employee performance in the VUCA era. Though, there are several positive impacts on organizational performance in a wide range of sectors, agile leadership also negatively impacts work–family conflicts (Adnan, Idris, Agustang, & Ahmad, 2020). Accordingly, many review studies on agile leadership are available in the literature. Table 1 is a listing of important studies that are in some way comparable to this study on agile leadership.

Table 1. Existing research reviews that are relevant to this study

Study	Focus	Methodology	Result	Advantage	Limitation
(Susanto, Wiguna & Tukiran, 2023)	To assess the impact of agile leadership, and organizational agility on organizational performance	Descriptive qualitative review	Agile leadership and organizational agility improved telecommunications profits and performance.	Results show the effect of agile leadership, and organizational agility on organizational performance.	Lacks detailed analysis and outcomes
(Delioğlu & Uysal, 2022)	To assess agile leadership's impact on digitalization.	Empirical Reviews	Leadership agility helps digital-age firms shift quickly.	Result shows how the digital space is forcing firms to embrace digitalization	No supporting evidence Focuses only on digital transformation
(Putra, Pasek, & Arsawan, 2022)	To evaluate agile leadership and digital transformation	Bibliometrics Analysis	Digital transformation benefits from agile leadership	Gives guidance on digitalization for organizational agility and resilience.	No evidence for the study result Focus only on digital transformation
(Theobald, Prenner, Krieg & Schneider, 2020)	To evaluate agile leadership and management.	Systematic Literature Review	Defines and motivates agile leadership and management	Helps agile transformation and improvements	No new findings Lacks precise analysis and results
(Akkaya & Yazıcı, 2020)	To connect agile leadership with biomimicry via a new grey wolf concept.	Empirical Reviews	Wolves and agile leadership share traits	Helps understand leadership's influence and competence.	No quantitative analysis Self-biased outcomes
(Attar & Abdul-Kareem, 2020)	To establish agile leadership's role in organizational agility	Empirical Reviews	Demonstrates agile leadership's impact on organizational agility.	Demands for corporate investments in agile capacity building and frameworks for agile leadership	No quantification Lacks precise analysis and outcomes
(Nurhaeni, Nurdin, Wiratama & Kurniawan, 2022)	To evaluate gender-responsive agile leadership	Systematic Literature Review	Assessed gendered agile leadership in the COVID-19 period	Addresses the agile leadership gender gap	Uses qualitative approach Fewer studies are examined.
(Greineder & Leicht, 2020)	To summarize agile leadership studies.	Systematic Literature Analysis	Leadership styles similar to agile leadership were identified	Overlaps in the styles were found in the studies	A simple qualitative method with fewer studies
(Joiner, 2019)	To emphasize leadership agility's importance in agile organizations	Empirical Reviews	Provides a leadership agility framework	Executives must focus on strategic agility, operational agility and leadership agility.	Approaches qualitatively Lack of support for research result

Despite increasing interest in agile leadership, it is evident from the table that a significant research gap exists regarding its relationship with organizational outcomes, requiring further investigation. Also, when the diverse environments in which businesses operate are properly considered, the gap expands even more. Thus, there is an obvious need to understand agile leadership's applications across diverse industries, cultures, and organizational sizes, which is crucial in today's rapidly evolving business environment characterized by technological advancements and global interconnectivity. Furthermore, the growing focus on sustainability, ethics, and social responsibility necessitates thoroughly examining how agile leadership can effectively align with these contemporary organizational objectives. Further, the existing literature on agile leadership lacks practical guidance, necessitating the need to fill this gap, and offers insights to help organizations navigate complex challenges and seize opportunities efficiently. Thus, a comprehensive review that could help researchers and practitioners learn more about the pros and cons of using an agile leadership style in different organizational settings and situations is paramount. As such, this study contributes to the growing body of research on agile leadership and fills

a research gap by addressing unexplored aspects, providing actionable insights for organizations striving to excel in today's multifaceted business environment. This review examines the key components of agile leadership, their contribution to an organization's success, and their influence on the significant components. This might make it easier for organizations to develop methods to enhance productivity and maintain competitiveness.

RESEARCH METHODOLOGY

Systematic literature and meta-analytic review were adopted in this study by collecting the articles related to agile leadership and its impact on organizational outcomes. To perform the systematic analysis of content and results, the Scopus database was used, which covers a rich set of articles from engineering and management disciplines in the form of journals, conferences, thesis dissertations, and book chapters (Kumar, Kar, & Ilavarasan, 2021). Additionally, the database was expanded by a manual collecting procedure using Google Scholar (GS), so as not to miss any important input for our research (Massaro, Dumay, & Guthrie, 2016). No time limits were put on getting the articles through Scopus and GS so that all relevant materials published on the subject under study could be found. Thus, we included all scholarly publications on the agile leadership theme published between 2000 and 2023.

The research was performed in two phases. The first phase focused on performing a bibliometric study on agile leadership, whereas the second phase focused on a detailed meta-analytic review of the effect of agile leadership on organizational outcomes. In order to download the relevant articles for the study, search terms such as "agile leader," "agile leadership," "agile coach," and "agile manager" were used along with Boolean operators. This study used PRISMA principles to undertake an open, evidence-based, systematic evaluation of the literature (Page et al., 2021). Initially, the 1084 articles with search terms in the title and keywords were identified. However, the count was reduced to 554 after removing duplicate articles. Further screening was performed by assessing the title and abstract of the articles, which focused on business and management disciplines, were written in English, and were relevant to the study. Thus, 104 articles were selected in this step, which were further assessed for eligibility, and reduced to 70 after removing the studies that were not relevant after assessing the entire content of the articles. Moreover, four articles were selected from the reference lists of the selected studies. Thus, 74 articles were used in the bibliometric analysis of agile leadership. However, only 24 articles were chosen for the meta-analysis that performed quantitative analysis. The detailed workflow of the various study selection phases is depicted in Figure 1.

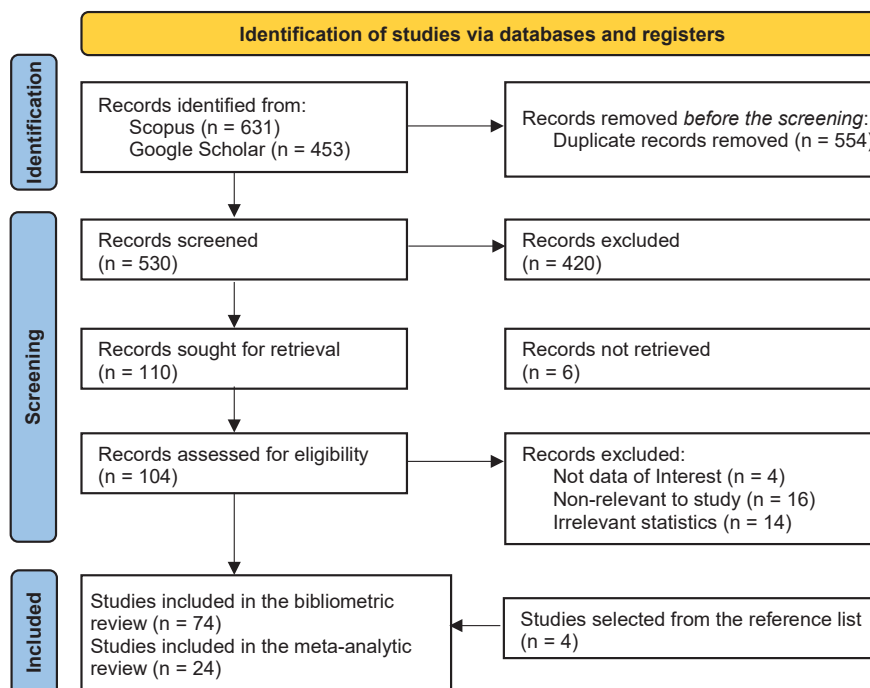


Figure 1. Overview of the study selection process

Synthesis analysis

For performing bibliometric analysis on the selected articles, the various attributes, including the type of publication, published year, authors' country, titles and keywords of the articles, type of research methodology used, and type of organizational outcomes analyzed under agile leadership, have been extracted (see Figures 2 and 3). The analysis found that the selected 74 papers were published between 2004 and 2023, with a significant rise in publishing after 2020. These articles are from a variety of publications, including 78% from journals, 12% from conferences, 8% from theses and dissertations, and 1% from book chapters. The detailed statistics are presented in Figures 2 and 3. Most selected studies are published by standard publishers such as Atlantis Press, Elsevier, Emerald Publishing, Frontiers, IGI Global, John Wiley & Sons, SAGE Publishing, Springer, Taylor & Francis Group, and more.

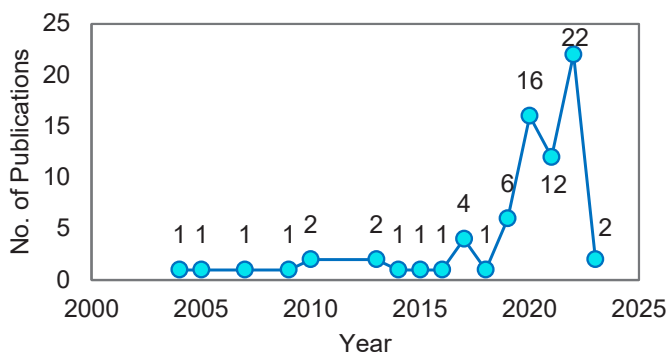


Figure 2. Year distribution of selected studies

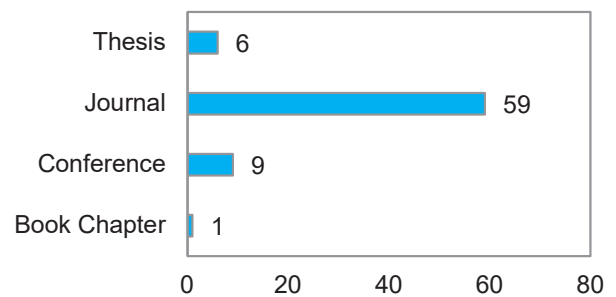


Figure 3. Types of publications

The distribution of countries involved in the research on agile leadership reveals that 25% of the research is carried out in Turkey, 19% in the United States, and 11% in Indonesia. Other significant countries involved in the research on this topic are China, Australia, Germany, Iraq, Sweden, and more. The diagrammatic representation is presented in Figure 4.



Figure 4. Distribution of countries involved in agile leadership research

The text analysis has been applied to the title and keywords of the selected articles to visualize and explore the patterns and relationships between words and terms in a given text document. A network diagram is generated, a graphical representation of the relationships between different keywords in a selected article. This association diagram helps to identify the associations of keywords and to analyze the themes and topics of selected studies. The association of all

keywords, including authors' and indexed keywords, was initially examined, as shown in Figure 5, using the VOSviewer. The result indicates that "agile eldership," "leadership" and "agility" are the most frequently occurring keywords in most of the documents.

The association between the author-indexed keywords is shown in Figure 6. The keywords "agile" and "leadership" have occurred in almost all articles. Other frequently occurring keywords include "organization," "agility," "leaders," "management," "job," "development," "innovation," and "performance." Moreover, the word cloud has been formed from the titles of the selected articles, with the most common terms being more prominent and more noticeable, as shown in Figure 6. This diagram shows the most prevalent terms in a title and may be used to find trends, themes, and patterns. The terms "agile," "leadership," "leaders," "organization," "role," "development," and "innovation" have occurred more frequently among the titles of the selected articles. Moreover, the various terms associated with the keyword "agile" have been examined, in which "leaders," "leadership," "leader performance," "managers," and "management" have a higher association with the term "agile" than others.

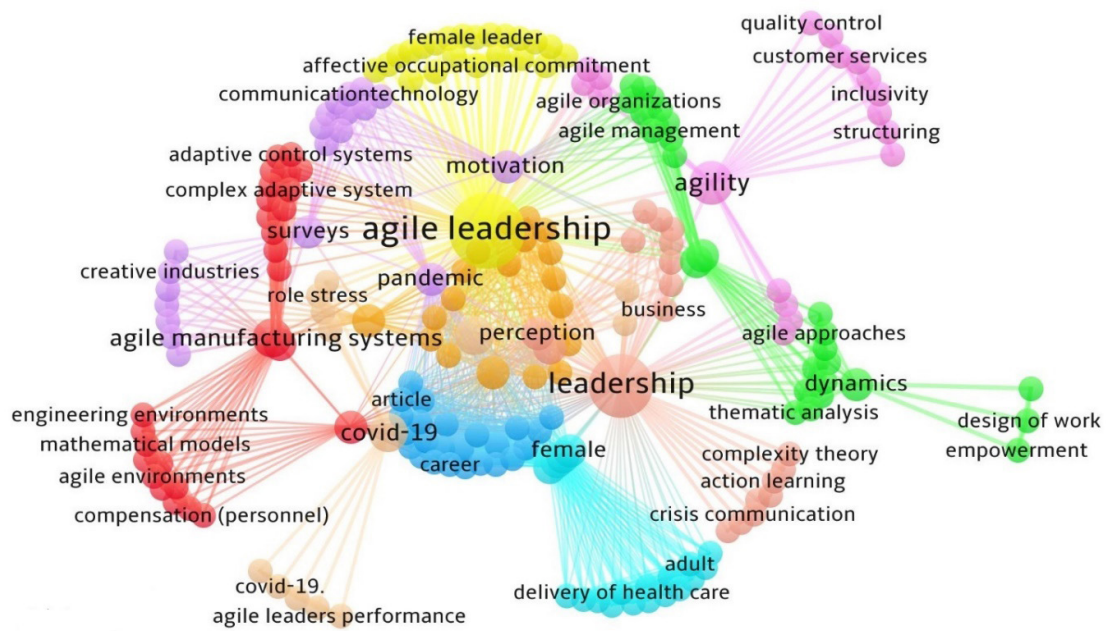


Figure 5. Association of all keywords from the selected articles

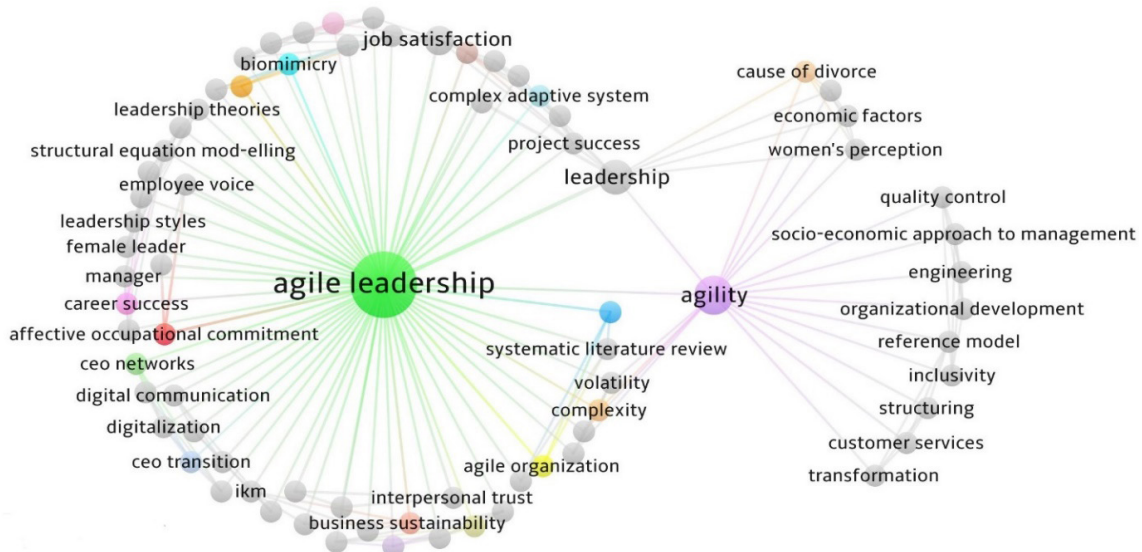


Figure 6. Association of author-indexed keywords from the selected articles

It has been found that around 58% of the selected studies used qualitative research methods such as empirical reviews, observational analysis, case studies, conceptual assessment, surveys and interviews, experimental analysis, and narrative inquiry. The remaining 42% covers quantitative research using various approaches such as structural equation modeling, confirmatory factor analysis, correlation analysis, multiple regression analysis, ANOVA, partial least squares, and descriptive statistics. The detailed analysis shows that 30% of the selected articles are general, focusing on agile leadership, 34% are focused on operational outcomes, 28% on employee outcomes, 5% on social and environmental outcomes, and less than one percent on financial outcomes (return on investment (ROI)) and customer outcomes (customer service). Moreover, the various subfields examined in the selected articles on the impact of agile leadership on organizational outcomes are depicted in Figure 7.

<p style="text-align: center;">Employee Outcomes</p> <ul style="list-style-type: none"> • Commitment • Communication Skills • Competencies • Development • Performance • Work Motivation • Group Dynamics • High Involvement • Job Embeddedness • Job Reputation • Job satisfaction • Organizational Justice • Responsive Innovation • Trust Enhancement 	<p style="text-align: center;">Operational Outcomes</p> <ul style="list-style-type: none"> • Business Resilience • Competitive Advantage • Digital Transformation • Innovation and Ambiguity • Organizational Agility • Organizational Effectiveness • Organizational Ambidexterity • Organizational Growth • Organizational Innovation • Organizational Performance • Productivity • Project Success • Team Performance • Transformation 	<p style="text-align: center;">Social/Environmental Outcomes</p> <ul style="list-style-type: none"> • Cultural Agility • Digital Ecosystem • Inclusion and Diversity • Organizational Culture
		<p style="text-align: center;">Financial Outcomes</p> <ul style="list-style-type: none"> • Return on Investment
		<p style="text-align: center;">Customer Outcomes</p> <ul style="list-style-type: none"> • Customer Service

Figure 7. Subfields related to the organizational outcome dimensions of agile leadership

Meta-analysis

A meta-analysis facilitates the integration of quantitative results in the form of correlation or regression coefficients reported by the selected articles under review (Cooper, Hedges, & Valentine, 2009). Much evidence shows that standardized regression and correlation coefficients are quite similar and may be used interchangeably (Bowman, 2012; Zolotov, Oliveira, & Casteleyn, 2018). To perform the meta-analysis, independent and dependent variables and their standard regression coefficients (β) and correlation coefficients (γ) that represent the relationship between agile leadership or agile leaders with that of other factors have been extracted from all the selected studies. Though the relationship that occurred more than five times seemed well utilized, the lower count also depicts the promising relationship in the meta-analysis (Jeyaraj, Rottman, & Lacity, 2006; Zolotov et al., 2018). The R programming software was used to analyze the relationship that was extracted from the existing studies. The studies used in the meta-analysis are listed in Table 2.

Among the 74 selected studies used for review, 24 articles were further selected for the meta-analysis. The analysis was performed with results obtained from 24 datasets involving 21353 samples. Initially, 49 regression constructs were identified, of which 26 involved agile leadership as a predictor. The random effect model was used on the regression coefficients in these studies for 26 relationships from 16 studies involving agile leadership. The study’s identification, organizational outcome category, number of samples, dependent variable, coefficient values, and their significance with agile leadership as the predictor are presented in Table 3.

Table 2. Studies selected for meta-analysis

Authors	Focus	Org. Outcome Category	Sub Field	# Samples	Country
(Aftab et al., 2022)	To assess the role of agile leadership in job and life satisfaction.	Employee Outcome	Job Satisfaction	362	Pakistan; United Kingdom
(Fachrunnisa et al., 2020)	To assess the role of agile leadership and strategic flexibility in digital transformation.	Operational Outcome	Digital Transformation	519	Indonesia; Malaysia
(Özdemir, 2023)	To examine the relationship between agile leadership and innovation management competencies.	Operational Outcome	Innovation Management Competencies	375	Turkey
(Rozak, Adhiatma, & Fitriati, 2021)	To enhance the digital environment using agile leadership.	Social and Environmental Outcome	Digital Ecosystem	250	Indonesia
(Yazici, Yildiz, & Özgenel, 2022)	To assess agile leadership characteristics using employee perception.	Employee Outcome	Leadership Characteristics	1067	Turkey
(Setiawati, 2021)	To assess the impact of agile leadership on employee performance.	Employee Outcome	Employees' Performance	60	Indonesia
(Murugan & Natarajan, 2022)	To assess agile leaders' digital innovations and emotional resiliency in business transitions.	Operational Outcome	Organizational Growth	129	India
(Chen et al., 2022a)	To analyse the effect of the CEO's network on digitalization and agile leadership.	Operational Outcome	Innovation Efficiency	13516	China
(Akkaya, 2022)	To examine the impact of trust and agile practices in a dynamic environment.	Employee Outcome	Trust Enhancement	269	Turkey
(Kamal & Ul Hassan, 2022)	To study the effect of agile leadership on career success with interpersonal trust as a mediator.	Employee Outcome	Success and trust	114	Sweden
(Yılmaz & Özgenel, 2023)	To examine agile leadership as antecedent of organization effectiveness.	Operational Outcome	Organizational Effectiveness	605	Turkey
(Özgenel, Yazıcı, & Asmaz, 2022)	To inspect the relationship of agile leadership and job satisfaction with organizational justice as a mediator.	Employee Outcome	Organizational Justice & Job satisfaction	409	Turkey
(Shamani & Abbas, 2020)	To evaluate the impact of agile leadership in minimizing work pressure.	Employee Outcome	Work satisfaction	50	Iraq
(Yalçın, & Özgenel, 2021)	To assess the role of agile leadership on the professional development and performance of the employees.	Employee Outcome	Development and Performance	575	Turkey
(Jassmy & Katea, 2022b)	To assess the impact of agile leadership on organizational innovation.	Operational Outcome	Organizational Innovation	375	Iraq
(Önalın, Yildiran, & Önalın 2022)	To assess the impact of agile leadership on firm performance.	Operational Outcome	Firm Performance	103	Turkey
(Subramaniam, 2021)	To examine the impact of agile leadership on organizational performance through organizational culture as a mediator.	Operational Outcome	Organizational Performance	63	Malaysia
(Ibrahim, et al., 2022)	To assess the impact of agile leadership on workplace spirituality and job reputation.	Employee Outcome	Job Reputation	390	Egypt
(Yazıcı et al., 2022)	To evaluate the impact of agile leadership on occupational commitment.	Employee Outcome	Job Commitment	354	Turkey
(Akkaya, Panait, Apostu, & Kaya, 2022)	To assess the role of agile leadership and career success on job embeddedness.	Employee Outcome	Job Embeddedness	581	Turkey; Romania
(Akkaya & Bagieńska, 2022)	To study the role of agile leadership on team effectiveness through trust.	Operational Outcome	Team Performance	269	Turkey; Poland
(Shah, Jintian, Sukamani, & Kusi, 2022)	To study the effect of agile leadership on career success.	Operational Outcome	Career Success	286	China; Nepal
(Anggadwita et al., 2021)	To improve enterprise sustainability through agile leadership and innovation, ambidexterity.	Operational Outcome	Innovation and Ambiguity	400	Indonesia
(Rozak & Fachrunnisa, 2021)	To improve enterprise ambidexterity through agile leadership and knowledge management capability.	Operational Outcome	Organizational ambidexterity	232	Indonesia

Table 3. List of regression relationships analyzed

Author	Org. Outcome Category	# Samples	Dependent	Beta	Significant
(Yazıcı et al., 2022)	Employee Outcome	354	Occupational Commitment	0.284	Yes
(Anggadwita et al., 2021)	Operational Outcome	400	Business Sustainability	0.634	Yes
(Akkaya et al., 2022b)	Employee Outcome	581	Career Success	0.579	Yes
(Rozak et al., 2021)	Social and Environmental Outcomes	250	Dynamic Capabilities	0.529	Yes
(Yazıcı et al., 2022)	Employee Outcome	354	Employee Silence	0.225	Yes
(Setiawati, 2021)	Employee Outcome	60	Employees Performance	0.334	Yes
(Özgenel et al., 2022)	Employee Outcome	409	External Job Satisfaction	0.140	Yes
(Aftab et al., 2022)	Employee Outcome	362	Family–Work Conflict	-0.454	Yes
(Jassmy & Katea, 2022b)	Operational Outcome	375	High Involvement	0.661	Yes
(Kamal & Ul Hassan, 2022)	Employee Outcome	114	Individual Career Success	0.894	Yes
(Anggadwita et al., 2021)	Operational Outcome	400	Innovation Ambidexterity	0.171	Yes
(Özdemir, 2023)	Operational Outcome	375	Innovation Management	0.805	Yes
(Özgenel et al., 2022)	Employee Outcome	409	Internal Job Satisfaction	0.110	No
(Akkaya & Bagieńska, 2022)	Operational Outcome	269	Interpersonal Trust	0.926	Yes
(Kamal & Ul Hassan, 2022)	Employee Outcome	114	Interpersonal Trust Proposal	0.678	Yes
(Akkaya et al., 2022b)	Employee Outcome	581	Job Embeddedness	0.892	Yes
(Yilmaz & Özgenel, 2023)	Operational Outcome	605	Organization Effectiveness	0.612	Yes
(Rozak & Fachrunnisa, 2021)	Operational Outcome	232	Organizational Ambidexterity	0.172	Yes
(Subramaniam, 2021)	Operational Outcome	63	Organizational Culture	0.483	Yes
(Özgenel et al., 2022)	Employee Outcome	409	Organizational Justice	0.780	Yes
(Subramaniam, 2021)	Operational Outcome	63	Organizational Performance	0.898	Yes
(Yalçın & Özgenel, 2021)	Employee Outcome	575	Employee Performance	0.373	Yes
(Yalçın & Özgenel, 2021)	Employee Outcome	575	Professional Development	0.162	Yes
(Shah et al., 2022)	Operational Outcome	286	Project success	0.150	Yes
(Akkaya & Bagieńska, 2022)	Operational Outcome	269	Team Effectiveness	0.073	No
(Aftab et al., 2022)	Employee Outcome	362	Work–Family Conflict	-0.554	Yes

From Table 3, it is found that agile leadership has a strong relationship with factors like *interpersonal trust* (0.93), *organizational performance* (0.90), *organization effectiveness* (0.89), *individual career success* (0.89), and *innovation management* (0.81). It also has a moderately negative impact on *work–family* (-0.55) and *family–work conflicts* (-0.45). Moreover, agile leadership has no significant impact on factors such as internal job satisfaction and team effectiveness and a weaker impact on *professional development* (0.16), *project success* (0.15), *organizational ambidexterity* (0.17), *occupational commitment* (0.28), *employee silence* (0.23), and *external job satisfaction* (0.14).

Assuming a random effect model with a 95% confidence level, the analysis is made using the free software tool Meta-Essentials (van Rhee, Suurmond, & Hak, 2015; Suurmond, van Rhee, & Hak, 2017). The results obtained from the meta-analysis using the estimate and sample size given in Table 3 are presented in Figure 8. In the graph, the x-axis represents the estimated effect size and the y-axis represents the individual relationships, the blue dots represent the beta values, and the line across the blue dots shows the confidence intervals (CIs). The CI lines that fall on the value 0 indicate a non-significant relationship, whereas when they fall on the negative or positive side, they show positive and negative significance, respectively. The green dot at the end indicates the combined effect of agile leadership on various other factors analysed in the study. Moreover, the study follows the interpretation of correlation values as given by Hopkins (2000), in which values ≥ 9 indicate a perfect relationship, 0.7–0.9 shows a very high association, 0.5–0.7 shows a high association, 0.3–0.5 indicates a moderate relationship, 0.1–0.3 indicates a smaller association, and ≤ 1 indicates a very small and negligible association (Gogan, Artene, Sarca, & Draghici, 2016).

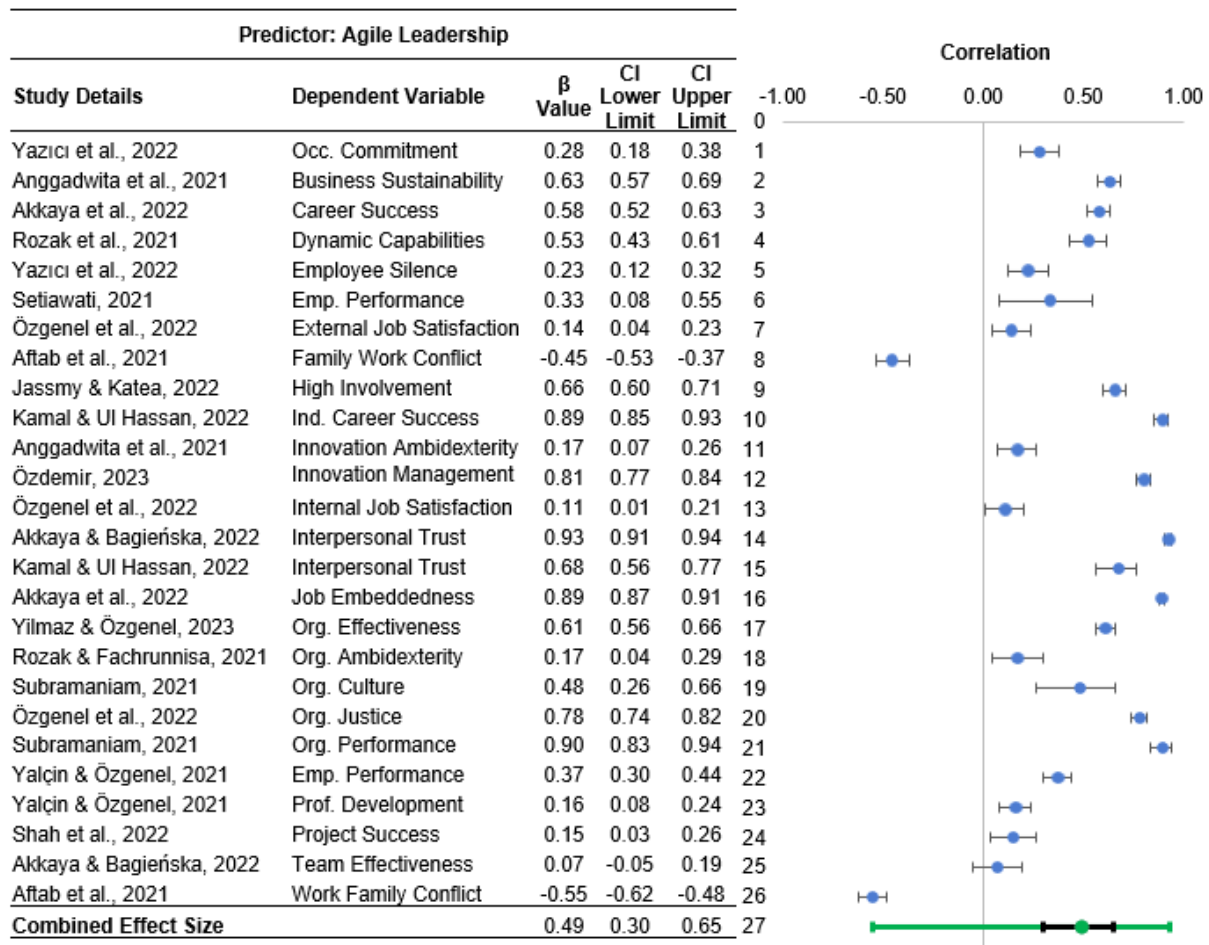


Figure 8. Forest plot for al and organizational outcomes

Thus, from the estimated combined analysis, it is clear that the effect of agile leadership has a moderately positive impact on *overall organizational outcomes* (0.49). Moreover, the I^2 statistics are 99.02% for the combined effect size, which signifies a higher level of heterogeneity.

The publication bias for the chosen articles is examined, since the degree of the association varies across studies, and is reflected in the findings of the meta-analysis. Egger regression, which is used for more accurate findings of publication bias analysis, shows that the results are not significant for asymmetry ($p = 0.26 > 0.05$), indicating no evidence for publication bias (Egger, Smith, Schneider & Minder, 1997). These results suggest that publication bias does not affect the effect size estimates and that the findings are robust. Table 4 displays the findings of the Egger regression. In addition, the normality test is included in the meta-analysis to evaluate the suitability of the random effect model (Choi, Yu, Kim, & Yoo, 2003). Figure 9 shows a normal quantile plot, and the results of the normality test show that the data follow a normal distribution. This is evidenced by the fact that the majority of the points on the plot show a straight line, indicating that the values are normally distributed.

Table 4. Egger regression for asymmetry analysis on publication bias

Egger Regression	Estimate	Std. Error	Confidence Interval (95%)		Test results
			Lower Level	Upper Level	
Intercept	31.13	26.71	-23.87	86.14	t-test = 1.17
Slope	-16.71	14.80	-47.19	13.77	p-value = 0.26

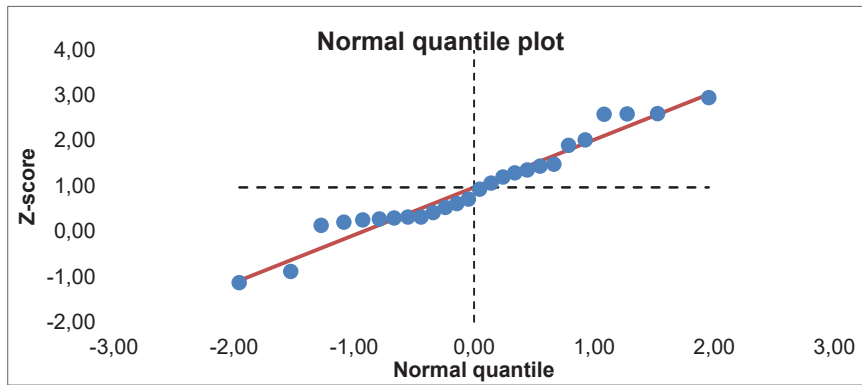


Figure 9. Normal quantile plot for the relationship between al and organizational outcome

The 26 relationships used in the above meta-analysis consider agile leadership as the predictor, with other factors of the organizational outcomes as the dependent variables. However, 41 unique relationships have been identified from the 24 studies in which the average correlation values have been identified and used for the analysis. The overall interpretation of the various associations studied in the 24 articles is presented in Figure 10.

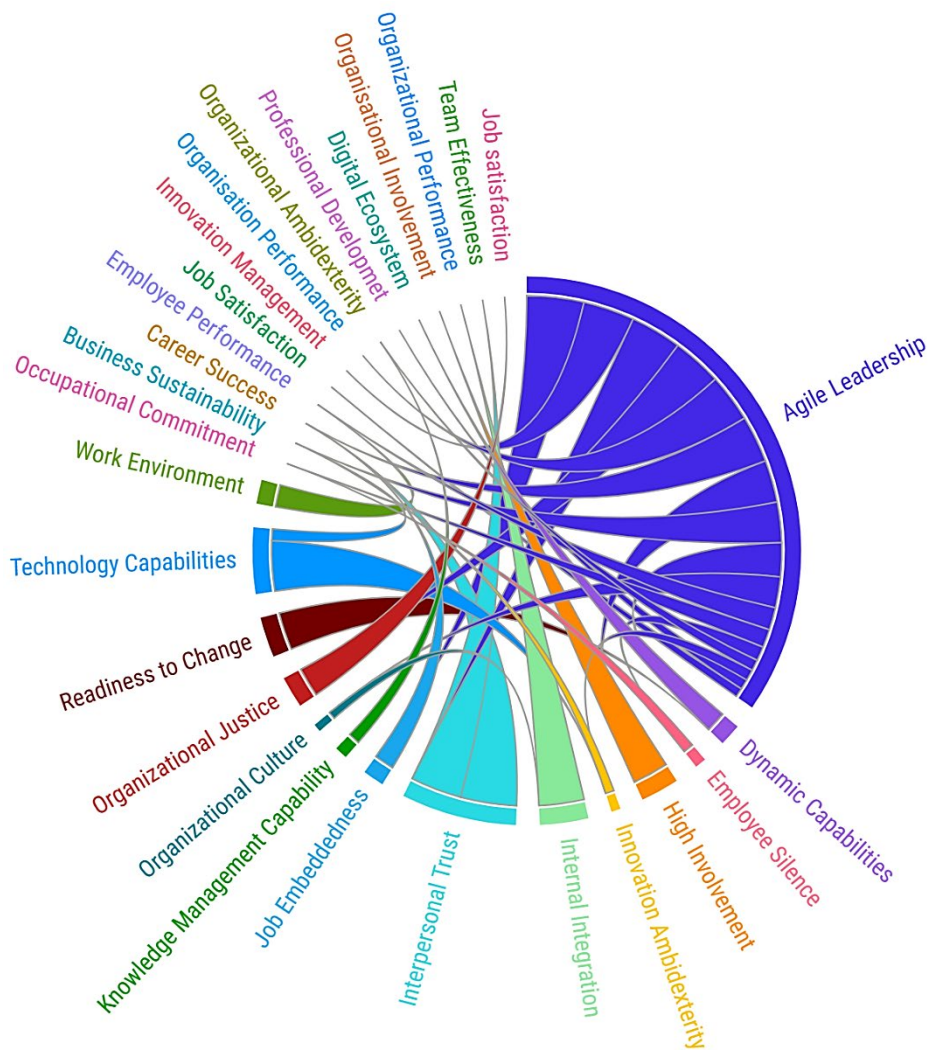


Figure 10. Overall interpretation of the various associations studied

Although the influence of agile leadership on organizational outcomes as a whole has been analyzed using regression coefficients derived from the selected publications, the influence of agile leadership on the various dimensions of organizational outcomes has been evaluated for further analysis. Moreover, though the organizational outcomes are categorized as employee, operational, financial, customer, and social and environmental, most studies focused either on employee or operational outcomes.

Thus, the correlation values between agile leadership and various factors affecting employee outcomes were examined for the detailed analysis. The 16 relationships from 7 studies were used to assess agile leadership employee outcomes. The *metacor* function using the meta package in R programming was employed for analysis. The factors that influence employee outcomes, such as *leadership practice* (0.84), *interpersonal trust* (0.83), *organizational justice* (0.78), and *workplace spirituality* (0.71), have a very high association with agile leadership. *Employee voice* (0.22), *occupational commitment* (0.21), and *professional development* (0.162) are not influenced by agile leadership due to a weak association.

Figure 11 depicts a forest plot as a graphical representation of the meta-analysis performed for the estimate and sample size to measure the influence of agile leadership on employee outcomes. Since all the points on the graph fall on the positive side, the graph plot indicates that all the relationships are statistically significant. The combined effect size of the analysis using the random effect model is 0.48 (95% CI: 0.38, 0.59, $p < 0.01$), which indicates that agile leadership has a highly moderate association with the factors of *employee outcomes* (0.48). Moreover, the I^2 statistics of the overall analysis are at 98%, which indicates a high level of heterogeneity between studies.

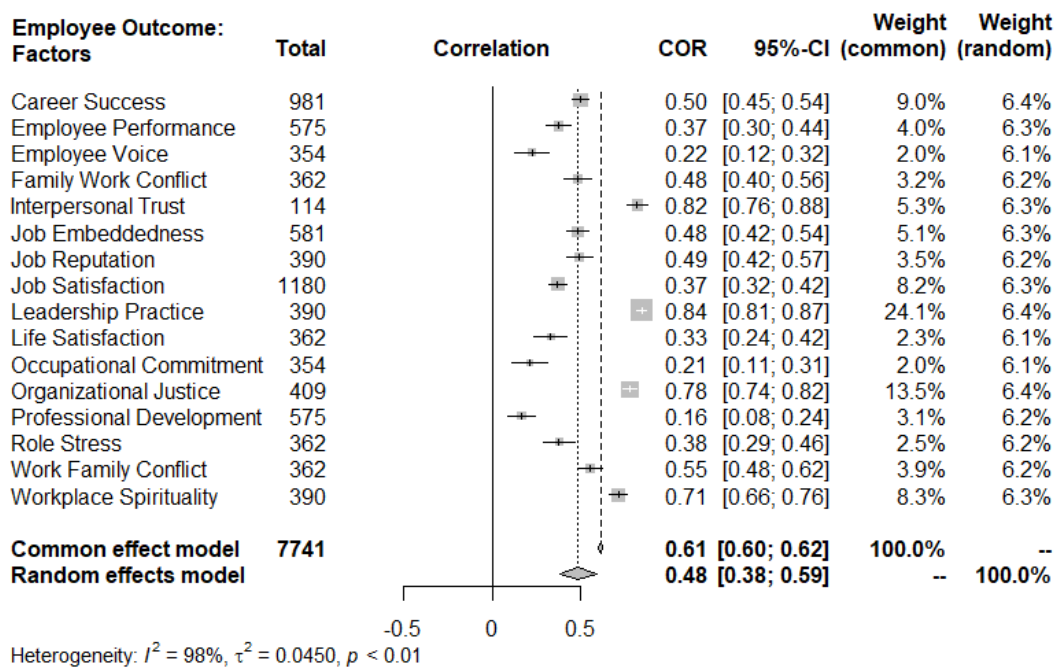


Figure 11. Forest plot for the relationship between agile leadership and employee outcomes

Similar to employee outcomes, the correlation values between agile leadership and various factors of operational outcomes were also assessed. The 15 relationships from 6 studies were used for evaluating the impact of agile leadership on operational outcomes. The results show that the factors of operational outcomes, such as *business sustainability* (0.75), *management innovation* (0.83), and *workforce transformation* (0.67), have a high association with agile leadership. Moreover, all the other factors affecting operational outcomes have a moderate association with agile leadership. Surprisingly, no factors seem to have a weak association with agile leadership.

Figure 12 is a forest plot depicting the results of the meta-analysis performed on the estimate and sample size for determining the impact of agile leadership on operational outcomes. Since all the points on the graph fall on the positive side, the graph plot indicates that all the relationships are statistically significant. The combined effect size of the analysis using the random effect model is 0.58 (95% CI: 0.51, 0.66, $p < 0.01$), which indicates that agile leadership has a high association with the factors of *operational outcomes* (0.58). Moreover, the I^2 statistics of the overall analysis are at 92%, which indicates a high level of heterogeneity between studies.

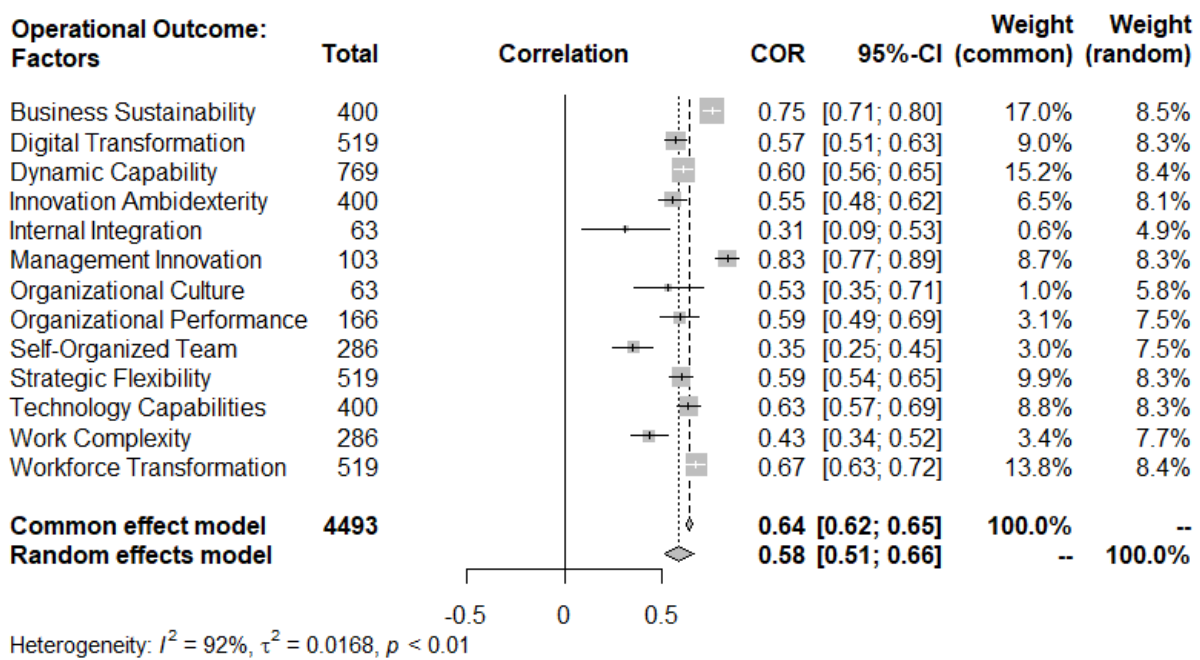


Figure 12. Forest plot for the relationship between al and operational outcome

The meta-analysis of agile leadership and its impact on organizational outcomes indicates that no study has focused on financial and customer outcomes. However, only a single study by Rozak et al. (2021) focuses on the digital ecosystem under social and environmental outcomes. This study indicates that agile leadership has a high association with *readiness to change* (0.65), *dynamic capabilities* (0.64), and a moderate association with the *digital ecosystem* (0.42). Moreover, *dynamic capabilities* have a strong association with the *digital ecosystem* (0.59).

Additionally, five studies assessed the various significant characteristics of agile leaders that positively impact organizational outcomes. It is found that *digital innovation* positively impacts *organizational growth* (0.84) (Murugan & Natarajan, 2022). It was proved that trust has a high impact on *team effectiveness* (0.75), *competency* (0.76), and *cognition-based trust* (0.77) has a high impact on *team collaboration* (Akkaya & Bagieński, 2022). The *result-oriented* characteristics of agile leaders have a significant impact on *team collaboration* (0.90) and *trust in managers* (0.816) (Akkaya, 2022). Moreover, characteristics such as *quietness*, *trust*, *wisdom*, and *modesty* are highly correlated (Shamani & Abbas, 2020).

DISCUSSION

A respectable amount of research on agile leadership and its impact on enterprises or organizations using qualitative and quantitative analysis is available in the literature (Prasongko & Adianto, 2019; Fachrunnisa et al., 2020). This systematic and meta-analytic literature review studies the effectiveness of agile leadership and leaders in promoting organizational performance and various other outcomes. It integrates the findings of several different investigations in order to discover the research gap and broaden the investigation (Glass, 1976). A detailed review has been conducted on the impact of agile leadership on the different dimensions of organizational outcomes (employee, customer, finance, operational, and social environments). After a thorough search of various repositories, 74 articles were selected for systematic literature review.

The results obtained are multi-fold. The publication of articles related to agile leadership has increased drastically after COVID-19 (see Figure 2). Specifically, 70% of the articles were published after 2019. Agile leadership emphasizes adaptation, flexibility, and reactivity, which are needed following pandemics or crises that bring uncertainty and quick change (Aftab et al., 2022; Fernandes, Wong, & Noonan, 2023; Wilson, 2021). With these articles, Turkey, the United States, and Indonesia are the countries that participate in the most research. To visualize and explore the patterns and relationships between words and terms in a selected article, networks of keywords (see Figures 5 and 6) have been created. While analyzing the impact of agile leadership on various dimensions of organizational outcomes, it has been found

that many qualitative studies were general and discussed the role of agile leadership in the enterprise (Rothman, 2010; Akkaya & Yazıcı, 2020). However, more studies focused on operational outcomes (26 articles) and employee outcomes (21 articles). Only a few articles discussed the impact of agile leadership on social and environmental outcomes (4 articles) and financial outcomes (1 study on the return on investment) (see Figure 7 for variables identified for each dimension of organizational outcomes).

In the second phase of the research, 24 quantitative studies involving 21,353 samples that focus on agile leadership and any of the dimensions of organizational outcome were selected from 74 articles for meta-analysis. A random effect model was applied to analyse the relationships between agile leadership and the factors affecting organizational outcomes identified from the studies.

First, 26 relationships, with agile leadership as a predictor, were extracted and assessed using regression coefficients from 16 studies. The findings show that agile leadership has a very high association with *interpersonal trust* (0.93), *organizational performance* (0.90), *organization effectiveness* (0.89), *individual career success* (0.89), and *innovation management* (0.81). This result supports the findings reported in various existing works (Akkaya & Bagieńska, 2022; Yılmaz & Özgenel, 2023; Özdemir, 2023). Agile leadership has no or a weak effect on *job satisfaction*, *team effectiveness*, *professional development* (0.16), *organizational ambidexterity* (0.17), *occupational commitment* (0.28), and *employee silence* (0.23). This result supports the findings reported in various existing works (Özgenel et al., 2022; Akkaya & Bagieńska, 2022; Yalçın & Özgenel, 2021). The analysis's estimated combined effect size shows that agile leadership has a moderately positive impact on overall *organizational outcomes* (0.49) (see Figure 8). The I^2 statistics of 99.02% indicate that the results of the meta-analysis have higher heterogeneity. The results of the Eggers test and normal quantile plot indicate that there is no evidence of publication bias (see Table 4).

Second, the effects of agile leadership on different dimensions of organizational outcomes were evaluated. The 16 relationships from 7 studies were used for assessing employee outcomes in agile leadership. The results show that *leadership practice* (0.84), *interpersonal trust* (0.83), *organizational justice* (0.78), and *workplace spirituality* (0.71) have a very high association with agile leadership. On the other hand, *employee voice* (0.22), *occupational commitment* (0.21), and *professional development* (0.162) are not influenced by agile leadership due to a weak association. This finding supports the evidence reported by Ibrahim et al. (2022), Kamal and Ul Hassan (2022), and Özgenel et al. (2022). The combined effect size of the analysis using a random effect model for agile leadership and *employee outcomes* is 0.48 (95% CI: 0.38, 0.59, $p < 0.01$), which indicates that agile leadership has a highly moderate association with employee outcomes with a higher level of heterogeneity of 98% (see Figure 11).

Third, the 15 relationships from 6 studies were used to evaluate the impact of agile leadership on operational outcomes. The results show that the factors of operational outcomes, such as *business sustainability* (0.75), *management innovation* (0.83), and *workforce transformation* (0.67), have a high association with agile leadership. Moreover, all the other factors affecting operational outcomes have a moderate association with agile leadership. Surprisingly, no factor of operational outcomes seems to have a weak association with agile leadership. The finding is consistent with the findings of the existing studies, including Anggadwita et al. (2021), Özdemir (2023), and Fachrunnisa et al. (2020). The combined effect size of the analysis using the random effect model for agile leadership and the *operational outcomes* is 0.58 (95% CI: 0.51, 0.66, $p < 0.01$). The results indicate that agile leadership has a high association with operational outcomes with high heterogeneity (92%) between studies (see Figure 12).

Finally, various significant characteristics of agile leaders were assessed from 5 studies. A positive relationship exists among variables like *digital innovation* with *organizational growth*, *trust* with *team effectiveness*, *team collaboration* with *competency* and *cognition-based trust*, *result orientation* with *team collaboration*, and *trust in managers*. These findings of the review substantiate the empirical evidence revealed by various other researchers (Murugan & Natarajan, 2022; Akkaya & Bagieńska, 2022; Akkaya, 2023; Shamani & Abbas, 2020). The consistent results in this review support the validity and robustness of the observed effects and the conclusions drawn. Overall, agile leadership has more effect and a greater influence on the operational outcomes of the enterprise than on employee outcomes.

However, the effectiveness of agile leadership on organizational outcomes may vary due to various mediating and moderating variables. Thus, from the information and knowledge gained on agile leadership from this review study, a new mediation and moderation conceptual model for agile leadership and its impact on organizational outcomes has been proposed, as depicted in Figure 13.

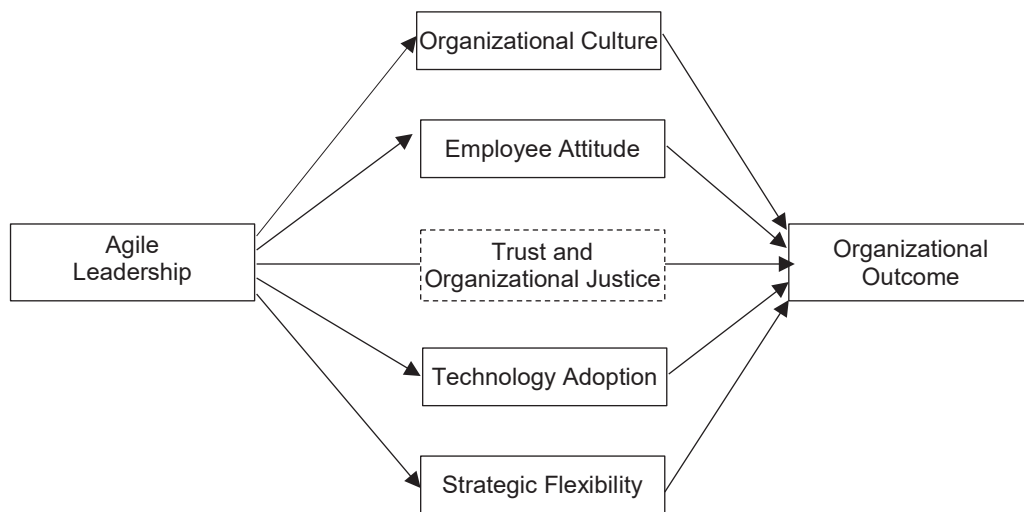


Figure 13. Proposed mediation moderation conceptual model for the agile leadership

This model contains various components: agile leadership, organizational outcome, mediating variables, and moderating variables. The mediating variables explain the process through which agile leadership influences organizational outcomes. The mediating variables include organizational culture, employee attitude, technology adoption, and strategic flexibility. The degree and direction of the association between agile leadership and organizational results are influenced by moderating factors, including trust and organizational justice. Thus, the proposed conceptual model indicates that agile leadership directly affects organizational outcomes and that this relationship is mediated by factors such as organizational culture, employee attitude, technology adoption, and strategic flexibility. The model also describes the relationship between agile leadership and organizational outcomes, which is moderated by factors such as trust and organizational justice, with organizational type and size as control variables. Thus, the future study aims at analyzing the proposed model by collecting samples and applying regression analysis and structural equation modeling to test these relationships.

In summary, the study examines the effectiveness of agile leadership on various organizational outcomes, including financial outcomes, customer outcomes, operational outcomes, employee outcomes, and social and environmental outcomes. The result revealed that more empirical studies focused on employee and operational outcomes, whereas the research lacked customer, financial, social, and environmental outcomes. Though agile leadership was shown to have a moderately positive influence on overall organizational outcomes, it had a negative correlation with work–family conflicts. Further, agile leadership exhibited a stronger influence on the operational outcome dimension, with factors like business sustainability, management innovation, and workforce transformation showing high associations compared to the employee outcome dimension, with a strong correlation with leadership practice, interpersonal trust, organizational justice, and workplace spirituality. Furthermore, the study highlighted significant correlations between agile leadership characteristics and various organizational factors, emphasizing its multifaceted impact. Moreover, the study proposed a new mediation and moderation conceptual model for agile leadership to assess the potential impact of agile leadership on organizational outcomes due to various mediating and moderating variables.

Theoretical implications

The consequences of this research on the impact of agile leadership on business results may be substantial. First, the study of agile leadership has the potential to contribute to the growth and improvement of leadership theories and models. Researchers can determine the main qualities and behaviors of agile leaders as well as the situational aspects that affect their success by examining the efficacy of agile leadership in attaining organizational outcomes. This may contribute to the expansion of previously established theories of leadership and give insights into how leadership can be adapted to various organizational contexts. Moreover, researchers may contribute to developing theoretical frameworks that can explain the mechanisms through which agile leadership practices affect organizational outcomes and the conditions under which they are most effective. Second, researchers can contribute to the development of theories and models that can guide organizations in navigating complex and dynamic environments if they investigate the effectiveness of agile leadership

in driving organizational change and innovation. This type of research can help organizations better adapt to changing environments. Third, the success of agile leadership may vary depending on circumstances, such as the company's culture, the nature of the industry in which it operates, and the organization's size. When these situational aspects are understood, overcoming the potential challenges associated with their implementation is possible. Fourth, agile leaders are known for their ability to adapt quickly to changing customer needs and preferences and to implement customer feedback into their decision-making processes. Researchers can determine the leadership behaviors most important in driving positive customer outcomes by studying the impact that effective, agile leadership has on customer outcomes. Fifth, agile leadership can help organizations make more effective financial decisions by fostering a culture of financial responsibility and innovation. Researchers may aid in the creation of theories and models that explain how businesses might increase their financial performance and longevity by examining the impact of agile leadership on these outcomes.

Practical implications

Agile leadership is crucial in today's fast-changing business environment. They are the assets of the organization that avoid the negative effects of crises (Çobanoğlu & Demir, 2022). Every company must stay competitive. Here are some practical implications for agile leaders in an organization. Agile leaders must create a clear vision and share it with all employees so that everyone is working toward the same goals. Agile leaders should create a culture that encourages people to work as a team and enables employees to work together to solve problems and innovate. They should empower their staff by providing the necessary tools, resources, and support, encompassing training and development, autonomy, and worker ownership. Agile leaders must be flexible. They must be willing to try, fail quickly, and pivot. This allows the company to adapt swiftly to market and consumer demands. They should urge their teams to develop continuously. They should evaluate procedures, identify areas for improvement, and make adjustments to boost efficiency and effectiveness. Agile leaders should model their beliefs and principles, like transparency, collaboration, and adaptability. The pandemic has also shown how important it is for leaders to communicate, work together, build trust, show empathy, and have emotional intelligence.

However, creating an agile leader requires a combination of training, coaching, hands-on experience, and a supportive organizational culture that values experimentation, collaboration, and continuous learning. Thus, for agile leadership to be more effective, an organization needs to change its culture and way of thinking and commit to learning and growing all the time. Moreover, organizations must provide leadership development programs that focus on agile principles and practices by conducting workshops, training sessions, and coaching sessions (Fielitz & Hug, 2019). They can also include opportunities for leaders to work on real-world projects and apply agile practices in their work. If leaders are encouraged to take risks, test new ideas, and learn from their failures, it helps them become more comfortable with uncertainty and ambiguity, and develop the mindset needed to succeed in an agile environment. Additionally, organizations may need to revise their strategies on customer experience, financial management, and investment to align with agile leadership principles.

Study limitations

Since the review study is focused on agile leadership, which is an emergent topic, not many related studies can be used for meta-analysis. This is because the papers being reviewed are written in English, which restricts the knowledge and information that may be learned. Considering that there is very little research for each relationship, each uses a distinct methodology, and each uniquely presents its findings, the results obtained from a combined analysis could not be statistically significant. Moreover, the majority of research relies on self-reported data from leaders and workers, which might be biased. People could exaggerate their efficacy or feel compelled to provide favorable evaluations. Also, the analysis of agile leadership is carried out on the direct relationships, though the strength of the relationships may vary due to the presence of mediators or moderators. Moreover, the industrial sector, organizational culture, and firm size have an impact on the effectiveness of agile leadership. Thus, the results derived may not be applicable to all contexts. For evaluating agile leadership, there are no standardized measuring techniques available (Akkaya, Kayalidere, Aktaş, & Karğın, 2022a). As a result, comparing the findings of various studies becomes difficult. Therefore, a subsequent study can evaluate the efficacy of agile leadership while considering these limitations.

CONCLUSION

Leadership that is truly agile goes beyond the mere adoption of a new management technique and into the establishment of a company-wide mindset and culture that values responsiveness to change, open communication, and attention to the needs of the customer. When properly implemented, agile leadership may profoundly affect an organization's responsiveness to change, creativity, and customer service, all of which contribute to better business performance. Despite numerous studies on agile leadership, there is a significant research gap in evaluating its impact on organizational outcomes, necessitating further investigation and considering diverse business environments. Thus, owing to the significance of agile leadership and the research gap that exists in assessing the impact of organizational performance, this study intends to examine the impact of agile leadership on various dimensions of organizational outcomes, including operational, employee, customer, financial, and social-environmental outcomes. The study employed a two-phase methodology comprising a bibliometric literature analysis involving 74 articles and a meta-analysis with 24 articles encompassing 21,353 samples. The bibliometric analysis indicates that agile leadership has gained more attention after the COVID-19 pandemic, which accelerated the adoption of digital transformation and an intensified focus on employee well-being.

The meta-analysis results reaffirmed that agile leadership has a strong relationship with trust ($\beta=0.93$), organizational performance and effectiveness ($\beta=0.90$), career success ($\beta=0.89$) and innovation management ($\beta=0.81$). Additionally, the results of the analysis using a random effect model between agile leadership and overall organizational outcomes ($\beta=0.49$) show a moderately positive association, indicating its comprehensive impact. However, the detailed analysis indicates that agile leadership shows a high, moderate association with employee outcomes ($\gamma=0.48$, 95% CI: 0.38, 0.59, $p<0.01$) and a high association with operational outcomes ($\gamma=0.58$, 95% CI: 0.51, 0.66, $p<0.01$). Further, while positively impacting organizational performance across various sectors, agile leadership can also negatively affect work-family conflicts. It is evident from the Eggers test that the obtained results have no evidence of publication bias, reinforcing the robustness of the findings. This makes it quite evident that agile leadership has a stronger effect on operational outcomes than employee outcomes. This research helps professionals and academics comprehensively understand the potential benefits and problems posed by agile leadership in varied business environments. It offers information on the dimensions of organizational outcome that agile leadership has the most impact on, which might help firms develop plans for enhancing their performance and sustainability.

Considering the limitations of the existing and proposed studies, future studies should explore potential mediators and moderators influencing the relationship between agile leadership and organizational outcomes for a more detailed understanding. Longitudinal studies can be adapted, as they offer valuable insights into the long-term impact of agile leadership on organizational outcomes, guiding organizations in developing strategies for sustained success. Further, cross-cultural studies can enhance our understanding of agile leadership by examining its effectiveness in different cultural contexts. Case studies on successful agile leadership organizations can be adapted to provide practical insights and best practices for others considering adapting this leadership style. Further, the influence of agile leadership practices on the sustainability initiatives of organizations, focusing on social and environmental aspects, can be promoted.

The study of agile leadership offers an opportunity to enhance and expand leadership theories. Future research can identify the core qualities and behaviours of agile leaders, as well as situational factors that affect their effectiveness. This has the potential to assist in adapting leadership models to diverse organizational contexts. Research on agile leadership and its impact on organizational change and innovation can contribute to the development of practical theories and models, guiding organizations in adapting to complex, dynamic settings. Future studies should also assess situational factors, such as organizational culture, industry context, and firm size, to help organizations overcome potential implementation challenges related to agile leadership. Further, exploring the influence of agile leadership on customer outcomes can reveal leadership practices that improve customer experiences, directing organizations toward customer-centric initiatives. The role of agile leadership in fostering financial responsibility and innovation presents an opportunity for research to develop theories and models aimed at improving business performance and longevity.

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