Łucja WALIGÓRA

Employees' age diversity – between supportive workplaces and organizational outcomes

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INTRODUCTION

It is increasingly recognized that managing organizations with an age-diverse workforce is a prevalent and significant organizational issue (Avery et al., 2007; Kunze et al., 2011). Consequently, one of the critical challenges currently facing HR managers is the effective utilization of the potential of various age groups and the selection of appropriate human resource management (HRM) tools and practices (Smolbik-Jęczmień and Żarczyńska-Dobiesz, 2017). Existing research highlights differences in the approach to older and younger employees. Older workers are often perceived as reluctant to acquire new skills (Armstrong-Stassen and Schlosser, 2008; Ng and Feldman, 2012a; Gross-Gołacka, 2016), whereas very young employees are considered to lack substantive knowledge and professional experience (Hysa, 2016). Therefore, awareness of the capabilities and limitations of each group is crucial for achieving high financial and non-financial performance, partly due to the complementary competencies of employees from different age groups (Kilduff et al., 2000).

Most managers in organizations claim to recognize the benefits of multi-faceted employee diversity, including age diversity (Kossek and Zonia, 1993; Kossek et al., 2003). However, few organizations take action to increase the age diversity of their workforce (Houkamau and Boxall, 2011; Shen et al., 2014). Nevertheless, the benefits of diversity management are well-documented by numerous scholars (e.g., Subeliani and Tsogas, 2005). Publications emphasize that greater diversity can lead to better market and customer understanding, attracting and retaining top talent, problem-solving, and greater organizational flexibility. Additionally, diversity policies can help employ and retain the most talented employees, improve productivity, efficiency, and creativity, enhance staff trust, increase job satisfaction and employee engagement, improve relations with customers and suppliers, and create a positive company image (Özbilgin and Tatli, 2011).

One method to increase diversity is the implementation of age-inclusive HR practices. Age-inclusive HR practices (Kunze et al., 2013), also known as age-friendly organizational practices (Appannah and Biggs, 2015) or diversity-friendly HR policies (Kunze et al., 2013), aim to overcome age-related barriers, promote age diversity, and ensure an environment where everyone can develop their potential regardless of age (Walker, 1997; Taylor and Walker, 1998). This means that age-inclusive HR practices establish universally accepted principles of cooperation (Bowen and Ostroff, 2004). Every employee group should have a sense of belonging to the organization, be treated equally by supervisors when assigning tasks, and be informed about their work outcomes (Armstrong-Stassen and Schlosser, 2011). Such a sense of coexistence within the organization is based on the need for recognition by others, acknowledgment of individual contributions to the common good, and group membership. The sense of organizational belonging depends on employees' perception of their group membership. Differential treatment of employees may lead to perceptions of favoritism among some employees (Armstrong-Stassen, 2008). Age-inclusive HR practices can thus facilitate the creation of teams consisting of employees of different ages, complementing each other with their skills and experience (Walker, 2005a, 2005b), thereby achieving better outcomes. For these reasons, companies facing an increasing shortage of employees while striving for excellent performance should consider increasing the age diversity of their workforce through appropriate HR practices. However, the literature does not explain in detail the extent to which organizations implement age-inclusive HR practices, whether these practices affect the age diversity of employees, and how this relationship influences organizational performance.

An important factor contributing to the increase in age diversity among employees, as highlighted in the literature, is the presence of a supportive climate for such diversity in the workplace. This climate is defined as the collective perception of practices and procedures applied to employees of different ages (Herdman and McMillan-Capehart, 2010). Furthermore, this climate can manifest in the respect for employees' dignity and their age diversity (Wegge et al., 2012; King and Bryant, 2017). Therefore, managers should be interested in creating a climate that supports age diversity in the workplace, as this can lead to the integration of organizational processes with employee behaviors and attitudes, ultimately resulting in favorable financial and non-financial outcomes (Bowen and Ostroff, 2004). The literature indicates the risk that age diversity among employees may contribute to processes of categorization based on age group membership (Kunze et al., 2011). Awareness of a supportive climate for age diversity can be leveraged to mitigate the undesirable consequences of age diversity, such as discrimination, stereotyping, and related barriers to potential employee development (King and Bryant, 2017). Enhancing mutual respect among employees of different ages may be key to increasing age diversity and improving both financial and non-financial performance (Dovidio et al., 2010). Thus, the workplace climate can indeed relate to the perception of the strength with which the group influences company practices, within the social context of organizational belonging (Avery et al., 2007).

As indicated above, age diversity among employees can positively impact organizational performance − financial outcomes such as return on assets, sales growth, and equity profitability (Richard and Shelor, 2002), as well as non--financial outcomes like creativity and business decision-making processes (Goll et al., 2001). Additionally, the literature provides evidence that employees of similar ages may often compete with each other, exhibiting low task performance (Cho and Mor Barak, 2008). Therefore, age polarization among employees can negatively affect both financial and non-financial organizational outcomes. It is worth considering the relationship between the degree of age diversity at the organizational level and the corresponding financial and non-financial results, as these relationships, particularly when accounting for mediating and control variables, are not yet fully explored in the literature (e.g., Harrison and Klein, 2007), especially within the context of domestic literature.

It is hypothesized that a mediating factor in the relationship between age diversity and organizational performance is knowledge transfer (Skuza, 2018). According to D.A. Garvin, A.C. Edmondson, and F. Gino (2008), knowledge transfer is understood as learning from internal and external experts, other teams, and departments. In the contemporary economy, knowledge is increasingly valued by managers, as possessing key knowledge for the organization can influence its competitiveness (Shen et al., 2014). However, the transfer of knowledge among employees of different ages has only recently become a focus of researchers (Kulik et al., 2014). The literature suggests that knowledge transfer can be significant for organizations with age-diverse employees. Preliminary empirical evidence indicates that knowledge transfer between younger and older employees can be valuable, as it allows for leveraging the comprehensive knowledge of others. However, age diversity can also hinder knowledge transfer, as individuals tend to prefer interacting with peers of similar characteristics, particularly sociodemographic traits like age. Therefore, there is concern that age differences may pose obstacles to communication, collaboration, and knowledge transfer. Thus, the relationships between diversity and knowledge transfer, as well as its mediating role in shaping the link between diversity and performance, require further investigation.

The issue of effectively managing employees of various ages within an organization is significant both theoretically and empirically due to several reasons:

- insufficient research on organizational context − while age diversity is an area of interest for researchers, the context of the entire organization has not been adequately studied, particularly in Poland (Shemla et al., 2016);

- focus on organizational climate and HR practices − previous research has concentrated on how age diversity influences the organizational climate and HR practices; however, the antecedents of diversity have been underexplored, especially regarding how age-inclusive HR practices and workplace climate affect age diversity (Armstrong-Stassen and Schlosser, 2011);
- overemphasis on financial outcomes − while previous studies have shown that age diversity improves financial outcomes, non-financial outcomes have often been overlooked or minimally analyzed (Kunze et al., 2013);
- neglect of knowledge transfer − factors that enhance age diversity, such as knowledge transfer, have been largely ignored (Kulik et al., 2014).

The current state of knowledge on age diversity remains underexplored and reveals numerous research gaps, despite its importance to all organizations. Much of the literature has focused on intergenerational diversity (Kirton and Greene, 2010). Additionally, researchers are examining the process of inclusion related to social groups or categories within the broader societal context (Marcut, 2014). However, age diversity lacks a clear theoretical framework. This monograph aims to present theoretical frameworks for each variable in the model, particularly age diversity. The developed research model includes many new and significant relationships, based on which ten main hypotheses were formulated and tested.

The findings and scientific considerations in this work contribute to the development of the research field and the scientific discipline by:

- defining age diversity and management − clarifying what age diversity is and how it can be managed;
- understanding influencing factors − identifying what influences age diversity and how these variables affect organizational functioning;
- measurement tools − confirming the applicability of measurement tools for various variables;
- effective management strategies − presenting effective ways to manage younger and older employees by identifying factors influencing age diversity.

The theoretical-cognitive objectives of the study were formulated as follows:

- systematizing knowledge in the areas of age diversity among employees, age-diversity-supportive workplace climate, knowledge transfer, and HR practices supporting age diversity among employees;
- determining the influence of age diversity among employees on organizational outcomes considering the potential mediation of individual variables;
- identifying antecedents of age diversity among employees;
- developing a conceptual model of the relationship between age diversity among employees and organizational outcomes, HR practices supporting age

diversity among employees, knowledge transfer, and age-diversity-supportive workplace climate.

The cognitive-explanatory objectives of the study were formulated as follows:

- investigating the level of age diversity among employees and the application of HR practices supporting age diversity among employees, age-diversity--supportive workplace climate, and knowledge transfer processes in the surveyed organizations;
- empirically examining the impact of age-diversity-supportive workplace climate on age diversity;
- empirically examining the impact of HR practices supporting age diversity among employees on age diversity;
- empirically examining the impact of HR practices supporting age diversity among employees on age-diversity-supportive workplace climate;
- empirically examining the mediating role of age-diversity-supportive workplace climate in the relationship between HR practices supporting age diversity among employees and age diversity;
- empirically examining the impact of age diversity among employees on organizational outcomes: financial and non-financial;
- empirically examining the impact of knowledge transfer on organizational outcomes;
- empirically examining the mediating role of knowledge transfer in the relationship between age diversity among employees and organizational outcomes;
- empirically examining the mediating role of age diversity among employees in the relationship between HR practices supporting age diversity among employees and age-diversity-supportive workplace climate as well as knowledge transfer.

The practical objectives of the study include: formulating guidelines for practice regarding strengthening age diversity among employees and increasing its impact on firm outcomes.

The methodological objectives include: confirming the feasibility of using research tools to measure all variables, especially the variable related to age diversity.

Therefore, the main objective of the study can be formulated as follows: to explain age diversity among employees in the context of antecedents and organizational outcomes.

The scientific monograph is divided into five chapters, preceded by an introduction and followed by a conclusion. The first chapter presents the theoretical foundations of the concept of age diversity among employees. It starts with a general understanding of employee diversity and highlights its importance not only in human resource management but also in the broader context of corporate social responsibility. The chapter also classifies employee diversity, discusses theoretical foundations of age diversity, and presents theories related to age. It further emphasizes two approaches to describing employees: generational context and groups of younger and older employees. The second chapter characterizes the antecedents of age diversity, focusing on age-inclusive HR practices and a supportive workplace climate. It also highlights the relationships between these practices and workplace climate. The third chapter discusses the effects of age diversity at the organizational level, focusing on its impact on financial and non-financial outcomes and the mediating role of knowledge transfer. The fourth chapter introduces the research methodology, including methods, sample selection, variables, measurement, and data analysis. The fifth chapter presents and interprets empirical findings. In conclusion, the study addresses the scientific problem and the extent to which the objectives were achieved, identifies main limitations, proposes practical implications for the business sector, and suggests directions for further research.

Chapter 1

THEORETICAL FOUNDATIONS OF AGE DIVERSITY AMONG EMPLOYEES IN ORGANIZATIONS

Currently, significant attention is being devoted to issues related to employee age, as modern organizations frequently employ individuals from multiple generations, resulting in a highly age-diverse workforce (Kunze et al., 2011; Dikkers et al., 2017).

Age diversity among employees is merely one aspect of the broader spectrum of workforce diversity within organizations. In recent years, managing the diversity of stakeholders − particularly employees, customers, and suppliers − has become a major challenge for managers. This diversity can pertain to various dimensions, including age, gender, disability, family status, ethnicity, nationality, and associated cultural, linguistic, or religious factors (Kunze et al., 2011). One significant challenge for human resource managers is the effective utilization of the potential inherent in diverse employees and selecting appropriate human resource management tools and practices to further harness and develop this potential (Smolbik-Jęczmień and Żarczyńska-Dobiesz, 2017).

This chapter, dedicated to the theoretical foundations of the concept of age diversity among employees, is divided into four subsections. The first subsection introduces the foundational concepts of employee diversity. The second subsection presents the concept and origins of age diversity among employees. The third part of the chapter is devoted to the characteristics of younger and older employees currently in the labor market. The fourth subsection outlines the areas of research on age diversity among employees and discusses the challenges and benefits that this diversity brings to both employees and the organizations they work for.

1.1. The concept of employee diversity as the foundation for age diversity in the workforce

From an economic perspective, the primary objective of any organization is to continuously improve its processes and maintain a high level of both financial and non-financial performance to remain competitive in the market. Achieving this goal necessitates the engagement and motivation of employees, who are the most crucial and valuable capital of any organization (Bashir et al., 2021). However, every organization, often unconsciously to its managers, possesses a diverse human capital. This diversity, in terms of personality traits, place of origin, age, gender, and other factors, can contribute to achieving a competitive advantage.

Numerous examples illustrate that employee diversity can provide multiple benefits at the individual, team, and organizational levels, especially when various factors and actions supporting this diversity are considered. These benefits also account for other trends present in the organization, such as promoting corporate social responsibility (Urbaniak, 2014; Gotsis and Kortezi, 2015).

A key goal of organizations is to maintain competitiveness in the market. An organization's competitiveness is influenced by both its external environment and internal conditions. The greater the internal potential, the better the organization can navigate the external environment. Beyond offering high-quality and low-cost products or services, innovative solutions and investments carried out by competent employees are increasingly crucial factors in outpacing market rivals (Diaz-Carrion et al., 2019).

Innovations and investments that address the needs of various stakeholder groups are vital for the long-term survival of an organization. Among the most critical stakeholders are employees, as they play a significant role in the proper functioning of the company. Higher job satisfaction levels lead to greater employee engagement, which in turn contributes to achieving a competitive advantage (Diaz-Carrion et al., 2019; Liu et al., 2022).

An example of a practical initiative that reflects the commitment to monitoring employee diversity is the Diversity Charter. The Diversity Charters are a distinctly European initiative aimed at being adopted in all EU member states, currently active in 16 countries under the support of the European Commission's Directorate-General for Justice. The concept originated in France in 2004 through a report by Institut Montaigne, proposing a unified document to standardize equal treatment policies within companies and influence state policies, such as public procurement. The French Diversity Charter, launched by 33 companies, became a model for other countries including Belgium, Germany, Spain, Italy, and Poland. In Poland, the initiative was introduced in 2010 by the Responsible Business Forum, with companies such as Aviva, Deloitte Polska, Grupa Żywiec, and Unilever among the first signatories. By June 2024, 339 organizations had signed the Polish Diversity Charter, committing to social cohesion and equality. The charters in each country are adapted to local policies but share a common foundation inspired by the French model, making them a key tool for promoting diversity across Europe. Coordination varies by country, with entities like NGOs, employer associations, and public-private partnerships leading the efforts (Kwiatkiewicz, 2010; Andrejczuk, 2012; Szaban, 2013; Godlewska et al., 2016).

1.1.1. Definitional understanding and classification of workforce diversity

The literature highlights numerous arguments demonstrating the importance of fostering a workplace environment that not only cares for employees but also emphasizes the existence of differences among them (Kamp and Hagedorn-Rasmussen, 2004). The concept of diversity thus refers to the presence of differences among individuals with respect to certain characteristics (Carstens and de Kock, 2017). Diversity encompasses both visible and invisible differences, including gender, age, origin, race, disability, personality, and work style. Managing diversity aims to leverage these differences to create a more productive work environment (Arredondo, 1996).

Managing diversity involves creating and maintaining a positive work environment where both the similarities and differences among employees are valued, allowing everyone to utilize and develop their capabilities and maximize their contribution to the organization's goals. This approach enhances employees' self-esteem as their talents are nurtured in an environment that appreciates diversity, including in the area of competencies (Kandola and Fullerton, 1998). Diversity management has also been defined as "a management philosophy recognizing and valuing heterogeneity in organizations to improve organizational performance" (Özbilgin and Tatli, 2011, p. 832).

Özbilgin and Tatli suggest that this approach emerged as an alternative to promoting equal opportunities in the labor market, pointing to the development of a new direction supporting employees − diversity (Özbilgin and Tatli, 2011). It appears, therefore, that managing diversity is a proactive strategy aimed at maximizing the potential of employees (Özbilgin and Tatli, 2011). Diversity is managed not only to retain the benefits arising from diversity but also to gain additional value from it, such as increased employee creativity. According to this approach, it can be suggested that diversity management is more prevalent in the private sector due to its profit-oriented nature, whereas public sector organizations typically focus on social responsibility (Özbilgin and Tatli, 2011).

Diversity as a construct in management sciences relates to the level of the individual. However, an individual, whether it is a single employee, an independent team, or the organization as a whole, is not inherently diverse; it is a coherent entity. Diversity rather occurs in terms of one or more specific characteristics of group members (Carstens and de Kock, 2017). This means that employees in a group, connected by interests, job level, or workplace, can differ, for example, in age or personality. Research from the perspective of diversity understood in this way has shifted researchers' focus from the level of the individual employee to the relationships among employees at the group and organizational levels (Pfeffer, 1983). This broad interpretation of diversity has led to difficulties in clearly defining diversity in numerous publications.

The analysis of the literature allows for the classification of diversity; however, due to the multitude of definitions of this concept, there is no consensus among scholars regarding its classification. Diversity can be typified based on several criteria:

- division based on levels of diversity: surface-level and deep-level (Pfeffer, 1983);
- division based on dimensions of diversity: primary, secondary, and organizational identity (Arredondo, 1996);
- division based on the emotional intelligence and diversity model − four levels of diversity (Gardenswartz and Rowe, 1994);
- division based on diversity constructs: separation, variety, and disparity (Harrison and Klein, 2007);
- division into task-related diversity and relationship-oriented diversity (Joshi and Roh, 2009; Tasheva and Hillman, 2018);
- division into functional and demographic diversity (van Knippenberg et al., 2004; Tasheva and Hillman, 2018);
- division based on three different sources of diversity (human capital, social capital, demography) at two levels of analysis: individual and team (Tasheva and Hillman, 2018).

According to the first classification, diversity can be examined at two levels: surface-level and deep-level (Harrison et al., 1998). The surface-level refers to easily observable characteristics of organization members, such as gender, race, or age. The deep-level encompasses similarities in areas such as attitudes, values, and beliefs, network connections, as well as personality traits, which are difficult to observe and measure (Pfeffer, 1983; Harrison et al., 2002). A similar classification was used by L.M. Shore and colleagues (2009), who identified surface-level and deep-level diversity. The surface-level pertains to characteristics like race or age, while the deep-level involves differences in cognitive levels or schemas, different worldviews, or varying knowledge levels, which are difficult to discern during brief interactions with employees (Shore et al., 2009; Gotsis and Kortezi, 2015).

According to the second classification, diversity is distinguished into three dimensions: primary, secondary, and organizational identity (Arredondo, 1996; Walczak, 2011). Primary identity includes immutable, typically innate characteristics of an employee, such as gender, age, race, native language, personality, health-related abilities, nationality, sexual orientation, and origin. Secondary identity pertains to characteristics that can change over time and are not directly or only partially related to the employee's functioning within the organization. These characteristics may include residence, material status, income, education, and other formal qualifications, professional experience, marital status, having children, religion, appearance, customs, and interests. Organizational identity, on the other hand, is determined by the employee's position in the organizational structure and hierarchy, as well as the nature of their work. Within organizational identity, one can identify additional employee privileges, wage rates within the company, type of employment contract, tenure, scope of tasks, duties, responsibilities, and special rights ensuring protection against dismissal (Arredondo, 1996; Canas and Sondak, 2008).

Another classification of diversity emerged from the development of the emotional intelligence model. The authors integrated emotional aspects with diversity, as interactions between individuals with different characteristics often trigger strong reactions requiring emotional intelligence to manage. Figure 1 presents the emotional intelligence model with elements of diversity (Gardenswartz and Rowe, 1994; Gardenswartz et al., 2010).

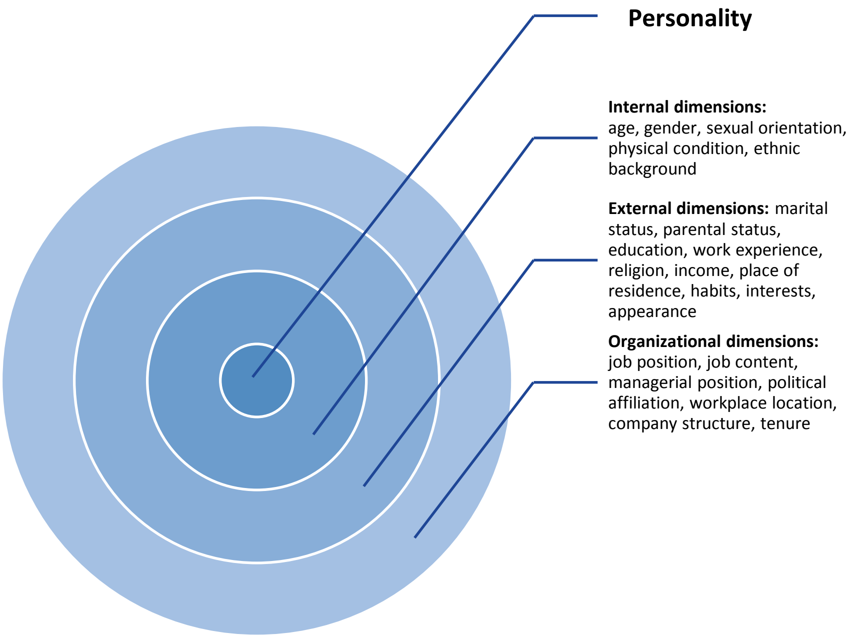


Figure 1. Four layers of diversity

Source: Gardenswartz and Rowe (1994); Gardenswartz et al. (2010).

Another classification of diversity considers categories and types of diversity. Mannix and Neale (2005) aimed to conceptualize the notion of diversity by accounting for categories and types of diversity, in order to establish a foundation for a multi-faceted consideration of this concept (Table 1). This classification provides a structured framework for understanding diversity encompassing various dimensions, which are integral for comprehensive analyses in diverse contexts.

Table 1. Categories and types of diversity

Category	Type of diversity
Differences in social categories	Race, ethnic origin, gender, age, religion, sexual orientation, physical abilities
Differences in knowledge and skills	Education, general knowledge, experience, abilities, skills, specialized knowledge
Differences in values or beliefs	Cultural background, ideological beliefs
Differences in personality	Cognitive style, motivational factor
Differences in organizational/social status	Work tenure, job type, professional title
Differences in social and network relationships	Professional relationships, friendships, community ties, group membership sense

Source: Mannix and Neale (2005, s. 36).

According to a subsequent classification approach, three types of diversity can be distinguished: separation, variety, and disparity. Separation refers to differences in the intensity of a particular feature among a significant portion of the group. When it reaches its maximum, the units are strongly polarized, whereas at minimum value, it typically indicates perfect agreement of the feature within the entire group. Examples of variables related to separation include opinions, beliefs, values, and attitudes, especially in the context of the team in which one works. Regarding variety, also referred to as diversity, each team member brings new experiences, a different perspective, and varying levels of knowledge and skills. Disparity, alternatively known as disproportion or difference, is an unequal distribution or observable concentration of certain characteristics or resources. It is also referred to as inequality. Maximum disparity occurs when one team member is more important than another, for instance in terms of position within the company (Harrison and Klein, 2007). Figure 2 illustrates the discussed typology of diversity.

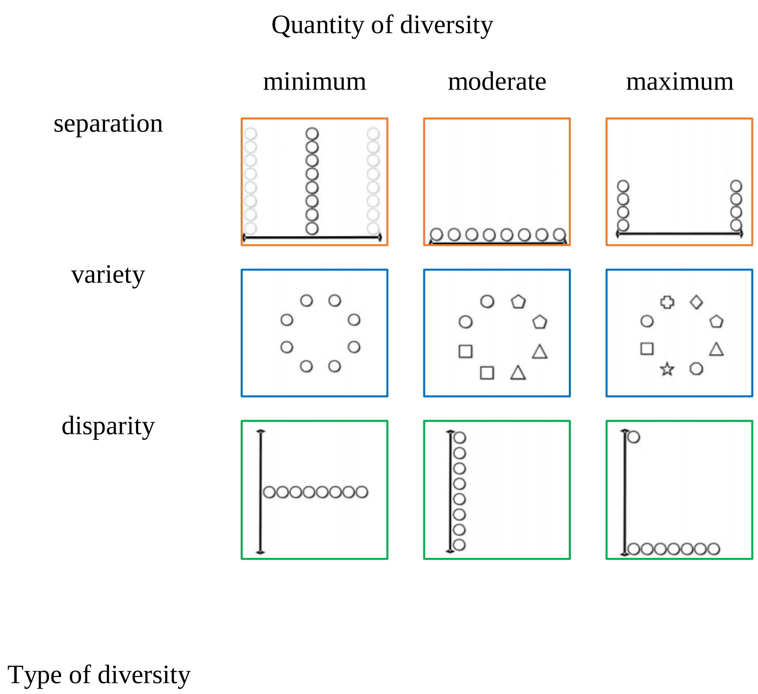


Figure 2. Typology of diversity

Source: Harrison and Klein (2007, s. 1202).

Another way of classifying diversity allows it to be divided into task-related diversity and relationship-oriented diversity. In the case of the former type of diversity, differences are taken into account concerning the level of education of employees, the function performed within the organization, length and type of professional experience. This is also associated with the relevant skills and knowledge of the employees. The second type of diversity considers characteristics such as gender, race, ethnic origin, nationality, and age, as according to the authors of this classification, these variables can influence relationships between employees (Joshi and Roh, 2009; Tasheva and Hillman, 2018).

Informational diversity and diversity in social categories can also be distinguished. According to the former approach, differences exist in the level and scope of knowledge or professional experience. This is otherwise known as functional diversity, related to work. Meanwhile, according to the latter approach, differences can be identified in categories such as race, gender, or ethnic origin. This is otherwise known as demographic diversity, unrelated to work (van Knippenberg et al., 2004; Tasheva and Hillman, 2018).

Diversity can also be defined as a multifaceted construct encompassing three different sources of diversity (human capital, social capital, demographics) at two levels of analysis: individual and team. The first source of diversity, human capital, refers to the knowledge, skills, abilities, and competencies of individual team members. Human capital stems from experience and knowledge gained through the execution of various tasks and roles in different environments. The second source of diversity, social capital, represents actual and potential resources embedded in the network of relationships between individuals and their position in this network. Unlike other forms of capital, social capital is not located within individuals but within their relationships with other individuals or firms and can contribute to greater team and organizational efficiency. Thirdly, demographic attributes such as age, gender, race, ethnic origin, and nationality are taken into account. Many of these characteristics are embedded in the early stages of human development, thus strongly influencing the actions and thinking of individuals and their subsequent functioning within a team. Therefore, it is essential to distinguish between human capital, social capital, and demographic diversity to understand their various consequences for team functioning (Tasheva and Hillman, 2018).

In summary, the concept of diversity itself can be defined in various ways, yet most definitions acknowledge the existence and enhancement of differences among individuals regarding certain characteristics (Carstens and de Kock, 2017), while remembering the existence of both visible and invisible differences simultaneously. Thus, the classification of diversity is also inexhaustive. Difficulties in unambiguously defining the concept of diversity may be related to the existence of numerous theories in the field of social psychology or personnel economics, which in turn form the basis of diversity-related issues.

1.1.2. Theories underlying employee diversity

Theories underlying employee diversity predominantly stem from social psychology or personnel economics, as stated by D.A. Harrison and K.J. Klein (2007). Separation is grounded in theories such as the attraction to similarity theory (Byrne, 1971), social identity theory (Tajfel, 1982), self-categorization theory (Tajfel and Turner, 1979), and the ASA model (Schneider, 1987; Schneider et al., 1995). Sources of variety can be traced back to cybernetic theory (Ashby, 1956) and the VSR model (Campbell, 1969). Regarding the latter division, disparity finds application in J.S. Adams' equity theory (1963), tournament theory (Lazear and Rosen, 1981), and status characteristics theory (Ridgeway, 1991). Below is a brief characterization of these theories in the context of diversity and human resource management.

These theories mostly originate from social psychology, a field of science at the intersection of psychology and sociology that examines how the presence and actions of other individuals influence an individual's psyche. Social psychology investigates how people influence the thinking, emotions, and attitudes of others, both unconsciously and deliberately (Hogg and Terry, 2000; Michinov and Monteil, 2002).

The first theory is the attraction to similarity theory, also known as the similarity attraction effect (Byrne, 1971). This concept, in the context of social psychology and demography, pertains to relationships between people. Individuals with similar interests, social status, or characteristics tend to associate with each other and form groups. In a way, they find it easier to connect and cooperate (Pettigrew, 1998; Michinov and Monteil, 2002; Balkundi et al., 2007; Niszczota, 2015), and they also tend to feel better and safer in each other's company.

The second theory, which forms the basis of separation, is social identity theory. Social identity theory investigates the interdependence between personal and social identity (Tajfel, 1982). Developed from a series of studies conducted by the British social psychologist H. Tajfel in the early 1970s, participants were assigned to groups that were meant to be as autonomous as possible. However, when asked to allocate points to other study participants, they consistently awarded more points to members of their own group than to members of other groups (Tajfel, 1982). Thus, social identity theory suggests that group membership helps people define who they are and determine how they relate to others. Furthermore, belonging to groups perceived as valued or valuable constitutes an important source of positive self-esteem. Therefore, an extremely important defense mechanism and self-esteem booster is the motive of self-favoritism, reinforcing the belief in the value of one's social group and defending it in the eyes of oneself and others. Favoring one's own group reinforces social identity, meaning successes in competition with other groups strengthen the identification of its members with the winning group. The mechanism also works in reverse – a decrease in self-esteem will intensify favoritism towards one's own group while simultaneously devaluing the worth of other groups (Hogg and Terry, 2000; Balkundi et al., 2007). In an organizational or professional environment, demographic characteristics influence an individual's social identity. If organization members share similar demographic characteristics with an individual, it provides an appropriate atmosphere for maintaining the individual's sense of worth and positive identity. However, if a person is dissimilar to the majority of organization members, they may feel uncomfortable, which can result in negative attitudes and behavior (Chan and Wu, 2009). Initially, this theory primarily focused on intergroup conflicts and relations, hence it was originally called the social identity theory of intergroup relations (Hogg and Terry, 2000).

In the context of social identity theory, it's difficult to overlook self--categorization theory. Self-categorization theory, also known as categorization theory, is a theory situated within social psychology that describes the circumstances under which an individual will perceive collections of people (including themselves) as a group (Tajfel and Turner, 1979). This concept was developed by J. Turner and colleagues and, along with social identity theory (Tajfel, 1982), constitutes a component of the social identity approach. Self-categorization (Tajfel and Turner, 1979) is the process in which people define their self--concepts in terms of belonging to social groups. It is primarily a cognitive categorization process, postulating that individuals have a hierarchical structure of self-categorization at personal, group, and organizational levels (Mannix and Neale, 2005; Balkundi et al., 2007). Self-categorization theory suggests that individuals categorize themselves and others into social categories using attributes such as age, race, status, religion, or organizational membership (Billsberry, 2007; Chan and Wu, 2009; Czerw and Czarnota-Bojarska, 2016).

The last concept underlying separation is the attraction-selection-attrition (ASA) model, describing the relationship between an employed individual and the organization employing them (Schneider, 1987; Schneider et al., 1995). Its author, B. Schneider, assumed that theoretical approaches describing people working in organizations and describing the organizations themselves had previously developed separately, creating a gap that hindered the integration and understanding of the relationship between the employee and the employer. The ASA model attempts to fill this gap. It posits that an organization operates to achieve certain goals, from which processes, structure, and organizational culture arise. Interestingly, these elements reflect detailed characteristics or personalities of the company's founders. They determine what kind of people the organization will attract (attraction), which individuals will be selected as employees (selection), and who among them will decide to remain permanently in the organization (attrition) (Chatman et al., 2008; Lynn et al., 2011).

Cybernetics theory, also known as the law of requisite variety, refers to the diversity of employees (Ashby, 1956). According to this cybernetic approach, cybernetics is the science of control, where control refers to exerting desired influence on specific phenomena. The term "desired" used in the above definition necessitates the determination, in each control process, of whose interest it serves. In other words, before a control process occurs, its goal and motivation must be defined (Kossecki, 1975). Diversity is used in cybernetics as an information theory, which can be utilized to create tools facilitating maintaining stability within an organization. The requisite variety of the system is a term proposed by one of the pioneers of cybernetics − psychiatrist W. R. Ashby (1903–1972).

The law of requisite variety states that the greater the diversity of the system, the greater its ability to reduce the complexity of the environment (Zalewska-Turzyńska, 2020).

Another theory in the realm of diversity is the variation-selection-retention (VSR) model (Campbell, 1969). Before discussing this model, it's worth referring to Darwinism. The paradigm of evolution is primarily associated with the work of Ch. Darwin and the theory of natural selection. Darwinism refers to three basic principles: inheritance, differentiation, and selection. This approach has been adapted to economics, where attention is focused on the dynamics and mechanisms of development, with considerations of optimality being beyond the mainstream interest. D.T. Campbell (1969) best explains evolutionary logic, introducing the VSR model in which the differentiation stage involves the multiplication of elements and processes. This means that each employee is different and contributes a unique set of characteristics to the organization. The second stage, selection, leads to success or failure. It's worth emphasizing that the success of the organization isn't discussed in terms of organizational outcomes but rather adaptation, survival, and the organization's best fit to its environment. The final stage, retention, involves retention, meaning organizations are capable of identifying selected resources that increase the likelihood of organizational survival (Campbell, 1960; Campbell, 1969; Stańczyk-Hugiet et al., 2016).

The first theory serving as the basis for further analysis of disparities or differences is J.S. Adams' equity theory (1963). This theory, commonly known as the equity theory (or justice theory), posits that perceived fairness is not a motivator. Rather, individuals are assumed to be driven to cope with cognitive dissonance arising from perceived unequal or inequitable treatment, thereby being motivated to restore internal equilibrium. According to the equity theory, an individual's motivation stems from their satisfaction with what they receive in return for their effort, proportionate to that effort. People assess the fairness of the rewards they receive by comparing them, most often with the rewards of others. When they perceive unfairness, they experience increasing tension, which they attempt to alleviate by modifying their behavior accordingly, such as by reducing their efforts. Thus, an employee may feel that their efforts have been rewarded fairly, too low, or too high (Adams, 1963). This discussed theory is broadly linked with distributive justice (or distributive fairness). In social psychology, distributive justice is defined as the perceived fairness of the distribution of rewards obtained and costs incurred among group members (Adams, 1963; Vardi and Weitz, 2003).

Another theory utilized in discussing disparities or differences is tournament theory (Lazear and Rosen, 1981). Tournament theory is used to describe certain situations in which pay differences are based not on marginal productivity but on relative differences between individuals. This theory was developed by economists E. Lazear and S. Rosen. They proposed tournament theory by analyzing the link between pay and organizational performance. Tournament theory suggests that employees may receive compensation based on their position in the organization, explaining why high salaries are awarded to top-level directors. There are two fundamental predictions of tournament theory. First, the level of effort exerted by an actor increases with the spread between the winning and losing rewards. Second, for both participants, only the difference between the winning and losing rewards matters, not the absolute amount of their winnings (Lazear and Rosen, 1981).

The last theory mentioned by D.A. Harrison and K.J. Klein is status characteristics theory (Ridgeway, 1991). A status characteristic is relevant if it differentiates actors or if actors believe that the characteristic is relevant to performing the task. As a result, actors compare themselves with each other based on the characteristic, determining how the characteristic influences the task performed or the results achieved. The same characteristic (e.g., having a higher education) may benefit an actor in one setting (with a less educated group), have no impact in another (in a group where everyone has a higher education), or result in a disadvantageous situation for the actor in a third setting (in a more educated group) (Ridgeway, 1991; Correll and Ridgeway, 2006).

In summary, the theories outlined in the study presented by D.A. Harrison and K.J. Klein allow for a deeper exploration of the theoretical foundations of diversity and understanding the complexity of this phenomenon. Therefore, analyzing and studying multiple aspects of diversity simultaneously is challenging. In the further discussion, considerations have been narrowed down to employee diversity based on age.

1.2. Definition of employee age diversity

Interest in the age of employees first emerged in studies concerning generations or cohorts. However, a series of critical remarks have been directed towards the analysis of intergenerational differences. In other words, the existence of the so-called generation gap, or the intergenerational difference, has been questioned, with claims that it is more of a myth than a real issue. The lack of robust empirical research on the analysis of popular generational stereotypes has been emphasized, along with the existence of numerous pieces of evidence for alternative explanations of intergenerational differences. Furthermore, it has been noted that the reasons why differences should exist between generations have not been fully explained, and there is no support for the notion that these differences between generations should be mitigated. Moreover, it is suggested that the use of generational ideas as a means of segmenting employees is actually based on stereotypes and may thus lead to discrimination (Waligóra and Austen, 2019).

Further critical voices are directed towards attributing the causes of generational differences to historical events, stretched over time, which influence life experiences and attitudes to varying degrees. Some critics explain generational differences through the stages of life. Life stages represent the universal sequence of human life cycle development (childhood, adolescence, early adulthood, middle adulthood, and aging). It can be suggested that different attitudes, values, and behaviors of individuals may result from the fact that a person is at a different life stage, and thus, they may be mistakenly associated with intergenerational differences by some researchers. Additionally, some research focusing on different generational groups tends to determine fixed characteristics of individual generations at the outset, which may influence the subsequent results. Specifically, the approach to studying generations often begins with defining generations and making initial assumptions. This a priori assumption is very broad and provides a theoretical basis for this specific category of generations. This assumption is often incorrect because these categories are often presented in a simplified manner, assuming a specific set of fixed characteristics. As a result, the differences indicated in the research between generations are often minor, or the characterization of generations has been incorrect. Meanwhile, intergenerational differences should result from the connections between key life events within a given timeframe that influence specific behaviors and attitudes within a generation. If these studies are conducted rigorously, then empirical research results can be distinguished from commonly held simplifications. All studies, both quantitative and qualitative, that consider only a group of individuals at a certain point in time (static studies) are not fully reliable because, among other reasons, they do not allow for the presentation of the causes and effects of the behavior of individual representatives of generations. Additionally, static studies do not allow for the identification of the causes of changes among representatives of different generations. The only way to thoroughly investigate the causes of these changes between generations is to study generational differences using historical data obtained over a longer period (dynamic studies). In summary, only with comprehensive research material can it be determined whether the differences are occurring between generations or whether they result from the process of human maturation and a different approach to certain problems (Waligóra and Austen, 2019).

A predominant challenge in studying generational differences is the prevailing tendency to overlook the influence of national culture. Generations may vary depending on the location, social, economic, and historical events. However, most studies are based on Western, mainly American, cultural and historical contexts, thereby encompassing a somewhat different definition of generations, disregarding the cultural and historical aspects specific to each country. On the other hand, there are works that negate the concept of cultural differences between countries, suggesting the development of “global generations”. This is based on the belief that with the advancement of technology, communication, and globalization, countries should experience similar phenomena worldwide (Waligóra and Austen, 2019).

Research on age and aging does not equate to a generational approach to research. Despite its limitations, research on aging is based on solid theoretical foundations and research projects. Age-related research does not replace generational research. However, research on the age of employees considers a broader context than a generational approach, leading to more useful conclusions for researchers and implications for business practices (Rudolph et al., 2021).

Moving to the crux, age diversity reflects the extent to which age-related characteristics among individuals in a given group are objectively or subjectively perceived as different (Ellwart et al., 2013). S.A. Boehm, F. Kunze, and H. Bruch (2013) propose defining age diversity as differences in the age distribution among employees. This definition avoids classifying employees based on their chronological age, such as young, older, or middle-aged employees. Furthermore, this definitional approach is universal as it applies to all employees, not just selected individuals. Thus, it provides a degree of protection against discriminatory actions towards employees based on their age (Riach, 2009).

However, concerning demographic aspects, age diversity among employees refers to the issue of an increasing number of older workers, greater age diversity among workers in various work teams or projects, and a shortage of workers in the productive age group (Kunze et al., 2013). Diversity is a crucial feature of an aging society, as there is an increase in the feminization of the oldest population, and this trend continues to rise. This may lead to the aging of the entire society if combined with a lengthening life cycle, declining birth rates, a decreasing number of people in young and middle age, and high levels of migration among young people (Phillips and Siu, 2012).

While there are many doubts regarding generational research, studies on age diversity demonstrate numerous benefits in both academic and business realms. Employees diversified by age will exhibit different values, preferences, and levels of work experience. This, in turn, can positively contribute to different problem-solving approaches and the expression of various constructive, often non--standard opinions (Backes-Gellner and Veen, 2009; Ilmakunnas and Ilmakunnas, 2011). Age diversity among employees also pertains to the differently considered issue of employee performance. The performance of younger workers differs from that of older workers. Therefore, age diversity among employees poses a challenge in human resource management to ensure the proper functioning of the company and the timely and effective achievement of its goals.

A crucial method for measuring age diversity among employees is obtaining information about the age of a particular employee or group of employees. However, age is not a straightforward concept. The following categories of age are distinguished (Cleveland and Hanscom, 2017):

- chronological age or calendar age;
- biological age;
- functional age;
- social age;
- physical age;
- subjective age;
- generational age;
- tenure age;
- career age.

The first mentioned type of age, chronological age, also known as calendar age, is a useful tool for measuring the age of employees. Specifically, chronological age allows for determining certain standard behaviors of people occurring at specific moments in their lives, such as the age at which one may have the right to vote; the age at which one may work, or the age at which one may apply for a driver's license. Chronological age is often used in legal aspects to determine the criminal liability of individuals. This measure also indicates when a person is eligible for retirement benefits (Cleveland and Hanscom, 2017).

Biological age refers to the health status of the body's systems, organs, and physical appearance of an individual, which can be compared among peers (Cleveland and Hanscom, 2017). Functional age is also distinguished, indicating the competence and skills of an individual, reflecting the positions held or occupational activities performed at a particular age (Cleveland and Hanscom, 2017). The literature also highlights social age, which encompasses the views of the majority of society members regarding what activities and behaviors individuals of a certain age group should engage in (Cleveland and Hanscom, 2017). Physical age is also mentioned, which determines the body's level of regeneration, strength, and health status of an individual, indicating the biological changes occurring in the body. Subjective age is recognized as an individual's personal perception of how old they feel (Cleveland and Hanscom, 2017).

Generational age, or the period in which an individual is born, and thus can be attributed to a specific generation, is mentioned less frequently. Tenure age, on the other hand, is the number of years an individual has worked for their employer. Career age refers to an individual stage in their professional career (Cleveland and Hanscom, 2017).

In summary, the same individual may have different ages depending on the adopted classification, but chronological age is the most commonly used measure. Studies indicate the coexistence matrix of different age variants for one person, taking into account variables such as gender (Segers et al., 2014). This suggests that age-related issues and changes in individuals continue to be of interest to contemporary researchers.

An alternative perspective on age categorization is provided by two research teams: J. Dikkers, A. de Lange, and B. van der Heijden, as well as D. Kooij et al. (2008). The aging process of employees is best understood as a multidimensional process of biological, functional, psychosocial, and social changes observed over time. The first research team distinguished the following classification of age: chronological age (referring to calendar age), functional age (based on the level of employee performance in carrying out professional duties), psychosocial age (subjective sense of the passage of time and social perception of age), organizational age (relating to the aging of individuals working in organizations in specific positions), and vitality (i.e., behavioral changes observed at any given time) (Dikkers et al., 2017). These different age categories are interconnected. With increasing chronological age, various biological and psychological changes occur, influencing the physical health, mental abilities, cognitive skills, and overall vitality of the employee. All these elements affect subjective age, or the individual's sense of well-being, shaped by the profession the employee is engaged in and the personal environment surrounding them. Daily interactions with both younger and older colleagues can influence the aging processes (Kooij et al., 2008). Based on twenty-four empirical studies, the research team led by D. Kooij conducted a multidimensional conceptualization of the aging process and identified possible age-related indicators. The conceptualization of the aging process is depicted in Figure 3 (Kooij et al., 2008).

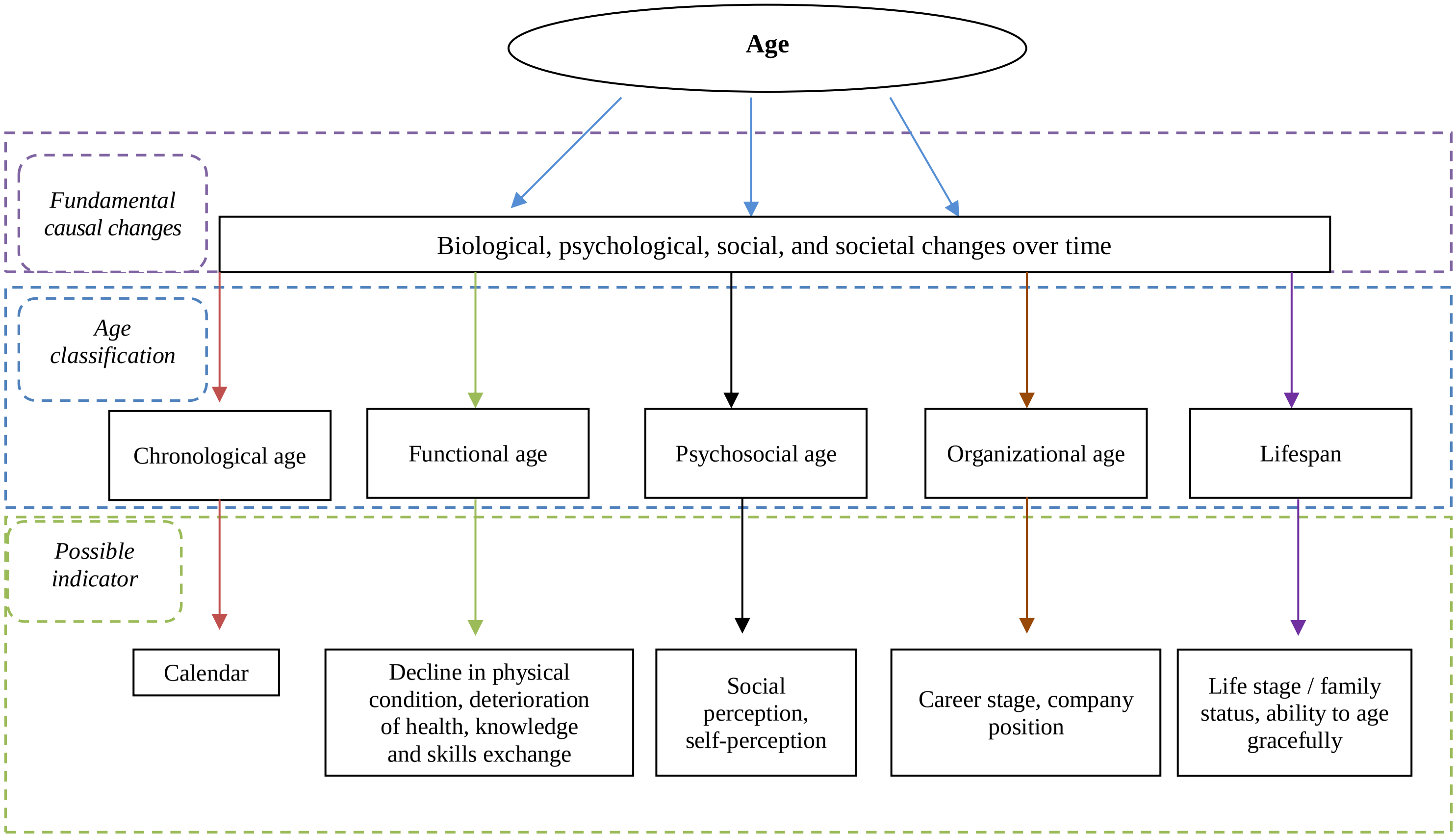


Figure 3. Multidimensional conceptualization of the aging process

Source: Kooij et al. (2008); Dikkers et al. (2017).

In summary, functional, psychosocial, and organizational age are the most relevant for analyzing the attitudes and behaviors of workers of different ages in their workplace.

The literature also points to the existence of aging theories, which help explain the phenomenon of aging. The theory of aging consists of five sub-theories (Baltes et al., 2012), which are:

- biological and stress theories;
- cognitive theory;
- gerontological and psychological theory of aging;
- social and sociological theories;
- theory of socio-emotional selectivity.

Each of these theories focuses on different levels of changes that occur in each person throughout the aging process. It is also worth emphasizing that the aging process is not uniform. Some theories suggest that it is an entirely external process, dependent on the environment. Conversely, according to other theories, aging is consistent with the human organism, constituting an internal process that does not take into account the contribution of the external environment (Cleveland and Hanscom, 2017).

The first theory, biological and stress theory, encompasses three sub--theories: randomness, genetic programming theory, and biodemography and biopsychosocial aspects. The first sub-theory indicated in the biological theory is stochasticity, randomness, or otherwise chance, which refers to DNA damage. These damages can predispose individuals to develop diseases that hinder proper functioning in old age. These health abnormalities may have a genetic basis or be the result of chance. Nevertheless, these diseases can lead to internal and external complications in the human body. In addition to physical complications presented by the biological theory, there are psychological complications addressed more closely by the stress theory. The stress theory pertains to biological damage caused by hormones released during prolonged stress − adrenaline and noradrenaline (catecholamines) and cortisol (glucocorticoid). These hormones affect the nervous and circulatory systems (Cleveland and Hanscom, 2017). The biological and stress theory also distinguishes a sub-category − the theory of genetic programming, which pertains to the genetic setting of the aging plan, e.g., using the telomere clock theory. According to this theory, cells in the body can only function for a certain period, after which they are destroyed (Hayflick, 1994). Another sub-theory within the biological and stress theory, which combines biology and demography, is the theory of biodemography and biopsychosociality. This theory relates to the interpretation of aging indicators of the studied population in relation to the population of the entire country, city, or organization. Within this approach, research is conducted to verify the causes of changes occurring in these populations and analyze the pace and variability of the aging process (Cleveland and Hanscom, 2017). Thanks to these studies, scientists can identify groups of individuals who are most vulnerable to the negative effects of the aging process and suggest some solutions to counteract it, e.g., implementing a proper diet, reducing stress levels, changing the living environment. According to this theory of aging – the biological and stress theory – there is no single cause of aging. Causes may include biological factors (stress, immune system infections), psychological factors (e.g., sensitivity level, personality, mental health, needs, and attitudes), as well as social aspects (e.g., surrounding environment, economic situation) (Cleveland and Hanscom, 2017).

The second theory within the theories of aging is the cognitive theory, indicating the existence of a relationship between age and intelligence (Baltes et al., 2012). Developed by J. Horn and L. Stankov (1982), the two-factor theory of intelligence, belonging to the group of cognitive theories, identifies the existence of fluid and crystallized intelligence. Fluid intelligence is determined by biological and genetic factors and is synonymous with innate intelligence, i.e., unlearned intelligence. This type of intelligence refers to the speed of mental processes, frequency, as well as the quality of nerve impulse transmission in neurons. The second type of intelligence, crystallized intelligence, is associated with learned experience and acquired individual skills. This type of intelligence somewhat correlates with fluid intelligence. Unlike fluid intelligence, crystallized intelligence undergoes changes even after reaching adulthood (Cleveland and Hanscom, 2017). Research findings on the aging process indicate that crystallized intelligence increases with age, but around the age of sixty, it begins to decline. Consequently, unlearned processes, such as memorization, deteriorate. This is also associated with a slower information processing rate in older individuals (Baltes et al., 2012).

The gerontological and psychological theory of aging pertains to the examination of the aging process in individuals from a psychological perspective and is associated with sub-disciplines such as clinical psychology, physiological psychology, cognitive psychology, and social psychology. This theory employs a lifespan perspective on aging, distinguishing between normal aging, pathological aging, and successful aging (Friedrich, 2001). P.B. Baltes and J. Smith (1999) divided the lifespan, creating the so-called third age, referring to younger adults (individuals aged 60-80), and the fourth age, referring to older adults (individuals aged 80 and above). Interestingly, studies indicate that the fourth age of life is characterized by a significant increase in the number of individuals due to the lengthening life cycle and the demographic shift towards an aging population (Baltes and Smith, 1999).

It is worth clarifying the concept of successful aging mentioned earlier. As previously stated, the literature discusses the concept of successful aging (Rowe and Kahn, 1997; Hales and Riach, 2017), which denotes a low level of illness, high functional ability, and active engagement in life. Physical activity is considered an important aspect of good physical and mental health, contributing to functional capacity. According to the definition provided by J.W. Rowe and R.L. Kahn (1997), a successful, happy older person is one who is not ill, not disabled, and is active. Only a small percentage of older individuals age successfully (Rowe and Kahn, 1997; Hales and Riach, 2017). This explanation has sparked much controversy among other gerontologists (Cosco et al., 2013). According to research on cognitive and emotional aging conducted by D.V. Jeste, C.A. Depp, and I.V. Vahia (2010), the average percentage of individuals meeting the criteria for successful aging is 35%, as confirmed by other studies (Berkman et al., 1997). Furthermore, studies have indicated that individuals with poor physical health may still remain engaged in work despite their older age (Weir et al., 2010).

It is important to note that elements reinforcing positive aging are not only objective and functional criteria but also subjective criteria related to psychosocial components. These objective and subjective elements may occur independently (Dikkers et al., 2017). Moreover, there is an increasing recognition of older individuals who proactively respond to real challenges instead of passively adapting to environmental stimuli. The concept of active aging, successful aging, or positive aging is consistent with the concept of a sustainable career (de Vos and van der Heijden, 2015). Active aging is related to physical, cognitive, psychological, and social factors and is expressed in maintaining activity or avoiding passivity. This means having the ability to respond to challenges, despite the increasing experience with age and decreased vitality-related activity. Older individuals do not always have control over maintaining their active aging process because the loss of social support can lead to further psychological and functional problems (Bowling, 2007). From a practical standpoint, factors related to age, such as deterioration of health, should be reflected in the human resource management system. Examples of actions in this regard may include adapting the job position according to ergonomic principles or conducting free health screenings provided by the employer (Kooij et al., 2008; Hales and Riach, 2017). This section provides a broader overview of these supportive actions for employees in their work, elaborated further in the subsequent chapter of the monograph.

Returning to the theories of aging, another group of theories pertains to social and sociological theories of age – focusing on how people change with age and interact with the social environment. These theories address the workplace and interpersonal relationships. Within this framework, two theories stand out: the disengagement theory and the activity theory. The disengagement theory suggests that at a certain age, individuals withdraw from society. This process may be initiated by workplace situations where, upon retirement, individuals involuntarily or voluntarily withdraw from the professional environment (Cumming and Henry, 1961). Conversely, the activity theory emerged as a response to the disengagement theory, regarding individuals who continue to participate in social life, engage, and fulfill social roles despite aging. In this case, the higher the level of occupational and social activity, the greater the impact on life satisfaction (Cleveland and Hanscom, 2017).

The last theory concerning age is the theory of socio-emotional selectivity, which relates to setting different priorities based on the current stage of life. According to this theory, individuals in mature age prioritize current affairs and relationships with close surroundings, while younger people often focus on investing in relationships with individuals who can support them in the future, as well as material goods. Different life stages indicate different life goals, motivations, and priorities (Carstensen, 1995; Drabe, Hauff and Richter, 2015; Cleveland and Hanscom, 2017).

Furthermore, literature also presents the theory of selection, optimization, and compensation (Baltes and Smith, 1999). This theory addresses how older individuals cope with age-related reduction in internal and external resources, such as cognitive abilities, physical strength, and social support. In the process of successful aging, the aim is to maximize gains, i.e., desirable goals, and minimize losses. To achieve these goals, three strategies are employed: goal selection, optimization of means to achieve the goal, and compensation through alternative means. Different goals achievable with age are identified (e.g., focus on work quality), different means are used to achieve them (e.g., flexible working hours), and in case of certain difficulties, compensation is made (e.g., special employee healthcare measures) (Baltes and Smith, 1999; Drabe et al., 2015).

Lastly, attention should be drawn to the theory of lifespan control and development (Heckhausen and Schulz, 1995). This concept proposes that individuals exercise two types of control during their lives. Primary control refers to processes aimed at changing the environment to, for example, adapt the work environment according to one's own wishes or needs. Secondary control, on the other hand, involves the process of changing oneself to adapt to external factors. It turns out that an individual's ability to exercise effective primary control decreases with age, requiring older individuals to invest more effort in adapting to external factors to continue functioning in the environment and continue to develop (Heckhausen and Schulz, 1995; Drabe et al., 2015).

In conclusion, although chronological age typically underlies the understanding of age diversity among workers, various theories of age exist, perceiving the attribute of time and human metrics differently. Social and sociological theory and the theory of socio-emotional selectivity are particularly focused on social interactions among workers of different ages in a single workplace.

1.3. Characterization of age-diverse workforce groups

As presented above, the division of employees by age is significant from the perspective of workforce diversity. However, an important aspect that systematizes these issues to some extent is the division into younger and older employees. Here, generational categorization becomes relevant, as despite considerable criticism (Racolța-Paina and Mădularu, 2022), it provides a framework for distinguishing between younger and older workers.

According to literature, generational shifts occur roughly every twenty years (Ziatdinov and Cilliers, 2021). Following this chronology, the youngest currently living generation is Generation Alpha, comprising individuals born between 2010 and 2024. The slightly older generation is Generation Z, consisting of individuals born between 1995 and 2009; it can be assumed that the oldest members of this generation might already have entered the workforce. The subsequent generation is Generation Y, encompassing individuals born between 1981 and 1994. Preceding the current generations is Generation X, whose members were born between 1965 and 1980. Individuals born between 1946 and 1964 belong to the Baby Boomers Generation (Toro et al., 2019). However, depending on the country and the retirement system in place, most members of the Baby Boomers Generation are no longer active in the workforce and are instead retired. Currently, the most active workers are from Generation X and Y, and they will gradually pass on their positions to individuals from Generations Z and Alpha (Bozak, 2021). Accordingly, Generation X and the remaining active workforce from the Baby Boomers Generation are further described as older individuals, and thus, they are also richer in experience and expertise. On the other side are individuals from Generation Y and the small portion of Generation Z who have already begun their careers. Justification for such categorization also lies in the existence of "hybrid generations" effect. This term refers to individuals born in the transitional period between two generations and possessing characteristics of both. Therefore, this group of individuals may have a particular advantage in mitigating intergenerational conflicts due to their ability to relate to both generations (Waligóra and Austen, 2019). The oldest representatives of

Generation Z and the youngest representatives of the Baby Boomers Generation can be classified as part of the hybrid generation.

The first group of workers discussed here comprises young individuals who already possess some professional experience and acquired skills (Howe and Strauss, 2000). Young workers are often depicted as facing an uncertain future regarding stable employment, with increasing levels of individual financial debt and a lack of adequate parental relationships during childhood (a result of inadequate upbringing) (Ng et al., 2017). They encounter significant difficulties in launching their careers compared to their parents (Lyons and Kuron, 2014). Numerous studies indicate that young workers have aspirations and expectations that are inconsistent with the realities of the current job market (Carnevale et al., 2013). They have experienced a lenient and stress-free upbringing, along with excessive parental care during their upbringing process (Ng et al., 2017). The parents of these young individuals are often focused on work and providing their children with material goods. Moreover, they excessively fostered their children’s self-esteem (Jamka, 2011; Czyczerska et al., 2020). As a result, young workers have developed optimistic views regarding their future and high expectations of others rather than themselves. This group highly values pursuing their passions and striving to fulfill their dreams, sometimes at any cost (Ng et al., 2017). Despite attaining a high level of education and advanced technological skills, they struggle with unemployment (Ng et al., 2017). This may stem from their higher expectations regarding their career and future (Ng et al., 2010; Ng et al., 2017), which often do not align with their job performance (Burke and Ng, 2006). Another factor influencing young workers is globalization, the possibility of migration and working anywhere globally, and the ubiquitous internet, which provides access to a wealth of information and distractions (Lancaster and Stillman, 2002). Current globalization and the blurring of certain boundaries have led young workers to expect quick feedback, respect, equality among all colleagues, social interactions, opportunities for rapid change implementation, work-life balance, flexible working hours, and forms of employment (Zemke et al., 2000; Lancaster and Stillman, 2002; Johnson and Johnson, 2010). Consequently, young workers expect a mobile job market and flexible forms of employment. This contributes to decreased employment stability, as organizations constantly seek to reduce labor costs, improve technology through outsourcing, or implement flexible forms of employment. Individual workers are thus compelled to take on more risks while actively seeking advancement and career development (Ng et al., 2017). These actions result in young workers frequently changing jobs (Lyons et al., 2012). Young workers indicate a different set of values compared to older workers. According to younger workers, the value of work lies in having free time away from work, time when they are not at the employer's disposal, as well as additional rewards (e.g., monetary bonuses, social status) (Jamka, 2011; Czyczerska et al., 2020). Furthermore, the nature and curiosity of the work performed are important to them (Twenge, 2010; Twenge and Campbell, 2012). Younger workers pay less attention to altruistic behaviors at work, such as helping others or caring for others (Twenge and Campbell, 2012). This contradicts the observation that young people solve world problems and engage in various social activities related to animal or ecosystem protection. Subject literature suggests that young workers are less engaged in social relationships such as forming friendships compared to older workers who did not have as many opportunities to build networks (e.g., due to less prevalence of social media). Building interpersonal relationships in the environment in which they operated was very important for older workers (Twenge, 2010). It is argued that young workers lack social and interpersonal skills necessary for job seeking and retention (Ng et al., 2010; Ng et al., 2017). This group of workers also exhibits a low level of independence in making professional decisions, stemming from a lack of life independence. The antecedents of this lack of life independence can be attributed to an extended period of living with parents, late marriage, and postponing decisions related to starting a family (Ng et al., 2017). A challenge for the younger generation is accepting their subordinate position in existing organizational hierarchies. Most young workers are interested in entrepreneurship and starting their own businesses, which is surprising because they struggle with making independent decisions, yet it should not be surprising since entrepreneurship allows them to work independently, on their own terms, and according to their own work rhythm (Ng et al., 2017). As indicated earlier, this group of workers is open to new job markets, willingly works abroad, and works in culturally and ethnically diverse teams (Chagnon, 2013). Young workers working abroad often oversee an entire department in an international company, thereby developing their managerial predispositions. Increasingly, young workers are open to working in places like India or China, indicating their interest not only in regions within a particular culture or continent, but practically having no boundaries when it comes to choosing a workplace. Interestingly, P. Taylor (2014) points out that young workers who eventually return home strive to maintain a close relationship with their families, indicating that family aspect is still important to them. However, it is challenging to build a close relationship with the family while working in various locations worldwide, which is a challenge for these workers. Discrimination in the labor market within ethnically diverse teams remains a significant issue for young workers. Immigrants, despite their high education and broad competencies, face difficulties in obtaining attractive job positions and furthering their career paths abroad (Haq and Ng, 2010). This leads to the underutilization of valuable human resources, often in developing countries. Employers must also adapt the development path of these individuals to their predispositions related, for example, to soft skills, considering that workers now avoid interpersonal interactions and focus more on electronic communication (Twenge, 2006). Currently, it is also indicated that the group of young workers is the most stressed generation in history (American Psychological Association, 2012). This group of workers is heavily burdened psychologically. Factors affecting their mental well-being include difficulties in interpersonal communication, career expectations, family expectations, prolonged and exhausting education, mobility, foreign trips, lack of stable employment, a constant sense of needing to enhance their skills, the need to build close relationships with their families, which they often did not experience themselves, high financial demands, and the need for leisure time. Therefore, being a young worker poses significant challenges for the worker, employer, and colleagues alike. Below is a completely different situation for older workers.

In the case of older workers, similarly to younger workers, there is an issue with defining this group. It is not universally recognized when a worker can be considered older. In some studies, older workers are individuals above 50 years of age (Daniel and Heywood, 2007; Liwiński and Sztanderska, 2010). This age is also considered a threshold at which job seekers may require greater support to secure employment in the labor market. The age-based division of workers is problematic, often controversial, and varies between countries: in the USA, a worker over 40 years old is considered older, whereas in European Union countries, an older person is someone over 45 years old (Truxillo et al., 2017). This boundary is not fixed and continuously shifts – in other countries, it has already shifted to 50–55 years of age. According to the Organisation for Economic Co-operation and Development (OECD), a mature worker is someone aged 55 and above (Appannah and Biggs, 2015). The answer to the question of who is considered an older worker is complex and depends on many factors, including norms for a specific profession, psycho-physical abilities, career plans, or the time remaining until retirement age, depending on the social policy of a given country (Truxillo et al., 2017). Due to the interpretational diversity, for the purposes of this study, it is assumed that older individuals include those from Generation X, as one of the most currently active professionally (Bozak, 2021), and the remaining professionally active group of Baby Boomers. However, it is worth noting that the age structure of workers is changing and dynamic. It is estimated that by 2050, individuals over 60 years of age will constitute 21.10% of the world's population. Through a combination of factors such as population aging, increasing retirement age in individual countries, lower retirement benefits, economic slowdown, increased vitality of seniors, changes in employment structure, and a growing sense of belonging to organizations, workers, despite their mature age, will remain active in the labor market for as long as possible (Liwiński and Sztanderska, 2010; Hammond et al., 2017).

However, employers perceive a certain threat in this trend. Older workers are seen as less inclined to change attitudes and behaviors, less inclined to further development and participation in training (Ng and Feldman, 2012b; Liwiński and Sztanderska, 2010). Individuals age in a specific, selective way, narrowing their social contacts to devote more time and energy to interactions with specific, close individuals. This means that as individuals age, the scope of their social interactions decreases, but their intensity is stronger, according to the Socioemotional Selectivity Theory by L. Carstensen (Carstensen et al., 1999). This theory also reflects workers' approach to priorities. Older workers view priorities as emotionally significant goals, whereas younger workers establish priorities instrumentally and based on their still limited knowledge (Ng and Feldman, 2010). There is also a negative relationship between age and external motivation and a positive relationship between age and internal motivation. This means that the older the workers, the more their work motivation stems from their internal needs and less from external stimuli (Hammond et al., 2017). Older workers focus on actions that will be remembered, thus they are persistent in their actions, and their work is characterized by high quality and diligence (Jamka, 2011; Czyczerska et al., 2020). Younger individuals may be motivated by factors such as career development or short-term achievements, while older workers are encouraged by the possibility of achieving something groundbreaking and exceptional (Jamka, 2011; Czyczerska et al., 2020). Through this attitude, older workers, when supervising younger workers, require perseverance and high quality of work from them, which often meets resistance or fear from young individuals (Zacher et al., 2011). Older workers are characterized by calmness and composure in their work. They also appreciate the abilities of other workers. Not only do they focus on diligent long-term work, but they are also characterized by formal and authentic authority (Hammond et al., 2017; de Saint Priest et al., 2024). Table 2 provides a collective, comparative summary of the characteristics of younger and older workers based on employers' opinions.

Table 2. Comparison of characteristics of younger and older workers based on employers' opinions

Characteristic	Young workers	Older workers
1	*2*	*3*
Work approach	− they don't take work seriously − they are often late − they lack respect for work − they spend a lot of time on the internet and on phone calls at the expense of work	− they don't underestimate work − they are more reliable and precise − they approach work conscientiously and responsibly
Strategic approach to work	− they know the job market and believe they can easily find another job − they treat work as temporary, not as their ultimate goal − they quickly resign from work and look for a new job − there is a greater risk that they will move abroad and start their professional career there	− they appreciate having a job, even if they don't like it − they know they won't make a career anymore, so they need stability to reach retirement age − they are more loyal and committed to their work and employer − lack of career focus, rather a need for conscientious and accurate performance of their duties
Professional experience	− they have less professional experience	− they have experience derived from years of work − professional experience (long-term career practice) − life experience − the ability to adapt to various work conditions, different environments, and human teams
Education	− they have better education − they speak foreign languages and operate advanced computer programs	− they are less educated, stemming from limited educational opportunities in previous years − they are less likely to speak foreign languages or operate advanced computer programs
Openness to innovation	− learn and upskill more willingly and easily − are more open to innovations and new technologies	− they are discouraged and reluctant to learn − sometimes things need to be explained to them multiple times − they fear change and novelty − they have decreasing adaptability to novelty − they work based on certain acquired routines developed over years of work − they are not adapted to modern technology and work organization
Physical condition	− they are healthier, more resilient, stronger − they are irreplaceable in physical work	− have health problems, their absence is often prolonged − possible loss of physical strength (physical workers), decrease in intellectual efficiency
Engagement	− do not show high commitment	− are more engaged in company affairs and their work − are more connected to the company, have more knowledge about it, and understand it better
Communication	− find it easier to establish contacts − are more communicative and representative	− struggle with communicativeness as they require clear communication and precise feedback − have weaker soft skills − are not open-minded

Table 2 cont.

1	*2*	*3*
		– perform less effectively in customer interactions because they emphasize substantive knowledge rather than maintaining interaction with the customer
Work pace	– think quickly, work quickly	– work at a slower pace – work at their own pace and with their practiced techniques
Creativity	– are eager to work, enthusiastic – show more initiative – are more creative, they are the first to propose initiatives	– are less creative – feel that the limit of ideas has been exhausted – rational thinking limits the number of ideas they can generate – are professionally burnt out – exhibit limited mobility and creativity
Devotion to work	– have other obligations outside of work (family, children)	– are predictable; their actions in specific situations are known – are stable both personally and professionally – are more composed, calm, and humble, not displaying their emotions outwardly – are more available

Source: Developed based on: Carstensen et al. (1999); Twenge (2006); Liwiński and Sztanderska (2010); Ng and Feldman (2010); Jamka (2011); Zacher et al. (2011); Kliombka-Jarzyna et al. (2016); Czyczerska et al. (2020); de Saint Priest et al. (2024).

The presented comparison of two significant groups of workers in the labor market highlights the complexity of diversity in terms of age, especially in cultural and territorial contexts. Furthermore, this area is challenging due to the lack of definitional agreements. Nevertheless, the comparison of characteristics of both groups illustrates how much their representatives contribute to organizations and how different they are from each other. The role of organizations and HR specialists is to ensure full engagement in work for both younger and older employees. Specifically, skillful implementation of age-diversity management is crucial in this regard.

1.4. Age diversity management

The management of diversity traces its origins back to the United States, where the emphasis was primarily on equal treatment during the hiring process. In Australia, the concept of equal opportunities was initially applied to counteract discriminatory behaviors and to rectify them. However, it was only used as a legal justification in response to allegations of discrimination in legal proceedings (D'Netto et al., 2013). It was later that diversity management was linked with HR processes. It was suggested that diversity management should extend beyond equality and fairness to encompass the appreciation of personal differences (D'Netto et al., 2013). Building on these arguments presented in the literature, J. Shen and colleagues (2009) developed a definitional approach to HR diversity management in two dimensions: firstly, to achieve equality by complying with equal opportunity regulations, and secondly, to appreciate and enhance diversity, especially the type of diversity that is most often overlooked or inadequately represented, such as racial minorities. Equal opportunities, even during the hiring process, are already accepted outside the organization through the creation of appropriate legal acts binding nationwide. However, diversity management begins within the organization − by striving to create an atmosphere of equality and fully integrating organizational culture at work. Diversity management leverages the growing cultural pluralism resulting from the internationalization of business, the development of global markets, the increase in workforce mobility, and the growing awareness of individual differences. Currently, it is suggested that diversity management can bring many benefits to organizations not only in institutional and economic dimensions but also in social ones because it emphasizes the importance of the individual and defines ways of behaving in the work environment (Egan and Bendick, 2008). These benefits are achieved by linking diversity to key areas of human resource management (Shen et al., 2009). In other words, effective HR diversity management not only minimizes the negative impact of diversity but also helps organizations reap the benefits of diversity (D'Netto et al., 2013).

The contemporary discourse on generational differences in attitudes and needs towards work among the Baby Boomers, Generation X, Y, and Z (Chester, 2006) clearly indicates the necessity for changes in the approach to traditional employee management concepts − from a resource-based (instrumental) approach to an individualized (subjective) one. The challenge becomes managing age in a way that maintains the employment of workers with necessary knowledge, qualifications, and desired work attitudes, while facilitating the development of all employees, regardless of age (Sołtys, 2013). According to other researchers, age management is described as a method of organizational management that considers the age diversity of employees. The organization aims to leverage this diversity as an advantage, benefiting both employees and the company. In a more specific context, age management involves implementing practices that are supportive of mature workers, generally those over the age of 50 (Schimanek et al., 2014; Wziątek-Staśko, 2015). Comprehensive age management is based on an individualized approach to employee needs, a non-instrumental treatment of organizational human resources, and integrated action in organizational and human resource management. As researchers highlight, it is also a necessary condition for achieving sustainable and effective business operations (Sułkowski, 2001).

In comprehensive diversity management, including age diversity, HR practices frequently discussed in the literature (Casey et al., 1993; European Commission, 2006; Irni, 2009; Boehm et al., 2013, Zélity, 2023) can be helpful. Other elements of diversity management in the organization can also be identified in this context: philosophy, policies, programs, practices, and diversity climate (Kulik, 2014). The most abstract component, namely philosophy or diversity paradigm, focuses on the values, beliefs, and norms regarding diversity management. It is suggested that the organization's approach to diversity management is based on four different paradigms: discrimination and justice, access and legality, integration and learning, and resistance (Kulik, 2014). These paradigms represent normative beliefs of the organization and expectations regarding employee diversity and its role within the organization.

Another element mentioned above in the diversity management system is diversity policies. These include organizational goals or human resource management goals. Diversity programs, on the other hand, consist of formally developed sets of diversity actions conducted within the organization. Diversity practices involve the implementation and experience of diversity programs in the organization by managers and lower-level employees. The last element in the discussed structure is diversity climate, which refers to the collective perception of diversity-related actions and their interpretation by employees (Kulik, 2014). There are certain dependencies between these elements of the diversity management system. From the perspective of the entire organization, the organization's diversity paradigm directs its diversity policy, which relates to the organization's goals or tasks in managing diversity. The organization's diversity paradigm and diversity policy are then collectively developed in the form of diversity programs. These can be individual activities (e.g., diversity training) or a package of actions (e.g., recruitment, training, and benefits aimed at attracting and retaining employees). Organizations may use different sets of tools, called packages, to implement the same action. Diversity practices then reflect the organization's diversity management programs, as they are perceived by both managers and employees within the organization. Finally, diversity climate is the collective impression at the individual level of the extent to which the organization values diversity based on its paradigm, policy, and implemented programs (Kulik, 2014).

Taking into account all these elements contributes to the accuracy and reliability of research because it considers both organizational and employee perspectives. Information regarding paradigms, policies, and programs can be obtained from organization managers or by reviewing documents created by managers (e.g., annual reports, websites, or other organizational materials). However, information about practices and diversity climate management researchers must obtain from employees. In other words, practices and diversity climate are examined by analyzing employees' opinions, who react to these paradigms, policies, and programs. The boundary between programs and practices is a gap between theoretical analysis and empirical research. In other words, it is a transitional point where diversity programs implemented by organizations are transformed into diversity practices experienced by employees. This gap, appropriately examined, considering the organization and employee aspects, will provide managers with valuable insights into how programs can be developed and improved (Kulik, 2014).

In scientific research, researchers strive to thoroughly examine elements of the diversity management system because it finds its business justification. Research on the business benefits of diversity management largely focuses on potential costs and benefits achieved by organizations seeking to enhance employee diversity (Jamali and Dirani, 2014; Zélity, 2023). Most scholars in their publications indicate that organizational performance improves through the implementation of diversity-supporting actions. Otherwise, short-term negative effects may occur, evident in company results (e.g., higher absenteeism, lower profitability, lower job satisfaction) (Pérotin and Robinson, 2000). Based on a review of publications conducted by T.H. Cox and S. Blake (1991), six main business benefits of diversity management in the workplace can be distinguished.

The first argument in favor of supporting diversity is the cost argument, according to which the cost associated with the lack of implemented equality − or diversity − policy will increase over time. The next argument is the human resource acquisition argument. In other words, diversity management will positively affect the company's reputation as a potential employer and may therefore attract highly valuable employees. Another aspect concerns marketing. The actions of multinational corporations involving the employment of employees from other countries, for example, will elicit positive reactions, which may translate into a better company image. One cannot forget about aspects related to creativity. In a diverse team of employees, it is natural for different perspectives to emerge, creating new ways of doing things, detached from adherence to old rules. Equally important is the argument regarding problem-solving abilities. The existence of diversity in employee groups can help make better decisions and solve problems by considering multiple perspectives and viewpoints on a given problem. The last argument emphasizing the importance of diversity in an organization is the flexibility argument. The mode of operation becomes less standard, routine, and schematic, gaining greater flexibility, allowing for quick and efficient responses to changes in the environment (Cox and Blake, 1991).

The aforementioned business benefits of diversity are confirmed by many authors (e.g., Subeliani and Tsogas, 2005; Gross-Gołacka, 2016). It is emphasized that greater diversity can lead to better understanding of local markets and customers, attracting and retaining the best employees, problem-solving, and greater flexibility in companies. Statements have also been made that diversity policies have enabled the hiring and retention of the most talented employees, improved productivity, efficiency, and creativity in the company, strengthened staff trust, increased job satisfaction and employee engagement, improved relationships with customers and suppliers, and created a positive company image (Özbilgin and Tatli, 2011).

Several studies have discussed the levels of diversity in teams and concluded that different types of diversity can have varying effects on group outcomes. D.A. Harrison and K.J. Klein (2007) demonstrated that in organizations, diverse groups often fail to realize the benefits of diverse knowledge, information, and ideas. Inherent features of such groups also include diverse values, attitudes, and orientations (Harrison and Klein, 2007). This thesis underscores the importance of context − the analysis of business benefits derived from diversity depends on the context of the labor market, organizational competitive strategies, and (in the case of teamwork or group work) the actions of team leaders or coordinators. Similar views are presented by M. Özbilgin and A. Tatli (2011) and T. Kochan and colleagues (2003), who argue that it cannot be said that diversity has a beneficial impact on effectiveness regardless of circumstances. According to them, context potentially plays a fundamental role in determining the impact of diversity on company outcomes. Assuming that the degree of supported diversity depends on the organization, several diversity management perspectives can be considered depending on the organization. For example, N. Jewson and D. Mason (1986) discussed two approaches. The liberal approach concerns ensuring a fair and equal system for developing individual talents, removing all barriers. The radical approach, on the other hand, is based on the assumption that organizations must intervene to support groups in disadvantaged situations and thus provide them with equal opportunities (Jewson and Mason, 1986). D.A. Thomas and R.J. Ely (1996) noted three perspectives. The discrimination and justice perspective includes the elimination of discrimination and ensuring fairness and equality. The access and legitimacy perspective regards diversity as a means to gain access to different markets and legitimacy in them. The integrative and educational diversity perspective, also known as the learning and effectiveness paradigm, encompasses aspects of the first two paradigms but goes beyond them, specifically by combining diversity with an approach to work (Thomas and Ely, 1996). Other researchers have considered two other perspectives. The equal opportunities perspective is based on compliance with the law and focuses on specific groups. The diversity management perspective is based on diversity values and includes a proactive and integrative approach to diversity (Greene and Kirton, 2010). D.J. Dwertmann, L.H. Nishii, and D. van Knippenerg (2016) also identified two perspectives. The fairness and discrimination perspective focuses on efforts to ensure justice and non-discrimination. The synergy perspective, on the other hand, refers to actively appreciating differences between individuals and integrating different views to enhance collective outcomes, especially those related to learning (Dwertmann et al., 2016). Due to these different perspectives, it is important to understand the current approach of the organization and management to diversity. Managers should understand the perspective in which they operate and consider whether they need to change the diversity programs they implement, and if so, how they can make this change.

Understanding the perspective of how organizations function will allow for more effective implementation of the appropriate set of diversity management tools. It is extremely difficult to manage all types of diversity simultaneously. It is worth focusing on one of its aspects − this could be diversity of employees based on age. Practices and programs focused on the age diversity of employees offered by an organization can generate employees' beliefs that the organization supports a diverse workforce. In return, employees may demonstrate trust, loyalty, and dedication to the organization (Ali and French, 2019). These actions lead to the organization achieving better results in all three areas of activity: human resource management, financial results, and social responsibility (Ali and French, 2019; Zélity, 2023). The next chapter of the paper is dedicated to strengthening actions that support age diversity. Specifically, attention has been focused on HR practices that promote diversity of employees based on age and on creating a climate that supports age diversity of employees in the workplace.

Chapter 2

ANTECEDENTS OF AGE DIVERSITY AMONG EMPLOYEES

The concept of antecedents refers to circumstances preceding a certain fact, essential for understanding it and ensuring its further proper functioning. It represents a sort of genesis of a phenomenon or process (Akoorie, 2011) or a way of determining the source or origin of a given phenomenon (Henttonen et al., 2010; Akoorie, 2011). Antecedents are perceived as important conditions for development because to effectively manage a process, it is necessary to understand its beginning (Ko et al., 2011). They can also be understood as precursors of certain events. Therefore, the issue of antecedents focuses on understanding the process of the emergence of a given phenomenon. This implies the need to investigate the conditions, determinants, factors, mechanisms, and processes leading to the formation of this phenomenon (Czakon et al., 2020).

As indicated by the literature review, age diversity is typically treated as an independent variable. Consequently, antecedents of age diversity among employees are rarely discussed in the literature (Konrad et al., 2016). To understand how age diversity among employees should be shaped in organizations, its determinants need to be identified (Kossek et al., 2003). The literature analysis on this topic suggests that HR practices conducive to such diversity (Shen et al., 2009) and a climate supporting age diversity among employees in the workplace (Wegge et al., 2012) may serve as antecedents of age diversity among employees. Climate and workplace practices are often considered at the individual level (Bowen and Ostroff, 2004). Therefore, the research presented in this paper focuses on the organizational context of the antecedents of the analyzed variables. This chapter aims to elucidate the antecedents of age diversity.

2.1. Human resources (HR) practices conducive to age diversity among employees – a definitional approach

One way to increase age diversity among employees is through the implementation of human resources (HR) practices conducive to this. However, HR practices are part of a larger whole. The HR system consists of five levels: principles, policies, programs, practices, and climate (Li et al., 2019). Organizations have values and beliefs that guide their personnel actions, which are principles. Organizations establish goals to be achieved through appropriate HR actions, which are policies. Organizations adopt formal HR actions (programs) to achieve their goals and tasks. Meanwhile, employees' experiences or perceptions depend on whether and how programs are implemented by lower-level managers (practices) (Li et al., 2019). This approach is consistent with C.T. Kulik's 2014 model, which distinguished the following elements of diversity management system in an organization: diversity paradigm, policies, programs, practices, and diversity climate (Kulik, 2014). A different classification was made by D.P. Lepak, J.A. Marrone, and R. Takeuchi (2004), who placed elements such as HR architecture and philosophy at the highest organizational level. The second, narrower scope includes HR policies and programs together. HR practices and processes are implemented at the employee level (Lepak et al., 2004).

Knowing where HR practices are located in the HR system, an attempt can be made to define what these practices are. HR practices supporting employee diversity are a set of distinctive actions, functions, and processes aimed at attracting, managing, and retaining organizational human resources (Boselie et al., 2005). It is widely recognized that key diversity management practices include recruitment and selection, training and development, performance management, and compensation (Shen et al., 2009).

Researchers have classified human resource management practices according to the needs and goals of employees. It is important to note that this classification does not consider individual HR practices but rather HR practice bundles. An HR practice bundle is a set of interrelated and internally consistent HR practices built around organizational logic. Advocates of HR bundles argue that a series of internally consistent HR practices creates a reinforcing effect or synergy effect that maximizes organizational outcomes and improves its market position (Richard et al., 2013). The following HR bundles are distinguished:

- a bundle of developmental HR practices, which are associated with increasing employees' competencies and helping individual employees achieve higher levels of functioning in the organization; such practices may include training and internal promotion;

- a bundle of HR practices aimed at maintaining competencies, which help individual employees maintain their current level of functioning in the face of new challenges and organizational changes; examples of actions include health prevention, workplace safety, and flexible work schedules;
- a bundle of HR practices focusing on lateral or horizontal development aimed at increasing employability; this type of development may involve a richer interpretation of professional experience; the focus is on increasing self-awareness regarding areas of competency deficiency that need improvement; in this context, mentoring or coaching can be utilized to learn and acquire competencies that allow for greater awareness, as well as diligence and accuracy in performing daily tasks;
- a bundle of accommodative HR practices aimed at reducing job demands for older workers; such practices may include additional leave, exemption from working night shifts, partial retirement, reduced workload, such as through demotion from positions with high responsibility; these HR practices help individual employees function effectively under reduced job demands, thereby facilitating a smooth transition to retirement (Kooij et al., 2010; Kooij et al., 2013; Kooij et al., 2014).

Another division of practices focused on human resources was proposed by S.B. de Jong, F. Kunze, and H. Bruch in a study published in 2017. They distinguished two main types of HR practices: transaction-based and commitment-based. The first concept focuses on short-term, individual-focused exchange relationships, while the latter approach concentrates more on mutual and collective long-term exchange relationships. Commitment-based HR practices include, for example: collective reward systems, development programs focusing on long-term growth and team building, selection programs focusing on a good fit for the entire organization rather than specific positions. In contrast, transaction-based HR practices revolve around flexible adjustments of employment conditions to the employee's situation or a gradual transition to retirement with a gradual reduction of occupational burdens (De Jong et al., 2017).

The last presented division of HR practices focuses on the strength of the applied actions. Weak age diversity management practices reflect the organization's mission to comply with age discrimination laws. Organizations may not appreciate diversity per se, but instead adhere to labor laws to avoid lawsuits or negative public image. Strong age diversity management practices reflect the organization's value for diversity because their mission is to create an environment where employees of all ages are valued and encouraged to fully utilize their potential (Rabl and Triana, 2014).

Knowing the definition and classification of practices focused on human resources, one can consider more specific practices aimed at age diversity in the workforce. HR practices conducive to age diversity among employees are also referred to in the literature as: age-inclusive HR practices (Kunze et al., 2013), practices conducted by organizations that are age-friendly (Appannah and Biggs, 2015), or HR policies friendly to age diversity among employees (Boehm et al., 2013). Practices conducive to age diversity among employees relate to a set of policies and strategies aimed at promoting workplace equality by appreciating the individual values brought by each employee (Riach, 2011). HR practices focused on employee age aim to diversify actions towards different age groups. Practices conducive to age diversity in HR emphasize this diversity. They indicate that each age group has the right to special, tailored actions or a set of actions to meet their needs. This aims to integrate employees of different ages, appreciating both very young employees and those planning to retire. This differs from practices related to gender or nationality diversity, as in those cases, the goal was to maintain equality and parity in the application of specific actions (Riach, 2011). HR practices conducive to age diversity in organizations include overcoming age barriers, promoting age diversity, and providing an environment where each individual can develop their professional potential without the risk of discriminatory actions (Walker and Taylor, 1998; Walker, 2005a, 2005b).

The implementation of age-inclusive actions is associated with creating a work environment in which employees with diverse ages can function properly. In an organization characterized by such a work environment, employees complement each other's skills and experience (Walker, 2005a, 2005b), thus achieving better results. Therefore, companies facing growing labor shortages and aiming for better results should consider opportunities to increase the age diversity of their employees through appropriate HR practices. The subsequent part of the chapter presents areas of employee management where these practices can be applied. Specific actions addressing individual age groups of employees are then provided. A different classification of human resource practices was proposed by S.B. de Jong, F. Kunze and H. Bruch in their 2017 study. They identified two main types of HR practices: transactional and relational. The former focuses on short-term, individual-centric exchange relationships, while the latter emphasizes mutual, long-term collective exchanges. Relational HR practices include, for instance, collective-based compensation systems, long-term developmental and team-building programs, and selection processes aimed at organizational fit rather than specific roles. Conversely, transactional HR practices involve flexible adjustments to employment conditions based on individual circumstances and gradual retirement processes with reduced work burdens (De Jong et al., 2017).

2.1.1. Areas of applying HR actions conducive to age diversity among employees

Areas of application of HR actions conducive to age diversity among employees encompass a broad spectrum. HR practices can pertain to various stages of employment (from recruitment to retirement), the characteristics of the employees themselves (their physical and intellectual capabilities to perform work), as well as the work environment shaped by the employer, such as organizational structures and work arrangements. The catalog of practices was initially focused on managing older workers. However, gradually, after certain modifications, HR practices began to encompass employees of different age groups. Below are proposed areas where HR practices conducive to age diversity among employees can be applied. The number of areas and their *p*-value depends on the approach of researchers who have been studying this topic over the years.

The first to propose HR action areas were B. Casey, H. Metcalf, and J. Lakey (1993). They identified five areas: recruitment and retirement; training, development, and career advancement; flexible forms of employment; ergonomics and work organization; and changes in work conditions.

A similar classification was adopted by A. Walker and colleagues (Walker and Taylor, 1998) in the first European guide to good practices in age management. The only difference compared to the classification by B. Casey, H. Metcalf and J. Lakey (1993) was Walker's exclusion of actions related to retirement. Thus, recruitment and termination of employment were separately indicated (Walker and Taylor, 1998).

The European Foundation for the Improvement of Living and Working Conditions (EFILWC, 1997) carried out the "Combating Age Barriers in Employment" project between 1994 and 1998, analyzing the actions of organizations from European Union (EU) countries aimed at employing or retaining older workers. One of the project's outcomes was a set of reports describing good practices in age management in each of the 155 surveyed organizations (case study research). The database with descriptions of good practices is continuously expanded and updated, currently containing reports from 205 organizations in 27 EU member states. Good practices are divided into the following areas of age management: recruitment; job transitions; training and development; pay policy; health and well-being; flexible employment; ergonomics and work organization; retirement policy; changing attitudes towards older workers; comprehensive approach; and other practices (EFILWC, 1997). I. Mandl, A. Dorr, and T. Oberholzner (2006), describing good practices in 28 organizations from 10 new EU member states, utilized the classification created by EFILWC (1997). The authors only omitted two areas: ergonomics and work organization, and changing attitudes towards older workers − perhaps such practices were not identified in the surveyed organizations.

In 2000, Eurolink Age, a non-governmental organization focused on protecting the interests of older people across the EU, developed a proposal for the European Code of Good Practice concerning age management. The Code was developed as part of the "Combating Age Barriers in Employment" project coordinated by EFILWC. The project was carried out in eight EU member states (Germany, Spain, France, Italy, the Netherlands, Finland, Sweden, and the United Kingdom). The *p*-value of the Code is elevated by the fact that it resulted from consultations with a large group of employers, employer associations, trade unions, government representatives, and politicians from several EU countries. The Code is a set of guidelines on good practices in age management, with the application of these guidelines by organizations being voluntary. The guidelines are aimed at all organizations (both small, medium, and large) and are intended to assist in effective age management. The Code divides the recommended actions into seven areas: recruitment; learning, training, development, and career advancement; promotion and internal job transitions; flexible forms of employment and work modernization; job design and health promotion; termination of employment and retirement; and changing attitudes towards older workers (Age, 2000). The above list is an extension of that proposed by P. Taylor and A. Walker (1998) to include areas such as learning, internal job transitions, and retirement.

As part of the ongoing British campaign "Age Positive" launched in 2000, promoting age management among employers, K. Bunt and colleagues (2005) conducted a study on good practices in age management in 31 organizations in the United Kingdom. In the summary report of the research results, good practices were divided into the following areas: recruitment; selection; promotion; training and development; dismissals and retirement (Bunt et al., 2005; Riach, 2009).

Meanwhile, G. Naegele and A. Walker (2006, 2011) in their guide to good practices in age management identified seven areas of such management: recruitment; learning, training, and lifelong education; career development; flexible working time; health protection and promotion, and job design; job transitions; termination of employment and retirement. This division is largely consistent with the proposal presented in the European Code of Good Practice (Age, 2000). G. Naegele and A. Walker (2006) omitted changing attitudes towards older workers from their list, but this does not mean they consider actions in this area unnecessary. On the contrary, they view changing the mindset of managerial staff as a fundamental factor conditioning the effective implementation of any age management actions. Additionally, the guide authors recommend employers to adopt a comprehensive approach, combining actions from all seven areas. According to them, a comprehensive approach, thanks to the synergy effect, ensures greater effectiveness of implemented actions than applying each action separately (Naegele and Walker, 2006).

However, A. Rappaport et al. (2004) described good practices in age management applied in American organizations nominated for the Best Employer Award by the American Association of Retired Persons (AARP). Good practices were divided into four groups of actions, and within each of them, the authors listed subgroups:

1. Basic actions:
   - long-term profitability of the organization,
   - honest management of the company,
   - good benefits package (including health insurance, contributions to retirement funds, disability benefits).
2. Key actions (providing career opportunities):
   - work organization and career planning,
   - job design,
   - recruitment,
   - termination of employment,
   - formalized flexible forms of employment.
3. Significant actions (providing value to employees but not affecting their careers):
   - retirement,
   - informal flexible forms of employment (e.g., family care leave).
4. Additional actions (not related to employment):
   - referral to medical consultations for older individuals,
   - general education for retirees.

In the further part of this work, specific actions that companies can take as part of HR practices conducive to age diversity among employees are presented. However, the following characterization is mainly based on international reports, including: European Code of Good Practice (Age, 2000); Combating Age Barriers in Employment (EFILWC 1997); Age diversity at work: A practical guide for business (Positive, 2002, 2007); Ageing and employment: Identification of good practice to increase job opportunities and maintain older workers in employment (European Commission, 2006); Age and quality of life: Who are the winners and losers? (Eurofound, 2019). In this case, the particular use of international business-oriented reports is justified because they contain so-called good practices, which are a set of standards used in the field of human resource stimulation. Of course, these practices are also described in scientific papers, but authors do not always focus on a thorough examination of these practices, rather they concentrate on solving a certain research problem, only signaling certain practices related to that problem.

2.1.2. Examples of HR practices conducive to age diversity among employees

Incorporating age diversity into human resource management practices within an organization requires implementing specific actions to increase the participation of employees across different age groups instead of focusing on a homogeneous age group. To create a catalog of such actions that have proven effective in practice, numerous studies of good practices have been conducted, including some on a very large scale (e.g., Walker and Taylor, 1998). As a result, a long list of recommended actions has been developed, which bring about benefits for companies employing individuals diverse in age. In this work, these actions are referred to as HR practices conducive to age diversity among employees.

Below is a list of actions undertaken in the management of age-diverse personnel, identified based on various studies of good practices. Specific actions or tools are presented categorized according to the areas of HR practice application as classified by G. Naegele and A. Walker (2006). Additionally, the list of practices within each area is supplemented with: a list of benefits reported by organizations from implementing actions in that area and a list of necessary conditions for the effective implementation of practices from that area.

Recruitment

Good practices in the recruitment domain entail ensuring that both younger and older individuals have equal access to job opportunities and that potential candidates are not discriminated against (Walker, 1997).

A practice utilized in the recruitment process to support age diversity among employees may include formulating job advertisements in a manner that does not suggest age discrimination against candidates (Lazazzara and Bombelli, 2011). This involves refraining from specifying age limits in the advertisement, encouraging applicants regardless of age, and incorporating the logo of an institution or campaign promoting non-discrimination. Additionally, job advertisements and/or company presentation materials may contain information about the diverse ages of employees. During the recruitment process, appropriately trained specialists can be hired to select candidates and base their selection on the skills, competencies, and experience of candidates rather than their age (Desmond, 1999). This can be achieved by not disclosing to recruitment personnel information about candidates that may indicate their age (e.g., dates of birth, dates of school completion). Another noteworthy action is to collaborate with local employment agencies that can guarantee non-discrimination in the recruitment process. It is worth considering familiarizing oneself with public programs aimed at employers who hire older or younger workers (these may involve, for example, wage subsidies or reimbursement of the salaries of newly hired employees). The last proposed practice is campaigns promoting the employment of older or younger individuals (Rappaport et al., 2004).

The aim of such recruitment actions is to increase the diversity of the candidate pool (Nishii et al., 2018). Furthermore, benefits for organizations from implementing practices in recruitment include improving the organization's image and reducing the shortage of workers in the local labor market. When employing older workers, organizations gain skills and experience often better suited to the organization's needs (Naegele and Walker, 2011). However, by hiring younger workers, an organization gains a creative and non-standard approach to problems. Both of these advantages provide the organization with a competitive edge in the market (Kliombka-Jarzyna et al., 2016). Employing workers of different ages allows for mutual learning and knowledge exchange, known as intermentoring. In service firms where older individuals are also clients, older employees may be better perceived by clients and better understand their needs. As a result, this may positively impact the organization's results. Similar observations apply to younger customer groups and younger employees (Ball, 2007).

A necessary condition for effectively implementing practices in the recruitment domain is the neutrality of the recruiting organization regarding the age of candidates, which requires that the assessment and selection of candidates be based solely on their professional qualifications essential for the position they are applying for. It is important to make current employees aware that they too can benefit from recruiting older individuals, which directly contributes to building a climate supportive of age diversity among employees (Positive, 2002).

Training and development of employees

Good practices in this area presuppose (Walker, 1997) ensuring that both younger and older employees have access to training opportunities at the same level as other employees, enabling employees to continue learning throughout their careers, and adapting training methods to the perceptual abilities of employees (Appannah and Biggs, 2015). Both older and younger workers possess unique competencies, often very diverse but essential for the proper functioning of the organization they work in. However, certain competency deficits among employees often lead employers to doubt whether continuing to employ a particular worker is profitable. They may cease investing in their development and consider dismissing them. Such actions are, of course, a self-fulfilling prophecy. Lack of training usually leads to further deterioration of employee performance, and in the case of older workers, it simultaneously fosters a belief that they are no longer needed and will soon have to leave their jobs, further decreasing their motivation to work. Myths that older workers have difficulty learning and lack motivation to learn (Lockwood, 2007) still persist, limiting training opportunities for this group. Additionally, N.R. Lockwood (2007) argues that workplace training programs are often unsuitable for older workers because they emphasize skills that are typically better developed in younger workers. Therefore, it is necessary to introduce training activities for older workers with a more practical approach based on their experience. Hence, it is essential not only to engage older workers in training and development activities but also to select actions tailored to the needs and capabilities of older workers (Riach, 2009). On the other hand, reluctance to invest in employees, especially young ones, may stem from the employer's fear that a highly skilled employee may move to a competitor. In the case of older workers, employers may fear that skilled employees may also leave, but for retirement, thus keeping the acquired knowledge to themselves (Walker, 1997). Regarding training, it is essential to both remove age barriers in access to learning opportunities and systematically evaluate the conducted training. It is not true that older workers lack motivation to learn; however, they should be motivated in the appropriate manner, according to their current needs and characteristics (Lazazzara and Bombelli, 2011).

Actions that can be taken in the process of learning for age-diverse employees include removing age limits in access to employer-provided training and other forms of education. Furthermore, it involves motivating employees to learn and systematically evaluating the effects of learning. It is worth mentioning the working conditions during training to limit the time spent on duties. Also essential is a comparative analysis of organizational competency needs and employee competencies because training programs and methods should stem from identified knowledge gaps (Kliombka-Jarzyna et al., 2016). Equally important is creating a training program tailored to the individual career development path of the employee. To elaborate, it is essential to provide employees with training opportunities for career advancement within the organization, not just training specific to their current job. The HR department should continuously monitor the educational status of employees. Not only organized training contributes to knowledge growth, but also the proper organization of work conducive to learning, such as creating teams composed of employees of different ages. Older employees can also be engaged in roles as internal mentors and trainers (Moczydłowska, 2014; Eurofound, 2019). Furthermore, it is crucial to introduce diversity training aimed at reducing prejudices and discrimination against employees from different backgrounds and improving cooperation within different groups (Nishii et al., 2018).

The benefits for employers from using tools related to the learning process involve, in the case of training older employees, increasing the competency resources and innovation of the organization. As for younger employees, the benefits are related to increasing competency, knowledge, and experience resources, ensuring a certain stability of organization functioning (D'Netto and Sohal, 1999). Another benefit relates to motivation because the career development of older employees sets an example for younger employees, motivating them to develop. This occurs particularly in age-diverse work teams as they foster intergenerational knowledge exchange. Of course, the undisputed benefit of actions in this area is the improvement in the quality of goods produced and services provided by the organization. The participation of both older and younger employees in training increases their employability by enhancing their motivation, flexibility (more skills), and potential mobility (horizontal and vertical) (European Commission, 2006).

Necessary conditions for the effective implementation of training practices include adapting the training program to current and future competency needs of employees, their educational status, and potential. Some organizations successfully use databases containing employee competency data for this purpose. The method and organization of training must stem from the specific needs of the company; for example, adjusting the method and program to the capabilities of older workers will be planned differently than for younger workers (Rappaport et al., 2004).

Career development

Good practices in the area of career development presuppose ensuring equal opportunities for career development for older workers as well as younger workers (which does not necessarily mean advancement in the career hierarchy) and opportunities to maintain or improve professional competencies. Career development is an important area that provides employees, regardless of age, with the prospect of advancement and job security. Planning and then implementing career development involve distributing job requirements, incentives, and burdens over the employee's career to enable them to achieve a sufficiently high level of motivation and work performance to attain further professional advancement (Naegele and Walker, 2006). Career development planning and implementation should also take into account the need to prevent health hazards associated with working conditions (Kliombka-Jarzyna et al., 2016).

Actions that can be implemented in the area of career development include adapting the scope of employee responsibilities to their changing psycho-physical capacity with age. It is essential to note that employee performance related to their knowledge and professional experience increases with age, while physical performance declines. It is crucial for HR managers to determine employees' career ambitions and consider them when planning career development paths. Also important is aligning career paths with the specific characteristics of individual professional groups (Naegele and Walker, 2006).

Utilizing practices for managing employee career paths can bring a range of benefits to both employers and employees. Among these benefits are reducing psychological and physical work-related stress and increasing employees' employability in the long term. Fostering career development also involves monitoring and systematically developing employees' competencies and optimally utilizing them at every stage of their career. Planning career paths and setting intermediate goals positively impact employee motivation, work engagement, flexibility, and productivity, both for younger and older employees. Moreover, the risk of early retirement decreases (due to burnout, lack of development prospects, etc.), thus extending the period of employment in the company. When planned career paths are implemented, planned job shifts can occur, leading to higher employee productivity compared to unplanned shifts (Riach, 2011). Career path management also influences the knowledge transfer process. Developing a career path can ensure the transfer of knowledge and experience from older employees to younger ones, thereby encouraging retiring individuals to work as mentors or trainers (Horwitz and Horwitz, 2007; Backes-Gellner et al., 2011).

Several conditions are necessary for the practices applied in the area of career development to yield the expected results. Precise knowledge of competency requirements and the type of burdens associated with individual job positions is crucial. To achieve this, it is necessary to develop a competency profile for each employee along with planning potential shifts within the company. The company should systematically undertake actions enabling planned career development. Such actions include organizing work schedules, providing training, adapting employees to take on new responsibilities, and using motivational tools for development. The success of proper career management also depends on the approach of the managerial staff to this process. This entails training HR department management in age management and diversity management. Alternatively, some tasks can be outsourced, such as seeking assistance from consulting firms (Bunt et al., 2005).

Flexible working conditions

Flexible working conditions encompass more than just flexible working hours. Functional and numerical flexibility are key aspects (Atkinson and Sandiford, 2016). Functional flexibility involves assigning employees to various tasks depending on emerging needs and employees' competencies. Numerical flexibility refers to a company's ability to quickly increase or decrease employment levels (Atkinson and Sandiford, 2016). Initially, flexible working conditions focused on families, aiming to create practices that ensure a balance between work and personal life. However, subsequent scientific and business developments suggested expanding flexible working conditions to include formal or informal practices allowing employees to change the time and place of work (Atkinson and Sandiford, 2016). Flexible working conditions can also be interpreted as adjusting working hours and other employment aspects to employees' changing capabilities with age and existing family responsibilities (Walker, 1997; Naegele and Walker, 2000). Therefore, the goal of implementing flexible working conditions is to establish hours, location, and working conditions where employees demonstrate greater efficiency in fulfilling their duties and enable reconciling professional and personal life (Positive, 2002).

Several actions facilitate the implementation of flexible working conditions. Practices include adjusting shift schedules according to employees' age and preferences, such as avoiding night shifts for older workers. Another action is reducing the daily or weekly working hours. Other practices may involve job sharing, compressed workweeks, annualized hours, remote or hybrid work models (Atkinson and Sandiford, 2016). Pre-retirement individuals can be offered partial retirement or special forms of employee rotation where they only perform advisory tasks (Naegele and Walker, 2006; Riach, 2011). Another way to implement flexible working conditions is to develop specific conditions for granting paid leave to older individuals to allow them to utilize their time before retirement (Eversole et al., 2012). It is essential to exempt older employees from overtime work or additional duties. Regarding retirement processes, flexible retirement transition processes can attract, retain, and motivate older workers (Lazazzara and Bombelli, 2011).

There are numerous benefits to implementing flexible working conditions in an organization. Key benefits for employees include improved health, increased motivation, and improved quality of personal life, especially for older individuals nearing retirement age (Atkinson and Sandiford, 2016). Additionally, there is reduced absenteeism and fewer sick leaves, contributing to increased work productivity, especially for young parents. Implementing flexible working conditions also reduces the percentage of individuals opting for early retirement or disability benefits. Flexible working conditions facilitate the application of other employability-enhancing methods, such as training, career planning, and knowledge transfer between older and younger employees. Partial retirement allows for gradual adjustment to complete work cessation, positively influencing older workers' attitudes (Christensen and Catsouphes, 2005; Armstrong-Stassen et al., 2012). Proper implementation of flexible working conditions enhances the company's image, increasing its attractiveness as an employer.

Employee participation in creating solutions regarding individual working hours, workplace, or employment contract type supports effective implementation of flexible working conditions. It is also crucial to counteract discrimination by adapting these solutions to a broad audience, rather than a narrow group of recipients. It's essential to cover as wide a range of employees as possible (Eurofound, 2019). Evaluation of implemented solutions is necessary in case of changes in a turbulent environment.

Health protection, promotion, and workplace design

According to the literature, optimizing work processes and organization is aimed at enabling employees to achieve high work performance while maintaining good health and work capacity (Naegele and Walker, 2000).

Actions aimed at optimizing work processes while focusing on health prevention include conducting regular health checks in the workplace or gathering health reports of employees and establishing health committees in workplaces. Other practices may include consultations with experts in occupational medicine. Mandatory tools supporting health protection and promotion include employee training in occupational health and safety and regular medical examinations. It is also worth considering implementing preventive shifts for employees to less physically demanding positions and health-promoting solutions regarding working hours, such as optimizing break schedules or adjusting shift work to employee needs and capabilities (Bunt et al., 2005). Furthermore, it is essential to consider designing workplaces characterized by low stress levels. Stress has been identified as a predictor of limited intellectual and physical mobility (Wilson, 2000), decreased well-being (Herzog et al., 1991), and the need for early retirement (Reskin, 2000) among older workers. Creating age-diverse work teams could be an interesting solution, allowing physical tasks to be performed by younger individuals.

A fully developed system of health and safety protection (combined with health-promoting activities) results in above-average employee health, measured by indicators such as physical and mental tension, the percentage of employees on sick leave, and the percentage of employees transitioning to disability pensions. Furthermore, effective workplace health promotion is associated with high job satisfaction, motivation, a good work atmosphere, and high work quality. Workplace health promotion policies also lead to reduced costs associated with occupational diseases (Age, 2000).

For health protection, promotion, and workplace design to be properly implemented in the workplace, certain conditions should be met. It is essential in this process to systematically document and analyze health hazards for employees. External experts in occupational medicine may be consulted during these activities. It may also be necessary to implement special preventive measures for employees at higher risk, such as those undergoing frequent medical examinations or working night shifts. Health promotion should be undertaken by appropriately qualified individuals. All employees, regardless of age, should be included in diverse health protection and promotion activities. Additionally, employees should be encouraged to participate in these activities, for example, by offering them the option to purchase health and accident insurance at a reduced price (Naegele and Walker, 2006). Other factors related to health promotion include a positive work environment and good relationships between supervisors and colleagues, elements associated with the work atmosphere (Crawford et al., 2010).

Job transfers

Job transfers, in the context of practices conducive to workforce diversity by age, involve coordinating job requirements with the psycho-physical capabilities of employees. Additionally, when an employee needs to be shifted to another position, the quality of work should not deteriorate (Naegele and Walker, 2006). Often, shifting employees is used in response to competency deficits − especially among younger workers − or due to health problems or work overload − especially among older workers. Shifting employees between positions can also serve a preventive role, for example, as part of a health protection program or career development plan. The essence of the employee shifting process lies in the proper selection of a new job and careful preparation of the employee for its assumption, while considering the positive long-term effects of this process. Employee shifts should lead to the sustainable maintenance of employability, particularly through increased flexibility and professional competence, as well as better health protection (Ball, 2007).

Analyzing the benefits of employee shifting between positions, it is essential to consider both the perspective of the employee and the employer. From the employee's point of view, the benefits of shifting between positions undoubtedly include reduced workloads and decreased work monotony. There is also an increase in work motivation stemming from curiosity about new tasks; this may also involve greater responsibility for assigned tasks. Employees may feel that their competencies are being fully utilized by performing various tasks, and they may also have a sense of job stability because instead of termination or departure, they are transferred to another position. All these actions contribute to greater job satisfaction and higher employee engagement. From the employer's perspective, maintaining or even increasing employee productivity and reducing absenteeism can be observed (Rappaport et al., 2004).

A necessary condition for successful job transfers is undoubtedly the involvement of interested employees in the job change process. It is also essential to systematically implement a policy of shifts to avoid causing anxiety among employees about change (Bunt et al., 2005). Proper cooperation among all parties involved in the shifting process (e.g., company doctor, HR department, manager, external experts, labor unions) is also necessary.

Conclusion of employment and retirement

Good practice in this area means that the decision to terminate an employee is based on objective criteria related to the individual employee and the position held by them. Meanwhile, retirement for older workers is one of the options available to them (Naegele and Walker, 2000). It is worthwhile to divide practices in this regard into two categories: actions used in the process of terminating employment (especially applicable to younger individuals who may seek employment elsewhere) and actions used in the process of retirement (in the case of older employees approaching retirement age). Actions classified into the first category include providing career counseling to former employees and assisting employees at risk of termination in finding new employment. Practices classified into the second category, on the other hand, include various organization-led actions to prepare the employee for retirement, enabling retirees to maintain contact with former colleagues, special pre-retirement leaves, and the use of flexible retirement options (e.g., through temporary employment, gradual reduction of working hours). Flexible retirement options allow the company to continue benefiting from the knowledge and experience of older employees, such as employing them as mentors or trainers (Positive, 2002).

A key benefit for organizations implementing practices related to ending employment is the proper termination policy, which facilitates finding successors and integrating them into the workforce. Therefore, a well-designed termination and retirement policy can improve the company's image. In the event of an unexpected shortage of employees, it is easier to rehire former employees (even for a short period) than to recruit new ones (Eurofound, 2019).

It is important to highlight two key conditions for effectively implementing the aforementioned actions. Firstly, the company should have a positive attitude towards the aging workforce and the management of employees diversified by age. Secondly, legislation and collective agreements should support certain practices, such as the use of flexible retirement options or partial retirement and compensation schemes (Bunt et al., 2005).

2.1.3. Comprehensive approach to implementing HR practices favoring age diversity

Employing only selected HR practices favoring age diversity may not yield desired results, as organizations may simultaneously (unconsciously) employ poor practices or improper signaling of certain actions in their personnel management policies, which may negate the positive effects of good practices. The best results are achieved by implementing a holistic and comprehensive strategy for managing age-diverse employees through the implementation of multiple complementary actions. Therefore, selective actions should be considered only as a preliminary stage in implementing comprehensive diversity management practices concerning age (Walker, 1997). Furthermore, the literature highlights the concept of an HR package, referring to a set of interconnected and internally consistent HR practices built around a certain organizational structure. Ensuring the coherence of HR practices aims to achieve a key plan, such as ensuring that practices lead to the desired effects on employee work (Kooij et al., 2014).

A comprehensive approach to managing age-diverse employees emphasizes preventing problems related to managing diverse employees, i.e., preventing discrimination against significantly younger or older employees. This means that comprehensive good practices in managing age diversity target employees of different ages. In the short term, remedial tools can be applied to older employees facing work-related issues due to their age, such as competency gaps or health problems. However, in the longer term, focusing solely on one group of recipients of these practices may lead to a decrease in motivation and engagement among employees from other age groups (European Commission, 2006).

It is also worth noting that some areas of implementing good practices naturally complement others. Therefore, intermediate strategies for managing age-diverse employees, involving the simultaneous use of several complementary tools, can be utilized. Thus, increasing flexibility in working hours can be combined with a health promotion program or a skills development program. Similarly, recruiting young employees can be combined with a mentoring program involving knowledge transfer and health promotion. Additionally, changes in organizational structure and work schedules can be accompanied by the introduction of performance-based pay (Bunt et al., 2005).

Undoubtedly, the benefit of implementing such practices comprehensively is increased flexibility in managing age-diverse employees. A synergistic effect may be observed, whereby using multiple tools simultaneously enhances the effectiveness of each. Individual tools or actions in the area of managing age diversity are more easily accepted by employees and management if they are part of a comprehensive strategy, and such a comprehensive strategy is easier to integrate into the organization's overall personnel strategy (Age, 2000).

A necessary condition for effectively implementing a comprehensive strategy concerning employees of different ages is a strong focus on integrating organizational actions so that all employees and management are aware of the purpose of the actions taken. It would be best if the diversity management strategy concerning age-diverse employees were part of the organization's overall strategy. It is also essential to conduct an information campaign among employees on aging and age management − not only for older employees. Equally important is thorough training of managerial staff in managing age-diverse employees in the organization (Age, 2000).

In summary, Table 3 presents HR practices conducive to age diversity within specific areas, precisely in the context of a comprehensive approach. Meanwhile, Table 4 outlines specific actions taken by various European companies to support the mentioned diversity.

Table 3. Classification of areas and the most commonly used tools supporting workforce diversity by age

Areas	Tools
1. Recruitment	− raising the upper age limit − removing/absence of age limits − preferences for older individuals − employment support (e.g., outplacement) − training programs aimed at promoting recruitment policies − employment exchange / job placement office for older individuals
2. Employee training and development	− creating training and educational programs − creating such programs specifically for older employees − providing existing training and educational programs to older employees − creating a learning environment and mentoring in the workplace for older employees
3. Career development	− career development − employee performance evaluation − promoting age-diverse organizational policies
4. Flexible employment forms	− employee rotation between workplaces − promoting age-diverse organizational policies − flexible working hours / age-differentiated working hours − age-differentiated leave − demotion (without change in salary level) − part-time work − flexible retirement age / early retirement system − gradual retirement system / early retirement in part-time − self-paced work
5. Health promotion and work-place design	− changes in ergonomics / improving working conditions / adjusting workload − task organization − creating teams of young and older workers − age-differentiated health monitoring of employees − excluding older workers from shift work
6. Job transfers	− research on the relationship between aging and work performance − programs aimed at changing attitudes towards older workers and opinions about them − changing working conditions
7. Termination of employment and retirement	− raising the minimum age for early retirement − eliminating the possibility of early retirement − raising the retirement age
8. Other policies	− general age-related policies − industry-specific age-related policies resulting from collective agreements − future plans − recognition of caregiving responsibilities

Source: Based on: Casey et al. (1993); EFILWC (1997); Walker (1997); Taylor and Walker (1998); Desmond (1999); D'Netto and Sohal (1999); Age (2000); Positive (2002); Rappaport et al. (2004); Armstrong--Stassen and Templer (2006); European Commission (2006); Mandl et al. (2006); Naegele and Walker (2006); Ball (2007); Positive (2007); Armstrong-Stassen (2008); Armstrong-Stassen and Ursel (2009); Riach (2009); Armstrong-Stassen and Schlosser (2011); Lazazzara and Bombelli (2011); Muller--Camen et al. (2011); Naegele and Walker (2011); Armstrong-Stassen et al. (2012); Kooij et al. (2014); Peretz et al. (2015); Nishii et al. (2018); Oliveira and Cabral-Cardoso (2018); Eurofound (2019).

Table 4. Examples of good practices (2000−2020)

No.	Company and country	Description
1	*2*	*3*
	Recruitment	
1.	Fur company, Romania	The company prefers to hire individuals who already have experience in fur production, especially those above 40 years old, and seeks to collaborate with older individuals who have extensive experience in operating various types of specialized machinery

Table 4 cont.

1	*2*	*3*
2.	Home Care, United Kingdom	Utilizes employment agencies, while ensuring that recruitment and selection processes do not lead to age discrimination
3.	Fahrion Engineering GmbH and Co KG, Germany	Focuses on recruiting older, highly skilled engineers. Clearly indicates in job advertisements the demand for older workers
4.	Getin Bank, Poland	In 2008, Getin Bank employed many individuals over 40, especially in advisory and client service roles. These older employees were valued for their maturity, stable family situations, and perceived empathy, which were seen as advantages over younger, less experienced workers. They were offered attractive salaries and benefits
		Learning, training, and lifelong education
1.	Achmea, Netherlands	Every employee receives career advice upon turning 45 and then every 5 years thereafter. Individuals aged 40 and above receive up to 10 days of paid training leave per year, depending on the type of training
2.	API Raffineria di Ancona S.A., Italy	As part of its employee training and development program, the company provides periodic training, and it does not discriminate against older workers in their allocation
3.	Verbund Konzern, Austria	Implementation of an educational program aimed at promoting a positive attitude towards older workers and supporting programs related to intergenerational knowledge transfer and quality management processes
4.	Orange, Poland	The Orange Workshops program created multimedia centers in small towns and villages, supported by the Orange Foundation through technical assistance, training, and grants. These centers help residents of all ages develop digital skills, host cultural events, and offer various workshops, with a focus on children, youth, and seniors
		Career development
1.	Karl-Heinz Efkemann Sanitär- und Heizungsbau GmbH, Germany	Career development stages are linked to the organization's areas of operation, so that employees, as they gain experience and tenure, progress to the next stage of their career and into another area of the organization's operations, allowing them to get to know the entire company. Responsibilities at each career stage involve less physical strain but require more knowledge and experience
2.	Hinchingbrooke Health Care National Health Service (NHS) Trust, United Kingdom	Providing older workers with career development courses
3.	Viennese Hospital Association, Austria	Developing a competency development plan and a career model for nurses
4.	Michelin, Poland	Since 2009, Michelin has integrated age management into its training for managers, aiming to make it a permanent component. New employees receive diversity training, and workshops on age management are provided to those in independent roles with growth potential. Over the past three years, more than 250 employees have completed this training, which includes e-learning, essays, and team presentations, emphasizing the benefits of age management for both the company and its workforce
		Flexible working hours
1.	De Klink, Belgium	Reducing the working hours of employees aged 45 and older. Employees above the age of 45 are guaranteed an additional 12 days of leave. Individual work plans are created
2.	Coop Adriatica, Italy	Establishing individual working hours, mainly used by older employees to ensure a work-life balance
3.	Stamboliiski Plc, Bulgaria	Hiring former employees who have retired on a temporary basis for coaching or mentoring positions

Table 4 cont.

1	*2*	*3*
		Health protection and promotion and workplace design
1.	Ruoka-Saarioinen Oy., Finland	Implementing measures to delay retirement (regular workplace atmosphere surveys, employee health assessments, introducing physical exercises at work)
2.	Ovako Koverhar and Ovako Dalsbruk, Finland	Taking actions to protect employee health (work process analyses, ergonomic improvements, job rotations in agreement with occupational health specialists, workshops on aging, 5-day rehabilitation stays for all employees over 54 years old, employee health assessments, partial retirement options)
3.	Albron, Netherlands	Reducing working hours, changing work organization to exclude heavy lifting for older employees
4.	Michelin, Poland	Michelin regularly conducts ergonomic assessments of workstations to determine suitability for various employee groups, including older workers and those with disabilities. Adaptations are made for lighter tasks as needed. The "Movement System" program offers individual consultations with a rehabilitation specialist, who provides feedback on posture and preventive exercises
		Job transfers
1.	Ford-Werke GmbH, Germany	Training and transferring older employees to new positions better suited to their individual capabilities. The training and transfers were planned by HR using specialized software
2.	Tallinn Bus Company, Estonia	Transferring older bus drivers, whose reaction times were slow and who had difficulty coping with stressful situations, to less busy suburban routes. Meanwhile, employees who, due to their age, could no longer work as drivers were transferred to depot security roles
3.	City of Malmö, Sweden	Implementing a project to encourage teachers aged 62–65 to stay in schools until retirement age, but with a reduction in teaching duties in favor of more administrative and organizational tasks
4.	Vattenfall Heat Poland S.A.	Vattenfall Heat Poland S.A. supports mentoring through the Expert Vattenfall program, aimed at senior specialists over 50. These experts participate in workshops to learn how to mentor younger employees, addressing the challenges of an aging workforce and ensuring a smooth transfer of critical knowledge and skills to new hires
		Termination of employment and retirement
1.	Newham NHS Trust, United Kingdom	Flexible retirement age for employees, allowing them to retire at any point between the ages of 55 and 65. Option for post-retirement employment, but not beyond the age of 70
2.	Mataro Glasswork, Spain	Implementation of a training program where young employees are trained by older workers who have already retired early. Older employees (aged over 50) sign a contract with the company, dedicating 25% of their working time to assessing and training young employees
3.	Michelin, Italy	Support for employees who have lost their jobs through training, information, and career advice. Additionally, the company financially incentivized other local businesses to hire their former employees
4.	PEKAO S.A, Celsa Polska Holding Sp. z o.o., Poland	Some companies are not interested in retaining older employees. For example, PEKAO S.A. aims to rejuvenate its workforce, as most of its staff is older. Similarly, Celsa Polska Holding Sp. z o.o., a steel industry company, does not retain employees over 50 due to the demanding health requirements of its production roles. Most employees retire at 55, often choosing to retire early rather than switch to less demanding roles, especially when they qualify for early retirement under older regulations
		Comprehensive approach
1.	Voesalpine, Austria	Implementation of the "Light-hearted, Innovative, Fit, Efficient" project aimed at retaining older workers, integrating new employees, transferring knowledge between generations, and ergonomically redesigning tasks associated with accident risk. Tools used include negotiated changes to working hours, training for all employees, ergonomic workstation assessments considering the specific needs of aging workers

Table 4 cont.

1	*2*	*3*
2.	Finnish News Agency (STI), Finland	Introduced training for managerial staff to improve team management skills, manager-subordinate discussions to enhance communication, partial retirement options, and flexible working hours
3.	KSB Corporation, Germany	Implemented a program for older workers, including individual discussions with each employee to identify new career development opportunities, specialized training, exemption of older workers from night shifts, flexible working arrangements, introduction of mentoring system, medical examinations, and ensuring salary stability despite job transitions
4.	CEMEX, Poland	In February 2013, CEMEX Polska became the first construction company in Poland to sign the Diversity Charter. This commitment drives the company to systematically manage diversity and implement programs tailored to various employee groups. Their *Equal Treatment and Diversity Management Policy* focuses on three key areas: age diversity initiatives for employees aged 30-50 (particularly parents), those over 50, and those under 30, especially new entrants to the labor market

Source: EFILWC (1997); Age (2000); Positive (2002); European Commission (2006); Kwiatkiewicz (2010); Szaban (2013); Godlewska et al. (2016); Waligóra (2018).

Analyzing the above compilation and considering the characteristics of the firms and the period of implementing these practices, one can venture to draw the following conclusion. In the case of long-term implementation of practices favoring diversity among employees due to age and the emergence of the effects of these actions in the form of improved individual and organizational outcomes, a reverse relationship occurs. Better organizational results motivated employers to apply practices more frequently or more tailored to the needs of employees, or more favorable to employees. This was observed, for example, in the case of reducing the workload without reducing compensation, as it was observed that assigned tasks were performed with greater accuracy and diligence, which influenced the outcome. Another example is subsidizing relaxation, rehabilitation, or offering paid additional leave, as previously taken similar actions yielded the effect of more efficient work from rested employees (Bunt et al., 2005). This means that HR practices indirectly influence organizational outcomes by stimulating employees in an appropriate manner.

2.1.4. Linking HR practices to age diversity among employees

Although most managers in organizations acknowledge the benefits of age diversity among employees (Kossek and Zonia, 1993; Kossek et al., 2003), few organizations take actions to strengthen age diversity (Shen et al., 2009; Houkamau and Boxall, 2011). One way to enhance this diversity may be through the implementation of HR practices that promote it. Much of the research conducted so far has focused on HR practices supporting older individuals. All these concepts of age-tailored HR practices share a common feature: they are directed towards older employees, instead of providing solutions for all age groups within the organization. Such practices can be observed when formally considering age as the most significant aspect and are not the same for all employees. Such actions have been subject to criticism (Boehm and Dwertmann, 2015). Firstly, at least in some cases, age-tailored HR practices tend to adopt a deficit perspective, attempting to compensate for potential gaps and differences between age groups of employees, for example, by sending older employees to knowledge update training without encouraging them to broaden their horizons and develop new skills (Earl et al., 2018). Such an approach may not weaken but deepen certain stereotypes about older people in organizations (Posthuma and Campion, 2009). There is a perception that older individuals do not want to develop, although in reality, they may not be given such opportunities. Secondly, in the face of the trend towards greater integration − instead of integration, such a diverse approach to support only selected employees can also be problematic and lead to a lack of understanding among employees. Thirdly, potential conflicts in relationships within age-diverse teams may not decrease but rather intensify if younger employees feel that older employees receive more support, training, or new working conditions tailored exclusively to them (Earl et al., 2018).

Based on these considerations, Boehm and Dwertmann (2015) proposed that companies adopt age-inclusive HR practice packages that do not solely focus on older workers but equally support knowledge, skills, motivation, and effort across all employees. Specifically, age-inclusive HR practices may include age-neutral recruitment policies, equal access to training for all age groups, or age-neutral career advancement systems. For managers, supportive measures would include educational initiatives on managing age diversity in the workplace and promoting age-inclusive corporate culture (Boehm and Dwertmann, 2015). It can be inferred that merely implementing anti-discrimination policies or practices supporting one age group is insufficient to ensure the implementation of fair personnel management practices (Earl et al., 2018). Managers often assumed that HR practices used to motivate and engage older workers would be equally effective for younger employees. However, managers are gradually realizing that younger workers entering the labor market have different values, and consequently, these practices do not yield the expected results (Cogin, 2012). As previously discussed, HR practices fostering age diversity (Boehm et al., 2013; Kunze et al., 2013; Appannah and Biggs, 2015) aim to overcome age-related barriers and promote age diversity (Taylor and Walker, 1998). They enable the formation of teams comprising employees of different ages, who complement each other's skills and experiences, thus achieving better results. For these reasons, companies facing an increasing shortage of qualified workers and demographic changes, and aiming to achieve high performance, should consider enhancing age diversity among employees by employing appropriate stimulating HR practices (Rudolph and Zacher, 2021).

There are numerous benefits for organizations from implementing HR practices that promote age diversity among employees. Firstly, the organization receives positive external reception. Individuals who value positive attitudes towards age diversity are likely to want to work in an organization that is highly age-diverse and utilizes various age-inclusive diversity management practices. This also serves as a signal to potential employees that the organization will not discriminate against them based on this demographic characteristic. This observation is supported by research showing that individuals who value diversity in the workplace also attach great importance to diversity-related practices (Rabl and Triana, 2014). Secondly, such an organization exhibits coherence and credibility, explaining the congruence theory. The congruence theory posits that properly coordinated functional actions of certain components, traits, life structures of an individual ensure a holistic harmonious image of human actions. This means that the values upheld in the organization can have a powerful impact on the effectiveness of HR practices. The greater the overall degree of congruence or alignment between different components, the more effective the organization will be. If the components are mismatched, they will collide and impair the functioning of the entire organization. Conversely, if the components are aligned, they work synergistically to increase organizational performance. These components may include organizational tasks, employees performing these tasks, and organizational arrangements. It is assumed that the alignment between units (especially in terms of their work values) and organizational arrangements (especially HR practices) is an important relationship that can lead to greater employee engagement in fulfilling their duties (Cogin, 2012). Thirdly, age diversity-promoting HR practices support managers. Some organizational leaders fear that implementing diversity initiatives is too costly, disrupts effective operations, and causes workplace disruptions. Unfortunately, biases and hostile work environments also pose internal obstacles to effective diversity management (D'Netto and Sohal, 1999). However, training and educating managers on how to deal with age diversity and respond to the needs of different age groups can also be a strong motivator for employees. By engaging in such practices, companies can ensure that all age groups not only have the skills to achieve organizational goals but also the appropriate motivation (Boehm et al., 2013). Fourthly, at the employee management level, perceived diversity practices help managers gradually manage employee perceptions (Ali and French, 2019). This is a tool for exerting a beneficial, positive influence on employees and stimulates them to develop. Diversity-promoting practices and programs offered by the organization can generate the belief among employees that the organization supports a diverse workforce. In return, employees may show the organization trust, loyalty, and engagement (Ali and French, 2019). Fifthly, such practices support fair HR function. Age-inclusive HR practices may include equal opportunities in recruitment and further advancement regardless of age (Boehm et al., 2013). Sixthly, these practices increase employee motivation and engagement in work. Practices promoting age diversity among employees can lead to increased job satisfaction, employee engagement, a greater sense of fairness, and reduced perceived age discrimination, which can lead to less turnover and absenteeism and reduce the intensity of conflicts (Ali and French, 2019).

Age-inclusive HR practices should be particularly helpful in managing the appropriate dimension of diversity (Boehm and Dwertmann, 2015). The above arguments and precisely classified examples of actions and tools used by employers towards employees of different ages indicate how challenging it is to create appropriate HR practices due to their complexity. However, at the same time, it emphasizes how important such action is to support diversity in the organization. Therefore, the following hypothesis can be proposed:

H1. HR practices fostering age diversity among employees are positively associated with age diversity among employees.

An important consideration pertains to the method of studying these practices. Typically, research in this area has adopted an employer perspective, proposing appropriate HR practices to increase the employability of older workers or investigating the availability of HR practices related to retaining older workers in firms. Recently, studies have begun to adopt an employee perspective, determining the impact of HR practices on the intentions of older workers to stay in the organization or examining how the influence of HR practices on employee attitudes changes with age (Richard et al., 2013). It has been found that intended HR programs significantly differ from HR practices that employees actually experience (e.g., HR actions implemented in the organization as measured by employee surveys). It is evident that individual work-related outcomes are influenced by employees' perceptions of HR practices rather than the (written) HR programs that HR managers intended to implement. Therefore, when researchers are interested in the impact of HR practices on work-related attitudes, they must measure HR practices as perceived by individual employees (Kooij et al., 2010). The author of this monograph integrates both approaches, considering both the implementation perspective and the reception of implemented HR practices.

2.2. Workplace climate supporting age diversity – a definitional approach

The second mentioned antecedent of age diversity in the workplace is the climate centered around such diversity. Presenting the *p*-value of this specific type of climate is worth prefacing with an analysis of the genesis of workplace climate and differences in the interpretation of the concepts of climate and organizational culture.

Although the first definitional approaches to the concept of organizational culture appeared in scholarly research as early as 1979, it was not until 1995 that two theoretical types of organizational culture were theoretically developed. The first approach is functionalism and it refers to the organization being perceived as a natural system, with culture seen as an environment necessary for the survival of this system. Symbolism, the second approach, portrays culture as a system of patterns of thinking and action that are ingrained in the social environment of the organization and are significant for the achievement of its formal goals (Wilson, 2000). Despite the lack of consensus on the definition of organizational culture, many researchers agree on the existence of both external manifestations of culture, which can be observed in behavior and processes, and internal manifestations, such as behaviors or unwritten operating rules (Wilson, 2000). According to L.W. Rue and P.G. Holland (1989), organizational culture determines the way of thinking, values, paradigms, leadership styles, and approach to solving specific problems. A similar interpretation of culture was advocated by, for example, K.S. Cameron and R.E. Quinn (2011) a few years later. However, a slightly different, broader perspective was proposed by E. Schein. According to his definition, organizational culture is a pattern of basic assumptions invented, discovered, or developed by a group during its learning process of coping with external adaptation and internal integration problems, which has proven sufficiently valuable and which new members should adopt as the correct way of perceiving, thinking, and feeling about these problems (Schein, 2010).

Several similarities and fundamental differences can be pointed out between organizational culture and organizational climate. Both culture and climate concern the shared beliefs of employees and their understanding of their work environment. However, organizational climate encompasses the perception of observable organizational actions and is based on conscious processes, while organizational culture focuses on shared implicit judgments and values that are a product of the organization's leadership and its theoretical evolution. Researchers argue that organizational culture influences organizational climate over the long term. Organizational climate describes specific and observable actions, processes, and procedures through which the more abstract and implicit organizational culture is expressed. Another conceptual difference between organizational culture and climate is that culture is the property of the organization, whereas climate is the property of individual units within that organization (Zacher and Gielnik, 2014). Organizational climate, understood as the atmosphere at work, reflects how members of the organization perceive, experience, and react to processes taking place within it (Rollinson, 2005). A feature of such perception is the subjectivity of each party depending on factors important to each party. The atmosphere at work can be described using parameters such as: the way employees are treated by management, mutual trust between managers and employees, satisfaction or dissatisfaction with being a member of the team or organization, fear of conflict, willingness to resolve disputes through dialogue (Chen et al., 2020). The climate in the workplace – because this is also how organizational climate can be defined – reflects the shared perception by employees and interpretations of the *p*-value of the principles, policies, HR programs, and practices implemented there (Nishii, 2013; Boehm and Dwertmann, 2015; Li et al., 2019). Moreover, the organizational climate is more noticeable to employees when it relates to certain categories, such as a climate focused on collaboration or employee safety (Herdman and McMillan-Capehart, 2010; Schneider et al., 2017). Hence, an increasing number of researchers have begun studying so-called focused climates. The first focused climate that sparked such broad interest among scholars was the climate for innovation in 2007, followed by climates for fairness and safety, among many other types of climates. In this way, various types of climates have been identified, such as a climate for inclusion (emphasizing the effective integration of diverse skills and insights of all employees, emerging when formally implemented diversity management programs in the organization clearly identify with the organization's environment and the organization itself (Nishii, 2013; Li et al., 2019; Holmes IV et al., 2021), or the aforementioned climate supporting diversity (Boehm and Dwertmann, 2015).

The aforementioned climate supporting diversity is most commonly defined as the collective awareness among employees regarding diversity and the perception of diversity management efforts in their organization. Many provided definitions are based on the pioneering work of E.E. Kossek and S.C. Zonia, who defined diversity climate as "the overall perception of the importance of employer efforts to promote diversity" (Kossek and Zonia, 1993; Mor Barak, 2000; Boehm and Kunze, 2015). To elaborate, diversity-supportive climate reflects employees' perceptions of how the organization perceives and values them (Pugh et al., 2008; Gonzalez and DeNisi, 2009; Nishii, 2013; Boehm and Dwertmann, 2015).

Analyzing other definitions of diversity-supportive climate appearing in the literature, several different conceptual approaches/contexts can be identified:

- approach related to the reworking of certain behavior patterns – diversity climate requires a reworking of patterns of interaction among employees; this interaction is expected to be more open and less prone to criticism; therefore, each employee, characterized by their cultural identity, is open to the diversity of other employees; this implies greater tolerance and a greater sense of trust and fairness (Nishii, 2013; Rabl and Triana, 2014);
- approach related to the free presentation of one's culture in the workplace – such actions can lead to the belief that workplace differences generate added value for the team or organization and that diversity is appreciated to achieve long-term synergy (Dwertmann et al., 2016; Hofhuis et al., 2016);
- approach focusing on the unique values inherent in each employee – diversity is perceived as a value, and all demographic groups exist in the organization; in this organizational model, members of different demographic, cultural, and social groups work at all levels of the organization; in this case, it is not the minority group that adapts to the dominant culture in the organization, but members of such a diverse organization mutually recognize and respect different cultures (Wolfson et al., 2011);
- approach focusing on the six conditions for the proper functioning of a diversity-supportive climate, which are: pluralism (in terms of human capital diversity); full structural integration (manifested in members of different demographic groups appearing at different levels and performing different functions in the organization); full informal network integration (manifested in members of all demographic groups feeling comfortable in each other's company during informal social gatherings); low cultural prejudices (occurring when prejudices and discrimination are minimized or eliminated); minimal conflict between individual demographic groups; and employee identification with the organization's mission and vision (Wolfson et al., 2011);
- approach focusing on the benefits of diversity – diversity climate promotes shared perceptions of integration among employees, treating them as insiders who value the uniqueness of their identity; in particular, diversity climate enables all employees, regardless of demographic characteristics, to be engaged in decision-making processes and fully contribute to organizational development; employees are able to fully utilize their potential because comprehensive diversity management policies encourage open communication and information exchange that support integration within the organization (McKay et al., 2009; Moon, 2018);

- approach focusing on the strength of the climate – it refers to the degree of agreement among organization members regarding practices and policies characterizing that organization (Holmes IV et al., 2021); research indicates that the relationships between climate and other variables, such as team, individual, and firm-level outcomes, are stronger when the climate is also strong (Holmes IV et al., 2021); in such cases, there is a relationship between the strength of the climate and the strength of that variable or situation; applying this logic of climate strength relationship to diversity climate suggests a stronger influence of diversity climate when employees have a clear perception that their workplace supports diversity; because such work environments are perceived as strongly endorsing fairness and integration, it is expected that employees will reciprocate these ideals, showing a more favorable attitude toward work (Holmes IV et al., 2021);
- approach related to the level of climate perception – diversity climate can be understood as individual perception (psychological climate) or as shared perception (team or organizational); the effects of diversity climate can also be examined at the individual, team, or even organizational level (Dwertmann et al., 2016).

When discussing the climate supporting age diversity, it is important to note that this climate is based on the general concept of diversity-supportive climate introduced by E.E. Kossek and S.C. Zonia (1993), and later also presented by M.E. Mor Barak (2000). Building on this definition, S.A. Boehm, F. Kunze, and H. Bruch consider the climate supporting age diversity as a specific form of the broader climate supporting diversity commonly understood. This climate refers to the collective, organization-level perception of fairness and lack of discrimination, fair treatment of employees from different age groups regarding practices, policies, or rewards. In such organizations, employees feel that the organization favors diverse age groups in terms of promotion or training processes. Moreover, there is a belief that age is not a potential barrier to individual development within the organization. Thus, not only older employees should feel free from any discrimination, but also younger employees (Boehm et al., 2013; Bieling and Dorozalla, 2014). The discussed climate can be defined as one in which employees of all age groups are welcomed and appreciated in the workplace. In such organizations, appropriate actions and practices supporting this diversity are implemented, strengthening the climate of age diversity (Rabl and Triana, 2014).

Somewhat differently, the climate focused on age issues is defined by M. Armstrong-Stassen and Schlosser (2011) and van Dam et al. (2017). Their research focuses on the climate conducive to aging. At the core of the climate conducive to aging is the belief that people remain active in many areas of their private lives until late age and that aging employees may want to continue their professional commitments until or even after reaching the official retirement age (Armstrong-Stassen and Schlosser, 2011). Through implemented practices and adherence to ethical principles, organizations can influence how employees perceive their age and their abilities and opportunities for professional development. Furthermore, such actions can signal that the organization values the competencies and contributions of older employees (van Dam et al., 2017).

2.2.1. The relationship between age-diversity-supportive HR practices and age-diversity-supportive workplace climate

The workplace climate is understood as the collective perception of practices and procedures employed by employees. When these actions are supportive and beneficial to the organization, managers may reward employees for their behaviors (Boehm et al., 2013). Managers are interested in creating a positive workplace climate because it can contribute to integrating organizational processes with employee behaviors and attitudes (Bowen and Ostroff, 2004).

On the other hand, age-diversity-supportive workplace climate, also known as age diversity climate (Ragins et al., 2012; Boehm et al., 2013), refers to employees' attitudes toward individuals of different ages in the workplace (King and Bryant, 2017). Although there is concern in the literature that age diversity among employees may contribute to categorization processes based on age group membership, knowing the purpose of this climate can be utilized to mitigate undesirable effects of age-diversity, such as discrimination, age-related perceived victimization, and barriers to developing one's potential (Kunze et al., 2011; King and Bryant, 2017).

Currently, age diversity, which is heavily emphasized, poses a significant challenge for researchers and practitioners. Therefore, the fundamental question arises of how organizations can create inclusive workplaces that fully engage all employees, including those from previously marginalized groups (Li et al., 2019). In response to these challenges, suggesting examining how HR practices contribute to creating an age-diversity-supportive climate, recent studies have emerged considering the link between age-diversity-supportive HR practices and a climate supportive of such diversity (Rudolph and Zacher, 2021). However, research incorporating these aspects has been conducted much earlier. Thus, based on previous research, it can be stated that to achieve a positive climate supportive of age diversity, organizations must implement appropriate and targeted HR practices (Bowen and Ostroff, 2004). These practices represent actions that would be most beneficial for the majority of employees throughout their careers. Specifically, the focus is not on how general HR policies may vary in importance for employees of different ages (Rudolph and Zacher, 2021).

There are also reverse dependencies. It has already been shown at the organizational level that general HR practices can influence the overall organizational climate, which in turn affects leader behavior. More precisely, concerning the climate supportive of age diversity, organizations in such environments can implement practices and procedures that support age diversity and foster a positive age-diversity climate. Consequently, in this case, the more specific the climate supportive of diversity, the more beneficial it will be for measurement credibility and forecast quality. In other words, a climate supportive of age diversity should provide better predictions of interactions in age-diverse groups than a general diversity climate, not to mention the organizational climate. This means that if an organization wants to improve its performance by utilizing the potential diversity it contains, it would be beneficial to design HR practices appropriately to support a positive age-diversity climate within the company (Boehm and Dwertmann, 2015).

Most researchers addressing this issue have proposed the introduction of not isolated individual practices, but rather bundles of age-diversity-supportive HR practices that are interconnected, internally consistent, and based on specific organizational logic. However, most existing studies on age-diversity-related HR practices have been practice-oriented, focusing on specific actions and tools, and usually lacking scale validation (Boehm et al., 2013). Moreover, almost all previous research has focused on HR practices targeted only at older workers (Armstrong-Stassen and Templer, 2006). Therefore, current knowledge and inspiration are drawn from work on HR practices initially aimed only at older workers, later adjusted to both older and younger workers (Armstrong-Stassen and Templer, 2006; Armstrong-Stassen, 2008; Armstrong-Stassen and Schlosser, 2011). Since the focus is on HR practices that can foster a positive age-diversity climate (not just related to old age), previous work on HR practices for older workers is used, and it is adapted to the needs of age-diverse employees (Boehm et al., 2013). Additionally, it is essential to note that HR practices that educate managerial staff about the need for inclusive leadership behavior and appreciate the specific contributions of all age groups can be interpreted as clear signals of an age-friendly climate (Boehm et al., 2013). It is equally important that HR practices promoting fairness and social integration of all employees promote a supportive climate of diversity (Holmes IV et al., 2021). Furthermore, each group of employees should feel a sense of belonging to the organization (Masterson and

Stamper, 2003), be subject to equal treatment by supervisors, have roughly equal access to tasks, and fair access to information about their work outcomes (Armstrong-Stassen and Schlosser, 2011). The sense of belonging to the organization depends on the employee's perception of membership. Different treatment of employees may cause some groups to feel privileged in the organization, while others may be considered less important (Armstrong-Stassen and Schlosser, 2011). Such an approach can have a negative impact on the organizational climate. The workplace climate refers to the relationship between employees and supervisors, the degree of employee membership in the organization, and their involvement in managing the company (McKay et al., 2009). Applying the mentioned HR practices only to one age group may lead to a sense of privilege for that group. Applying practices tailored to different age groups, on the other hand, mitigates the sense of injustice. HR practices provide universally accepted principles of cooperation (Bowen and Ostroff, 2004) and can have a positive impact on a diversity-supportive workplace climate (Armstrong-Stassen and Schlosser, 2011).

Support for this argumentation can also be found in social exchange theory and signaling theory. Social exchange theory suggests that greater trust, loyalty, and engagement resulting from age-diversity-supportive practices may lead to an increase in organization-related initiatives carried out after hours (Ali and French, 2019). Conversely, according to signaling theory, it is assumed that HR practices supportive of age diversity are positively associated with an age-diversity climate because these practices serve as a stimulus for employee behavior (Armstrong-Stassen and Templer, 2006; Armstrong-Stassen, 2008; Armstrong-Stassen and Schlosser, 2011). In other words, practices signal to employees how to perceive the organization appropriately and adjust their behavior accordingly (Boehm et al., 2013). Thus, there is evidence demonstrating a positive association between age-diversity-supportive HR practices and a climate supportive of such diversity (Rudolph and Zacher, 2021). In summary, based on the above, another hypothesis posed in the thesis assumes that:

H2. Age-diversity-supportive HR practices are positively associated with a workplace climate supportive of age-diversity.

2.2.2. The impact of workplace climate on age diversity among employees

An age diversity-supportive workplace climate can yield numerous benefits for organizations. Firstly, this climate manifests through the respect for the dignity of employees and acknowledgment of their age-related diversity (Wegge et al., 2012). Scholars emphasize the *p*-value of positive intra-organizational relationships among employees in various age groups, based on respect and mutual assistance. Strengthening mutual respect among employees of different ages can be crucial for enhancing age diversity among employees and, ultimately, improving the firm's performance (Kochan et al., 2003; Dovidio et al., 2010).

It can be argued that research assessing and promoting age-friendly atmospheres in the workplace are necessary, given the context of an aging society (Appannah and Biggs, 2015). Another benefit of reinforcing such a climate is the sense of strong group affiliation and high appreciation for the uniqueness each employee brings to the group. This suggests a positive impact on heterogeneous environments. In other words, in workplaces characterized by a positive age diversity-supportive climate, detrimental diversity-related processes such as in-group or out-group discrimination should be limited, while beneficial processes such as communication and information exchange should be encouraged (Boehm and Kunze, 2015).

Furthermore, another benefit arising from nurturing a supportive climate is communication. This climate should also ensure clear communication regarding the extent to which supporting and maintaining diversity and eliminating discrimination are organizational priorities (Boehm and Kunze, 2015). Another important aspect is integration. Definitions of climate often indicate the degree to which a company advocates for fair human resource policies and socially integrates underrepresented employees, i.e., a certain minority group (Holmes IV et al., 2021). Recently, researchers have begun to focus on integration in the context of the entire organization rather than just integrating minority groups that have been historically disadvantaged. Integration aims to treat members of minority and majority groups equally, while providing identical conditions for maximum comprehensive development. Everyone is valued as part of the group (belongingness), but can also maintain their individuality (uniqueness). Employees do not have to conform to the majority (Nishii, 2013). This somewhat relates to another aspect, namely maintaining a sense of fairness. S.A. Boehm and colleagues' definition of diversity-supportive climate regarding age is based on the shared perception by organizational members of fair and non-discriminatory treatment of employees of all age groups concerning all relevant organizational practices, principles, procedures, and rewards. In this form, age diversity climate is strongly linked to the orientation towards fairness (Boehm and Dwertmann, 2015).

The last indicated benefit of a diversity-supportive climate is trust and the cessation of conflicts among employees. Diversity of groups, and consequently, differences among group members, can lead to subgroup formation and conflicts. A positive climate of diversity acts as a strong normative guideline for including everyone in the group and not discriminating against other group members. Information should be equally shared among coworkers, and the contributions of all group members should be appreciated and fairly assessed. This openness and exchange among all employees foster trust and enhance the development of bonds between employees (Nishii, 2013).

It is also worth noting that many researchers have analyzed climate at the individual or group level, mainly in the context of psychological aspects, but there is a lack of studies analyzing the influence of this climate at the organizational level. Additionally, like HR practices, age diversity-supportive climate brings desired long-term effects (Boehm et al., 2013). This means that, similar to HR practices supporting age diversity, a positive climate supportive of such diversity should be particularly helpful in managing the appropriate type of diversity (Boehm and Dwertmann, 2015). The third hypothesis stated is as follows:

H3. Age diversity-supportive workplace climate is positively associated with age diversity among employees.

In summary, as age diversity increases in organizations, a climate supportive of this diversity becomes key to effectively managing a diverse workforce (Bieling and Dorozalla, 2014). The extent to which an organization prioritizes different aspects of diversity (e.g., ethnic origin, gender, age) likely varies depending on market demands and organizational strategies, suggesting the need to distinguish between different forms of diversity climate in both conceptual and empirical models. Therefore, the research presented in this paper focuses on a climate supportive of age diversity because, in the context of diversity management, the aging population is becoming an increasingly important challenge. Faced with growing age diversity, organizations must create a climate where employees of all age groups are positively perceived to nurture the resulting diversity within the organization (Bieling and Dorozalla, 2014).

2.2.3. The role of age diversity-supportive workplace climate in the relationship between HR practices and age diversity

The shifting demographics in the workplace have sparked interest in understanding how organizations can effectively manage their heterogeneous workforce. Over the past decade, theoretical and empirical research has proposed and demonstrated a positive relationship between well-developed HR practices and organizational outcomes (Boehm et al., 2013; Boehm and Dwertmann, 2015; Ali and French, 2019). However, most scholars agree that instead of directly influencing organizational outcomes, HR practices may lead to certain intermediate processes, including stimulating desired states and behaviors among employees. R.E. Kopelman, A.P. Brief, and R.A. Guzzo (1990) were among the first to focus on the mediating role of climate in the relationship between HR practices and organizational outcomes. This perspective has been embraced by scholars such as D.E. Bowen and C. Ostroff (2004), who developed a theoretical model proposing a positive impact of HR practices on firm outcomes through the creation of a strong climate. They argue that to be competitive, organizations should strive for high alignment between their HR practices and the goals they aim to achieve (e.g., creating a distinct, specific climate) (Bowen and Ostroff, 2004).

Subsequent research has focused on the context of age diversity-supportive climate, proposed as an important mediator in the relationship between HR practices supporting age diversity and organizational outcomes (Boehm et al., 2013). Unlike previous research, this study proposes to consider the role of age diversity-supportive climate as a mediator in the relationship between HR practices and age diversity.

Empirical research in this study verified the relationship between age diversity-supportive climate, defined as employees' perception of policies and practices related to diversity, with HR practices supporting diversity and age diversity itself. Perceived practices and policies communicate the extent to which supporting age diversity and eliminating age-related discrimination is a priority in the organization in shaping employees' attitudes and behaviors. The theoretical foundation of these considerations lies in signaling theory and social exchange theory (Bieling and Dorozalla, 2014). In particular, signaling theory is used to argue that employees interpret organizational policies and practices as signals of the organization's intentions towards employees of different ages. Using social exchange theory, a deeper insight is sought into how these signals, such as organizational policies and practices, influence diversity and subsequently organizational outcomes. This means that according to signaling theory, asymmetric information and uncertainty lead employees to seek signals that reveal useful information about how the organization will treat them. Increasing age diversity among employees may raise uncertainty about the extent to which the organization prioritizes eliminating age-related discrimination and fostering diversity. Therefore, employers are expected to use organizational practices, and each of them is interpreted as a unique signal of how committed the organization is to nondiscrimination, appreciating the contributions of employees of different ages and caring for their well-being. The *p*-value attributed by employees to any practice thus reflects the climate of age-diverse workforce diversity in the organization. Consistent with this argument, previous research indicates that the diversity climate is reflected in leadership behaviors and various HR practices (Bieling and Dorozalla, 2014).

The justification for the mediating role of climate in the relationship between HR practices and age diversity lies primarily in the fact that the signaling effect of organizational activity is perceived by both younger and older employees. Initially, however, researchers placed less emphasis on age diversity and focused more on older workers. It was assumed that for older workers, facing relatively greater risk of age-related discrimination and thus grappling with greater uncertainty, the age diversity climate might be a more important signal of organizational support than for younger workers. Therefore, older employees may place greater emphasis on their assessment of the age diversity climate to predict the organization's readiness to appreciate their contributions and care for their well-being (Bieling and Dorozalla, 2014). However, research conducted by G.I. Bieling and F. Dorozalla has shown that the age diversity climate affects the attitudes and behaviors of employees regardless of their age. One possible explanation for this observation is that the classification of an employee as younger or older – and thus as a member of the majority or minority group – changes over time. Because younger employees know that with age, they will join the minority group, they may identify with older groups and similarly respond to their assessments of the age diversity climate. This identification effect may occur even when younger employees benefit from the discrimination of older colleagues (Bieling and Dorozalla, 2014). Therefore, it is appropriate to study the mediating effect of climate on the relationship between HR practices and age diversity because both older and younger employees perceive signals from the organization and respond to them empathetically, considering the remaining groups of employees. This is precisely the goal of a positive climate supporting age diversity (Atkinson and Sandiford, 2016). As previous research has shown, to harness the benefits of diversity and mitigate its negative effects, companies should create a diversity climate that relates to employees' perceptions of policies and practices that communicate the extent to which supporting diversity and eliminating discrimination is a priority in the organization (Bieling and Dorozalla, 2014).

In light of this empirical evidence, supporting positive boundary conditions that prevent harmful processes such as succumbing to stereotypes and discrimination in age-diverse teams, while nurturing positive processes such as unconventional thinking and innovation-oriented behaviors, seems particularly important (Boehm and Dwertmann, 2015). Therefore, a mediation model consisting of three elements is proposed: age diversity, climate supporting age diversity, and HR practices supporting diversity, which should help stimulate the positive effects of diversity. In particular, evidence has been found that climate mediates the influence of practices on work ability. These findings contribute to the development of human resource practices that benefit employees of different ages. In particular, Boehm and Dwertmann (2015) pointed out that at the company level, HR practices are positively related to a climate supporting age diversity, which in turn has a positive impact on employees' approach to their professional duties and ultimately affects organizational outcomes (Boehm and Dwertmann, 2015; Rudolph and Zacher, 2021). Through the effects achieved by employees, the environment in which they work can be assessed. The managerial staff, which aims to influence the work environment, can change working conditions through appropriate HR practices (Ciampa and Chernesky, 2013). After analyzing the above arguments, another hypothesis is worth considering:

H4. Age diversity-supportive climate in the workplace mediates the relationship between HR practices supporting age diversity and age diversity among employees.

In conclusion, the issue of age diversity among employees is gaining importance due to the fact that organizations are becoming increasingly diverse as they attract people representing different values, attitudes, and beliefs, who are also of different ages (Shifnas and Sutha, 2016). The presence of age-diverse employees in organizations is becoming a common phenomenon, and age diversity is becoming an increasingly important organizational issue (Avery et al., 2007). One of the significant challenges facing human resource managers is therefore the skillful utilization of the potential of different age groups by stimulating their behaviors through practices supporting diversity and nurturing a climate that supports this diversity in pursuit of achieving satisfactory organizational outcomes.

Chapter 3

THE IMPACT OF AGE DIVERSITY ON ORGANIZATIONAL OUTCOMES CONSIDERING THE MEDIATING ROLE OF KNOWLEDGE TRANSFER

The relationship between age diversity among employees and organizational outcomes is most commonly examined at the organizational level (Harrison and Klein, 2007; Steffens et al., 2014; Imose and Finkelstein, 2018). At the organizational level, financial metrics such as return on assets, return on equity (Wei et al., 2005), and sales (Richard and Shelor, 2002) are typically considered. Regarding non-financial outcomes, various outcome groups are analyzed, including job satisfaction (Chan and Wu, 2009), engagement (Li et al., 2021b), and innovation (Østergaard et al., 2011). Relatively few studies integrate the verification of financial and non-financial organizational outcomes. Empirical research on the effects of age diversity among employees is often fragmented and inconclusive (Harrison and Klein, 2007; Grund and Westergård-Nielsen, 2008; Kunze et al., 2011). Given these observations, further empirical studies are warranted to verify the assumption that age diversity among employees positively influences organizational outcomes, particularly non-financial outcomes such as organizational flexibility, innovation, and risk-taking (Harrison and Klein, 2007), as well as financial outcomes.

In the subsequent part of the chapter, the concepts of financial and non-financial outcomes are explained, considering individual, group (with a focus on the board of directors), and organizational levels. The last part of the chapter is devoted to analyzing knowledge transfer among different age groups of employees as a mediator in the relationship between age diversity among employees and organizational outcomes.

3.1. Organizational outcomes – definitional and classificatory approach

In a very general sense, organizational outcomes can be defined as a set of indicators − both financial and non-financial − used to assess the extent to which organizational goals have been achieved (Singh et al., 2015). It is these organizational outcomes that underlie the success and survival of a company.

The literature provides numerous examples of classifications of organizational outcomes. The following classifications can be distinguished:

- two groups of outcomes: financial and non-financial outcomes of the organization (Pollitt, 2006; Yang and Holzer, 2006; Mizrahi et al., 2010),
- two groups of outcomes: objective and subjective outcomes (Singh et al., 2015),
- four groups of outcomes: financial outcomes, market outcomes, personnel outcomes, and organizational outcomes (Singh et al., 2015),
- three levels of organizational outcomes: external, intermediate, and internal (Combs et al., 2005).

The first of the aforementioned groups of outcomes comprises financial and non-financial outcomes of the organization. To determine organizational outcomes, financial indicators borrowed from the banking, accounting, and finance fields are commonly utilized. These indicators include profitability, return on assets, and net profit (Pollitt, 2006). For instance, C.Y. Woo and G. Willard (1983) outlined financial dimensions such as profitability (assessed using ROI − return on investment, ROS − return on sales, and cash flows), market position (measured by the costs of developing new products), profitability change (assessed through ROI and cash flow variability), and sales (evaluated based on revenue and market share). Meanwhile, G.B. Murphy, J.W. Trailer, and R.C. Hill (1996) proposed four different financial dimensions: efficiency (measured by ROE − return on equity, and ROI), liquidity (current, quick, cash), profitability (net income, EPS − earnings per share), and size (net sales, number of employees). H.L. Tosi and colleagues (2000) identified eight financial outcome dimensions, including absolute financial performance (profit before tax, net income, stock price change), financial performance change (change in gross profit, change in ROE, changes in net income), market outcomes (EPS, 5-year average EPS, 5-year average EPS compared to industry average), short-term capital return (ROE, ROE compared to industry average), asset return (ROA − return on assets, ROA compared to industry average), long-term capital return (5-year average ROE, 5-year average ROE compared to industry average), market return (2-year average market return, market return), and internal performance indicators (changes in working capital). Perceiving organizations solely from the perspective of financial outcomes may hinder their development and any potential changes (Pollitt, 2006). Similarly, other authors suggest that analyzing non-financial indicators may lead to more systematic and integrated organizational actions (Yang and Holzer, 2006). This is because behavioral attitudes, such as customer satisfaction, employee creativity, trust, and loyalty, also influence final organizational outcomes. Therefore, a comprehensive assessment of organizational outcomes must consider not only financial but also non-financial aspects (Mizrahi et al., 2010).

The second group of outcomes comprises objective and subjective outcomes. Financial outcomes can be measured using published company reports or stock market data. Organizational outcomes can also be measured based on subjective information collected from managers or other key individuals within the organization, by soliciting their assessment of general company performance indicators such as market share, profitability, innovation efforts, and HR practices effectiveness (Singh et al., 2015). It has been argued that objective measures are more reliable than subjective ones because managers, when providing subjective data, may be reluctant to highlight certain errors or shortcomings and instead may try to overstate their organization's results, implying that a margin of error associated with dishonesty or lack of full knowledge on the subject should be considered in the case of subjective results (Singh et al., 2015). Nevertheless, despite concerns about subjective measures, they remain a popular method for evaluating organizational outcomes among researchers − especially in management studies (Camps and Luna-Arocas, 2012). The reasons for this are varied, including the inability to gather objective data in selected countries or organizations, or the lack of comparability of different objective efficiency indicators in an international context (Singh et al., 2015). An example of using both objective and subjective outcomes is illustrated in the research conducted by W.G. Rowe and J.L. Morrow, where subjective outcomes included research results on company reputation, management quality, and wise use of corporate assets. Objective outcome analysis was based on financial accounting data (calculated using ROA, ROI, cash flows) and market data (calculated using Sharpe and Treynor ratios and single-factor Jensen's alpha) (Rowe and Morrow Jr, 1999).

The third of the classifications mentioned above distinguishes financial outcomes, market outcomes, personnel outcomes, and organizational outcomes. Organizational outcomes can be presented in terms of financial indicators (e.g., return on assets – ROA, and return on equity − ROE), market outcomes (Tobin's Q, market share, stock price, and growth), personnel outcomes (job satisfaction, engagement, and others), or organizational outcomes (efficiency, service quality, new product development, and others) (Singh et al., 2015). An example of such an interpretation of outcomes can be found in the analysis conducted by A.C. Maltz, A.J. Shenhar, and R.R. Reilly (2003), where the following outcomes were identified: financial outcomes (represented by sales revenue, profit margin, revenue growth), market and customer outcomes (customer satisfaction index, customer retention rates, service quality), personnel outcomes (retention of top employees, leadership development quality), process outcomes (time to market introduction of products or services, project management), and future outcomes (quality of strategic planning, anticipation and preparation for environmental changes).

The last example of classification is somewhat different from the others, as it presents organizational outcomes in the context of three levels. J.G. Combs, T. Russell Crook, and Ch.L. Shook (2005) distinguished three levels of outcomes in organizations. The external level comprises overall organizational outcomes. The middle level consists of operational outcomes, which are described using non-financial indicators such as product quality, innovation, or marketing outcomes. The most internal level, however, consists of financial outcomes, such as sales growth or cash flows (Combs et al., 2005).

The examples presented above confirm that organizational outcomes are a multidimensional construct encompassing multiple outcome groups, classified by the manner in which these outcomes are acquired (objective, subjective) or the subject of these outcomes (financial, non-financial) (Singh et al., 2015). Research on organizational outcomes may also be problematic due to the lack of clear definitions of outcome measures within specific outcome categories. For example, A.C. Maltz, A.J. Shenhar, and R.R. Reilly (2003) include elements such as sales revenue, profit margin, and revenue growth as financial outcomes, whereas C.Y. Woo and G. Willard (1983) place sales revenue in a category strictly related to sales. Moreover, market outcomes at H. Tosi and colleagues (2000) are measured using earnings per share (EPS), while market data at W.G. Rowe and J.L. Morrow (1999) are calculated using Sharpe and Treynor ratios and single-factor Jensen's alpha. Thus, not only is there disagreement regarding the number of variables that can describe organizational outcomes, but there are also differences in the naming of individual categories and methods of their measurement. Nevertheless, among the identified dimensions, some similarities can be observed. One crucial and recurrent outcome dimension is profitability (in three dimensions: sales, assets, and capital). Profitability is treated in some publications as a separate category of outcomes − e.g., C.Y. Woo and G. Willard (1983) analyzed profitability using ROI, ROS, and cash flows − while it also appears as one of many dimensions of financial outcomes (Tosi et al., 2000). Additionally, another key and recurring dimension is sales growth, as it can refer to internal organizational measures or market-wide dimensions (Tosi et al., 2000).

Some authors distinguish between organizational outcomes and organizational effectiveness (Singh et al., 2015). The long tradition of research on organizational effectiveness and its importance for management science and practice has not eliminated terminological discrepancies, making it difficult to clearly and precisely establish what organizational effectiveness truly is and how it can be measured. Many definitional dilemmas arise from linguistic determinants. In English, the word 'effect' can mean both aim, outcome, and effect. Hence the ongoing effort to indicate similarities and differences and other relationships between effectiveness and concepts such as efficiency, effectiveness, productivity, profitability, and efficacy. This is highlighted, for example, by E.H. Shaw (2009), who, while seeking criteria for evaluating system performance effects, points out the problem of the ambiguous interpretation of the category of efficiency in the Anglo-Saxon literature. In reviewing interpretations of this term, he notes that it has been historically defined as synonymous with concepts such as: costs, productivity, effectiveness, and cost-effectiveness. Thus, efficiency is understood as "the extent to which an organization achieves its goals", which primarily emphasizes the need for the entire organization to achieve results. Such a definition is based on two main assumptions: that organizational goals can be easily established and that all necessary resources are available to achieve these goals (Bratnicki and Kulikowska-Pawlak, 2013, p. 54). Issues related to defining and characterizing organizational goals are quite problematic as well. In the Polish school of praxeology, various classifications of organizational goals have been made, but the most significant is the division into ultimate and intermediate goals. Of course, in foreign literature, many other classifications of organizational goals have been developed. It seems that the division based on C. Perrow's (1961) concept of organizational goals is particularly useful in this context (Kowal, 2013). The concept became the basis for identifying: official, basic, and main goals (official goals), real, strategic, and functional goals (operative goals), and operational goals. Such a detailed classification allows for viewing the problem of assessing organizational efficiency from the perspective of complex organizational choices involving the determination of which actions should be assigned to particular goals. In each case, basic goals are the main reference point for assessing effectiveness. Sometimes strategic goals (associated with functional or real goals) become the reference point for assessing effectiveness when basic goals are defined imprecisely. This happens when basic goals are defined in a vague manner. All lower-level goals (especially operational goals, including strategic goals) are means to achieve basic goals. However, it should be noted that effectiveness is often interpreted in relation to operational activities, for the assessment of the achievement of operational goals (without analyzing their impact on the basic goals of the organization). Predicted effectiveness refers to the expected results at the basic or strategic level of the company, resulting from operational activities (Kowal, 2013).

In summary, considering that organizational outcomes are a multidimensional construct, it is worth verifying them by limiting them to one key independent variable, namely age diversity. This may lead to the emergence of other classifications of outcomes or to paying particular attention to mediating or moderating variables in that relationship.

3.2. The impact of age diversity on organizational outcomes

The link between age diversity among employees and organizational outcomes constitutes a focal point of interest in this monograph, hence a systematic and in-depth literature review in this domain was undertaken.

This stage aimed to discern the state of knowledge regarding the impact of age diversity among employees on organizational outcomes and associated factors, as well as the justification for considering aspects of the aforementioned relationship. Achieving this objective was facilitated through the application of a systematic literature review methodology, enabling a critical and objective synthesis of scholarly work in the selected research area. Literature pertaining to age diversity among employees was collected, considering publications from 2000 to 2024. Publications indexed in major international electronic databases, encompassing the majority of peer-reviewed publications in management, particularly in human resource management, such as ProQuest, EBSCO, Scopus, and Web of Science, were included. The search for scholarly articles utilized the following keywords: age diversity, age diversity in the workplace, age diverse workforce, organizational performance. These keywords were identified in titles, abstracts, and keywords of publications available in respective databases.

Following the systematic review methodology, successive restrictions were imposed (including: social science domain, full-text availability, peer-reviewed publications, publications in scholarly journals, publication from 2000 onwards), and additional keywords related to other variables (such as innovation, profitability, sales, creativity, CSR, financial outcomes, non-financial outcomes, knowledge transfer) were introduced, thus narrowing down the targeted literature base comprised of theoretical or empirical publications, which underwent meticulous content analysis. Subsequently, a selection of articles was made, wherein organizational-level financial and non-financial outcomes served as the dependent variable, and age diversity among employees as the independent variable. Upon the selection of relevant publications, in-depth literature reviews were conducted, primarily focusing on evaluating existing empirical studies (Young and Hagerty, 2007). The main emphasis was on the analysis of outcomes at the organizational level, while for illustrative and comparative purposes, a review incorporating results at other levels was retained. Ultimately, 57 articles underwent analysis in the literature review, the findings of which are presented in Tables 5, 6, and 7.

Table 5. Review of empirical studies presenting the impact of employee age diversity on organizational financial outcomes

FINANCIAL OUTCOMES			
Author	**Independent variable**	**Dependent variable**	**Impact on performance**
1	***2***	***3***	***4***
Organization level			
Kunze et al. (2009)	– employee age diversity	– overall company performance compared to industry peers	– positive
Li et al. (2011)	– employee age diversity (Taechman index)	– return on assets (ROA) – employee performance (sales per employee)	– positive
Boehm et al. (2013)	– employee age diversity	– company development – financial results – asset turnover – employee productivity – business procedure efficiency	– positive
De Meulenaere (2016)	– employee age diversity	– gross company value per employee (revenues minus material and service costs and taxes)	– positive
De Meulenaere (2016)	– employee age diversity (Blau index)	– gross company value per employee (revenues minus subsidies and product and service costs)	– positive
De Meulenaere and Kunze (2021)	– employee age diversity (Blau index)	– gross company value per employee (revenues minus subsidies and product and service costs)	– positive
Leonard et al. (2004)	– employee age diversity (age variability coefficient or standard deviation of age)	– sales volume	– negative
Kunze et al. (2011)	– employee age diversity	– company development – financial results – asset turnover – employee turnover – employee productivity – business procedure efficiency	– negative
Kunze and Menges (2017)	– age difference between supervisors and employees	– company development – asset turnover	– negative
Management level			
Mahadeo et al. (2012)	– employee age diversity (age categories)	– ROA	– positive
Kimario (2024)	– employee age diversity (age categories)	– ROA	– positive
MacCurtain et al. (2010)	– employee age diversity (management age variability coefficient)	– new product performance as a percentage of revenue generated by new products targeted at new markets in the last three years	– negative

Table 5 cont.

1	2	3	4
Horvath and Spirollari (2012)	– employee age diversity (average age)	– sales volume	– negative
Ali et al. (2014)	– employee age diversity (management age variability coefficient)	– employee productivity – asset turnover	– negative
Pavlović et al. (2019)	– board of director's age diversity	– return on capital employed (ROCE) – return on equity (ROE)	– negative
Katsiampa et al. (2024)	– board of director's age diversity	– performance of the constituent firms of Fintech-focused Exchange Traded Funds (ETFs)	– negative
Komal et al. (2023)	– board of director's age diversity	– earning management	– negative
Bonn (2004)	– employee age diversity (average age)	– return on equity (ROE) – market value ratio	– no impact
McIntyre et al. (2007)	– directors' age	– economic value added (EVA) – ROA	– no impact
Jhunjhunwala and Mishra (2018)	– employee age diversity (median age)	– earnings per share	– no impact
Jonson et al. (2020)	– employee age diversity (average age)	– ROA – Q Tobin	– no impact
Group level			
Luksyte et al. (2022)	– employee age diversity (average age)	– employee productivity	– positive
Ely (2004)	– employee age diversity (variability coefficient)	– sales revenue – ratio of sales revenue to total compensation cost	– negative

Source: Compiled by the author.

Table 6. Review of empirical studies presenting the impact of employee age diversity on non-financial outcomes of organizations

NON-FINANCIAL OUTCOMES			
Author	**Independent variable**	**Dependent variable**	**Impact on performance**
1	*2*	*3*	*4*
Organizational level			
Chan and Wu (2009)	– age diversity (difference between supervisor and subordinate age)	– satisfactory supervisor-subordinate relationships	– positive
James et al. (2011)	– age diversity (according to five age norms)	– employee engagement	– positive
Standifer et al. (2013)	– age similarity preference ("I prefer to work with people my age" attitude)	– conflict	– positive
Backes-Gellner and Veen (2013)	– age diversity (average employee age)	– innovation	– positive
Drabe et al. (2015)	– age (according to age categories)	– job satisfaction: good relations with management, income, advancement opportunities, job security, interesting job nature, job autonomy	– positive (good relations with management)
Li et al. (2021a)	– age diversity (by chronological age of employees)	– employee engagement	– positive

Table 6 cont.

1	*2*	*3*	*4*
Sung and Choi (2021)	– age diversity (by chronological age of employees)	– innovation	– positive
Moon (2018)	– age diversity (Blau index)	– organizational social capital	– negative
Østergaard et al. (2011)	– age diversity (standard deviation, average employee age)	– innovation	– no impact
Sammarra et al. (2021)	– age difference ratio (difference between individual age and average organization age)	– organizational identification	– no impact
Management level			
Ferrero-Ferrero et al. (2015)	– board generational diversity (Blau index)	– CSR management efficiency	– positive
Janahi et al. (2023)	– age diversity	– monitoring managerial decision making	– positive
Cumming and Leung (2021)	– age diversity (logarithm of range between maximum and minimum director age)	– innovation	– positive
Beji et al. (2021)	– age diversity (Blau index)	– CSR – global social performance of organization – business ethics – social engagement	– positive (CSR) – no impact (other)
Hafsi and Turgu (2012)	– age diversity (Blau index)	– corporate social responsibility (CSR)	– negative
Group level			
Drach-Zahavy and Trogan (2013)	– age diversity (standard deviation of age)	– knowledge exchange among group members	– positive
Drach-Zahavy and Trogan (2013)	– team age diversity (standard deviation)	– interpersonal aggression	– positive
Williams (2016)	– team generational age diversity	– trust	– positive
Sung and Choi (2019)	– team age diversity (standard deviation)	– creativity	– positive
Wegge et al. (2008)	– average team age	– time spent on task completion	– positive (for routine tasks) – negative (for complex tasks)
Fritzsche et al. (2014)	– team age diversity (Blau index)	– team error rate – absenteeism	– positive (relationship with team errors) – negative (age diversity linked to decreased absenteeism)
Bell et al. (2011)	– team age diversity (Blau index)	– innovation and creativity	– no impact
Individual level			
Goštautaitė and Bučiūnienė (2015)	– chronological age	– task performance – openness to change	– no impact

Source: Compiled by the author.

Table 7. Review of empirical studies presenting the impact of employee age diversity on financial and non-financial outcomes of organizations

COMBINED FINANCIAL and NON-FINANCIAL OUTCOMES			
Author	**Independent variable**	**Dependent variable**	**Impact on performance**
Organizational level			
Bieling et al. (2015)	– age diversity management	– organization outcomes: – financial – employee productivity (net sales per employee) – non-financial – employee well-being, product or service quality, ability to attract new employees, customer satisfaction	– positive
Ali and French (2019)	– age diversity management	– organization outcomes: – financial – turnover, return on assets – non-financial – CSR	– positive
Li et al. (2021b)	– team age diversity (based on dividing employees into four age groups)	– organization outcomes: – financial – overall performance, growth in sales revenue, net profit after tax, return to shareholders, market share growth – non-financial – product/service quality	– positive
Group level			
Kearney and Gebert (2009)	– team age diversity (Blau index)	– team outcomes: – non-financial – innovation quality, overall achievements – financial – employee productivity	– positive
Bui et al. (2019)	– team age diversity	– team outcomes: – non-financial – team communication, innovation – financial – employee productivity, project execution costs	– positive
Wu and Konrad (2023)	– team age diversity	– team effectiveness – collective team identification	– positive
Schneid et al. (2016)	– team age diversity	– team outcomes: – performance outcomes (i.e., operational quality, financial performance, innovation and creativity, and effectiveness) – attitudinal outcomes (i.e., satisfaction) – behavioral outcomes (i.e., turnover)	– positive (turnover) – no impact (other)

Source: Compiled by the author.

It is difficult to unequivocally determine the nature of the impact of age diversity on organizational economic outcomes (Li et al., 2021b). Some researchers argue that it has a positive effect (e.g., Kilduff et al., 2000; Kunze et al., 2009; De Meulenaere et al., 2016), while others indicate that this diversity does not significantly influence organizational outcomes (e.g., Simons et al., 1999; Bunderson and Sutcliffe, 2002; Bonn, 2004; Backes-Gellner and Veen, 2013).

Still, other sources of literature suggest that the impact is negative (e.g., Zenger and Lawrence, 1989; Ely, 2004; Leonard et al., 2004). However, it can be observed that at the organizational level, the dominant effect is the positive influence of diversity on outcomes. The discrepancies in the reported effects may be attributed to the selection of different moderating and mediating variables in studies concerning age diversity in organizations (Kunze et al., 2011). Sample variables are presented later in this chapter.

Studies investigating the impact of age diversity on outcomes have yielded inconsistent results. For instance, K. Williams and C. O'Reilly (1998) identified both positive and negative effects of age diversity on group outcomes based on their research. This ambiguity arises because heterogeneity in age among employees in teams can lead to stereotyping and categorization of certain individuals and their behaviors, which in turn may lead to conflicts within the team (Pelled et al., 1999). Theory suggests that diversity enhances outcomes when team members perceive diversity positively. However, when diversity is accompanied by intergroup biases induced by identity threat, a negative impact on outcomes can be expected (Li et al., 2021b). Research conducted by F. Kunze, S. Boehm and H. Bruch (2011) aimed to verify a model positing the influence of age diversity on employee outcomes, considering the mediating role of climate for age discrimination at the organizational level. The results confirmed the hypothesis that the greater the age diversity of employees, the stronger the perceived climate of discrimination within the company. Furthermore, the stronger the climate of age discrimination, the lower the employees' engagement in company activities, which in turn leads to deteriorating organizational outcomes (Kunze et al., 2011).

Despite the examples indicating that diversity negatively affects outcomes, there are premises in the literature suggesting that age diversity can positively impact organizational outcomes. For example, in research conducted by C. Grund and N. Westergård-Nielsen (2008), the authors analyzed how homogeneous or heterogeneous employment structures affect organizational success. They assumed that an organization composed mainly of older employees can achieve success because they mainly generate organizational outcomes and do not contribute to increasing costs, such as personnel costs. The researchers analyzed the impact of age diversity among employees on net income per employee net of labor and material costs. The analysis led to the conclusion that the economic outcome generated by one older employee exceeds their compensation, indicating that the presence of older employees positively affects economic outcomes. Younger employees incur additional costs for employers, such as additional training costs, which affect their financial outcomes negatively, as they are reduced by the costs associated with investing in these employees, considering the short-term perspective (Grund and Westergård-Nielsen, 2008). Other researchers, U. Backes-Gellner and S. Veen (2009), analyzed the impact of employee aging on the outcomes achieved by the company in the context of the type of tasks performed in the workplace. Their research results suggest that employee aging does not necessarily pose a threat to the outcomes achieved by the organization (Backes-Gellner and Veen, 2009); on the contrary, it may be an opportunity to improve competitiveness if the company's strategies and types of tasks are tailored to the age of the employees. It turned out that in companies where tasks require creativity, age diversity among employees positively affects organizational outcomes (Backes-Gellner and Veen, 2013). Age diversity may also unexpectedly have a positive impact on team functioning (Kilduff et al., 2000). From the research conducted by M. Kilduff, R. Angelmar, and A. Mehr (2000), it can be concluded that age diversity does not influence the development of different attitudes and behaviors among employees, thereby maintaining the cohesion and integration of the team's work, which positively affects the outcomes achieved by the entire group. Positive conclusions also arise from subsequent studies. J.S. Bunderson and K.M. Sutcliffe (2002) delved into the topic of functional diversity. The results of their research indicated that teams diversified in terms of function and age were more open to information exchange and less prone to stereotypes regarding the age of employees in the group. Moreover, openness to information exchange contributes to the improvement of group outcomes (Bunderson and Sutcliffe, 2002). T. Simons, L.H. Pelled, and K.A. Smith (1999) conducted research on the impact of top management team (TMT) diversity on firm outcomes. They observed a positive effect of interaction between leaders of different ages, favoring different leadership styles, while also considering dynamic changes in the political and economic environment. Collaboration among leaders had a positive impact on organizational outcomes (Simons et al., 1999). F. Kunze, S. Boehm, and H. Bruch in 2009 demonstrated that a higher level of age diversity is positively associated with perceived age discrimination in firms; a higher level of perceived age discrimination is negatively associated with employees' collective attachment to the firm, whereas a higher level of collective affective commitment is positively associated with organizational outcomes (Kunze et al., 2009). The same researchers in subsequent studies in 2013 reaffirmed the hypotheses that: there is a positive impact of HR practices favoring age diversity among employees, there is a positive relationship between a climate supporting age diversity among employees and collective perceptions of social exchange, and there is a positive relationship between collective perceptions of social exchange and firm outcomes (Boehm et al., 2013).

The complexity of the issue related to the impact of age diversity on organizational outcomes warrants further consideration and empirical analysis, hence the proposal of the following hypothesis:

H5. Age diversity among employees is positively associated with organizational outcomes.

The research conducted by the aforementioned scholars confirms the existence of a relationship between age diversity among employees and financial outcomes. Studies indicate both positive and negative associations. In research conducted by K. De Meulenaere, C. Boone, and T. Buyl (2016), an analysis was performed on how age diversity among employees and age polarization affect economic outcomes. The hypotheses that age diversity significantly contributes to improved work outcomes were confirmed − contrary to situations where there is excessive age polarization. Age distribution is considered polarized when there are large homogeneous subgroups with very similar age structures (De Meulenaere et al., 2016). This implies that excessive age diversity among employees is negatively associated with organizational outcomes because internal conflicts deepen within the group, discouraging effective and diligent work and causing informational chaos (Klabuhn and Thommes, 2017). However, moderate or appropriately managed diversity contributes to improving organizational outcomes such as employee productivity, operational revenues, and asset profitability (Ali et al., 2014). Age diversity among employees is characterized by differences in their knowledge, and when appropriately managed and monitored, it promotes synergy, thereby facilitating collaboration and improving firm outcomes. Conversely, age polarization, referring to the division of employees into separate, homogeneous subgroups with similar values, hinders cooperation among these hermetic subgroups and affects the deterioration of organizational outcomes (Kunze et al., 2011). Consequently, heterogeneous employee teams can harness the positive synergy effect (in terms of knowledge complementarity, experience, and insights) (De Meulenaere et al., 2016), thereby positively influencing organizational outcomes such as asset returns and employee efficiency (Li et al., 2011). Other studies also confirm that age diversity among employees is positively associated with: return on assets and return on equity (Wei et al., 2005), sales growth (Richard and Shelor, 2002), and business decision-making (Goll et al., 2001). Therefore, the following hypothesis can be considered:

H5a. Age diversity among employees is positively associated with organizational financial outcomes.

In the context of non-financial outcomes, age diversity among employees fosters specific knowledge complementarity, which may contribute to the emergence of synergy effects (Williams and O’Reilly, 1998; Horwitz and Horwitz, 2007). According to the informational/decision-making perspective, mixing employees of different ages could stimulate employee creativity, increase problem-solving ability, facilitate decision-making, improve work quality, enhance employee productivity, and ultimately − positively impact organizational outcomes. This positive impact arises from the complementary nature of competencies and professional experience among employees of different ages, leading to increased problem-solving capabilities. Moreover, more developed motivational processes adapted to different employees are established (Cannella et al., 2008). In such age-diverse environments, the transfer of knowledge from older to younger individuals is more effective, contributing to the aforementioned synergy effect (Horwitz and Horwitz, 2007; Backes-Gellner et al., 2011). Excessively homogeneous age groups may hinder opportunities for advancement and development for younger or older employees from other age groups (Backes-Gellner and Veen, 2013). Homogeneous employee groups utilize motivational means that suit them, thereby fully exploiting advancement or development opportunities within the company. Such actions discourage other age groups from greater involvement in work (Gibbons and Waldman, 2006). Additionally, employees of similar ages often compete with each other, exhibiting a low level of task feasibility (Cho and Mor Barak, 2008). However, there is an alternative perspective on age diversity among employees. Based on social similarity and categorization theories, researchers studying demographic changes argue that age diversity among employees may also lead to different value approaches that can hinder social integration and cooperation among employees (Carton and Cummings, 2012; van Dijk and van Engen, 2013).

An analysis of the literature on the impact of age diversity among employees on non-financial outcomes at the group level indicates significant findings. Communication was a significant outcome at the group level. An analysis conducted by T.R. Zenger and B.S. Lawrence (1989) exemplifies this scenario. Originally, it was assumed that if the age differences or length of service among employees in an organization were reduced, communication between these employees would flow smoothly and occur more frequently. However, after conducting research, it was found that the coefficient of effective communication among employees in a similar age group or with similar tenure was not significant, indicating that communication can also flow smoothly in an organization with a high age diversity among employees, although it is beneficial to employ actions supporting employee cooperation, such as appropriate HR practices (Zenger and Lawrence, 1989). Furthermore, the analysis of existing empirical research has also identified studies on the impact of age diversity among employees on non-financial outcomes at the entire organizational level. An example of this is the research conducted by P.M. Bal and S.A. Boehm (2019), who conducted a multilevel analysis indicating that lower levels of employee emotional exhaustion, coupled with higher levels of engagement, were present in organizations with high levels of age diversity among employees. In these organizations, customers were more satisfied with the service, contributing to positive outcomes for the organization (Bal and Boehm, 2019). Considering the above arguments, the following hypothesis can be put forward for consideration:

H5b. Age diversity among employees is positively associated with non-financial outcomes of the organization.

Furthermore, diversity among employees based on age contributes to broadening perspectives during problem-solving, streamlining decision-making processes, and enhancing creativity in task execution (Ali et al., 2014). Similarly, another group of researchers holds the view that diversity can lead to expanding available knowledge, increasing creativity and innovation, thereby providing the organization with a competitive advantage (Mahadeo et al., 2012). It has also been found that age diversity can stimulate and/or support creative thinking and contribute to innovation in the workplace (Pitt-Catsouphes et al., 2013). Other studies indicate that increasing age diversity among employees has a positive impact on firm productivity only when there is an opportunity to perform creative rather than routine tasks (Backes-Gellner and Veen, 2013). According to the findings of yet other studies, on one hand, employees' age and related diverse communication methods strengthen the creative teamwork environment, conducive to creating innovative products and accelerating their market introduction; on the other hand, employees' age and related diverse communication methods exacerbate conflicts among employees. Although conflicts among employees do not directly impact organizational performance, they hinder the building of a creative team. Research confirms that despite age-related diversity contributing to escalating conflicts, it still positively influences organizational innovativeness, taking all limitations into account (Sankowska, 2012; Midor et al., 2015; Pesch et al., 2015). In summary, the above evidence indicates that age diversity is positively associated with organizational innovativeness (Burmeister et al., 2020a), thus, the following hypothesis can be posited:

H5b1. Age diversity among employees is positively associated with organizational innovativeness.

As indicated by academic literature, younger managers tend to make riskier decisions and strive for innovative solutions. They cope with new and creative ideas better than older employees, despite having less experience. Younger managers are more inclined towards company development, making certain changes, and making risky decisions to increase profits. They also have more energy to implement new ideas and possess more up-to-date technical knowledge (Bonn et al., 2004). Interestingly, age heterogeneity in decision-making teams is more significant than homogeneity. Age heterogeneity has a positive impact on organizational outcomes. Of course, extreme homogeneity or heterogeneity of age in decision-making teams is not advisable (Seong and Hong, 2018). Interesting conclusions arise from other studies. Age diversity among employees negatively affects decision-making because heterogeneity increases conflicts within the group (different perceptions, slowed decision-making process, different values). It is recommended that organizations with poor financial results be led by directors of similar age (greater likelihood of making joint and unanimous decisions). Conversely, in the case of organizations with good financial standing, an attempt can be made to conduct leadership processes by a team heterogeneous in terms of age (Talavera et al., 2018). To empirically investigate these doubts highlighted in the literature, the following hypothesis can be formulated:

H5b2. Age diversity among employees is positively associated with the risk-taking approach in the organization.

As suggested by the literature, the more diverse the team (in terms of age, gender, culture), the greater the positive impact on team integration and improvisation (ambidextrous elements), affecting strategic changes and the level of adaptation to environmental changes (Lee et al., 2017). In the common belief of HR specialists, older individuals are perceived to adapt more slowly to new conditions. It turns out that younger individuals focus on further development, while older individuals are more interested in maintaining the current state in the workplace. This may be because older employees have accumulated more knowledge and richer experience, thus, they may focus more on maintaining their existing skills rather than acquiring new competencies and changing behaviors. Older individuals tend to rely on stable operating models in the work environment and perceive fewer stimuli for learning coming from the environment due to their longer tenure (Goštautaitė and Bučiūnienė, 2015). Moreover, openness to change has been proven to be a strong predictor of adaptive performance (Griffin et al., 2007; Griffin et al., 2016). With age, openness to new experiences and changes decreases (Terracciano et al., 2005), and emotional reactions to changes weaken (de Lange et al., 2010). Older individuals may try to avoid changes because it is related to protecting the individual's identity, which is important in the later stages of their careers (Maurer, 2001; Kanfer and Ackerman, 2004). Consequently, most existing research confirms a declining level of adaptive performance among older workers. Therefore, maintaining age diversity among employees is necessary for the organization to be flexible, efficiently adapt to changes, or even anticipate them (Goštautaitė and Bučiūnienė, 2015). In light of the above arguments, it is hypothesized that:

H5b3. Age diversity among employees is positively associated with organizational flexibility.

Age diversity among employees may not only exclusively influence financial or non-financial outcomes of the organization. It has been demonstrated that the discussed diversity can collectively impact both financial or non-financial outcomes (Ali and French, 2019; Li et al., 2021b).

In conclusion, research on age diversity among employees is based on two competing theoretical perspectives. On one hand, the age diversity of employees can have a positive impact on organizational outcomes; on the other hand, negative effects can also be identified. These approaches suggest that diversity can have both positive and negative impacts on organizational outcomes (Williams and O'Reilly, 1998; Grund et al., 2008; Kunze et al., 2011). Skills and competencies acquired by employees over the years contribute to improving organizational outcomes. With advancing years, energetic and creative young employees will continue to value knowledge acquisition, opportunities for horizontal advancement, and working in safe conditions (Bashir et al., 2021). It turns out that age diversity among employees brings greater benefits in large companies because they are able to better optimize and adjust the workplace to a large and diverse group of employees. Large organizations can also provide safety and comfort in the workplace by implementing appropriate HR practices and stimulate organizational climate effectively (Pfeffer and Cohen, 1984). However, age polarization in large firms will negatively impact organizational outcomes (Boehm et al., 2014).

It is also worth noting that organizational outcomes do not change (improve or worsen) solely considering a variable such as age diversity. Subject literature indicates that moderating variables in the relationship between age diversity and organizational outcomes may include: the role of transformational leadership (Kearney and Gebert, 2009); the value of interpersonal relationships among employees (Li et al., 2021b); stereotypes (Liebermann et al., 2013; Sammarra et al., 2021); market environment and advanced technology (Sung and Choi, 2021); group characteristics, e.g., project team (Bell et al., 2011); type of tasks performed in the job position (Wegge et al., 2008; Backes-Gellner and Veen, 2013); group size (Wegge et al., 2008); type of leadership (Scheuer and Loughlin, 2021); diversity climate (Drach-Zahavy and Trogan, 2013; Moon, 2018); organizational social capital (Li et al., 2021b); market diversity level and country of operation (Li et al., 2011); HR practices (Kunze et al., 2011); task interdependence (Kim et al., 2013); team collective identification (Kearney and Gebert, 2009); quality of team processes in the organization (Ely, 2004); company size and job security (De Meulenaere et al., 2016). Meanwhile, mediating variables in this relationship may include, for example: uncertainty and frequency of perceiving challenges at work (Standifer et al., 2013); reflexivity, knowledge sharing (MacCurtain et al., 2010); emotional conflict and task conflict (Wegge and Meyer, 2020); emotions in the relationship between employees and supervisors (Kunze and Menges, 2017), and knowledge sharing (Sung and Choi, 2019). Indeed, knowledge sharing, and more broadly − knowledge transfer, is the subject of analysis in the subsequent part of this work.

3.3. The essence and importance of knowledge transfer in organizations

To elucidate the essence of the knowledge transfer process, it is essential to first define the concept of knowledge itself. In the majority of definitions, knowledge is linked to human cognition, as humans generate knowledge through the process of thinking. Examples include:

- A. Brooking (1999), defining knowledge as information in the context of its use;
- R. McDermott (1999), considering knowledge as the residue of thinking, specifically the result of applying information and experience in the process of thinking;
- E. Skrzypek (2002), characterizing knowledge as the organized reflection of reality in the human mind, involving creative attitudes, the creation of new solutions, and processes;
- I. Nonaka and H. Takeuchi (2000), defining knowledge as confirmed belief in a matter.

Another significant issue pertains to the mutual relationship between information and knowledge. Often, information is regarded as a constituent or building block of knowledge. For instance, D.J. Skyrme (1999) defines knowledge as a set of information with specific meaning. However, I. Nonaka and H. Takeuchi (2000) fundamentally distinguish knowledge from information. Nevertheless, both information and knowledge share a common characteristic, namely, they concern meanings. Information is understood as streams of messages, while knowledge is their product, rooted in the recipient's beliefs and expectations. Hence, knowledge here serves intentional functions, acquiring relative attributes. In this perspective, information is not a component of knowledge but a tool for its construction and transfer (Nonaka and Takeuchi, 2000).

The creation and development of knowledge within an enterprise are primarily attributed to its employees. G. Probst, S. Raub, and K. Romhardt (2000) argue that knowledge is always linked to specific individuals. G. von Krogh, K. Ichito, and I. Nonaka (2000) add that knowledge depends on the actions taken by people, thus closely associated with their emotions, aspirations, hopes, and intentions. Knowledge tied to a particular individual and their experience (i.e., tacit knowledge) is difficult to formalize and comprehensibly communicate to others. Due to its uniqueness and difficulty in replication, tacit knowledge can serve as a differentiating factor for the enterprise in the market and contribute to its competitive advantage. However, identifying tacit knowledge with specific individuals or groups may lead to the transience of the enterprise's success. Therefore, organizational changes, including the departure of employees possessing certain unique knowledge, may weaken the market position of the enterprise (Richert-Kaźmierska, 2012). Contemporary enterprises, recognizing the growing role of knowledge as a factor influencing their competitive position, increasingly adopt knowledge management systems. Such systems encompass processes of acquiring, multiplying, storing, and utilizing knowledge (Richert--Kaźmierska, 2012).

Analyzing a broader perspective that incorporates knowledge, information, and employee motivations, the concept of knowledge transfer emerges. Knowledge transfer is a process wherein knowledge moves from a knowledge holder (individual or organization) to a knowledge recipient (individual or organization) through one or multiple transfer channels. Consequently, knowledge transfer constitutes a communicative process whereby at least two individuals interact, allowing one individual to receive and utilize knowledge conveyed by another (Liyanage et al., 2008; Hauke-Lopes, 2010; Burmeister et al., 2020a, 2020b; Islam et al., 2021). Thus, knowledge transfer encompasses processes, technology, and enhanced behaviors necessary for delivering pertinent information and expertise to the appropriate individuals at the right time, enabling them to act effectively and make informed decisions (Đorić, 2019). Furthermore, knowledge transfer within organizations involves one unit being influenced by the experience of another (Islam et al., 2021). It also entails the exchange and dissemination of knowledge to ensure the provision of necessary inputs for problem-solving (Pivec and Potočan, 2021). The creation and transfer of knowledge within an organization involve sharing, reinforcing, and integrating knowledge generated by units within and between organizations (Martín-de-Castro and Montoro-Sánchez, 2013).

A notion recurrent in the literature is the utility of knowledge transfer. It can be characterized as the degree to which such knowledge has been or is relevant and has contributed to organizational performance improvement. Consequently, organizations acquire knowledge through internal processes, leveraging their employees' knowledge, and acquire it externally, learning from their clients and other stakeholders to enhance their competitiveness. Thus, it confirms the assertion that knowledge transfer positively impacts organizational outcomes and success (Chen et al., 2017). The main idea behind knowledge transfer is to ensure that efforts yield desired results (effectiveness in action) and that new knowledge becomes embedded in the organization's structure (institutionalization and codification) (Bengoa, 2013).

It is worth noting two elements of knowledge transfer. On one hand, knowledge transfer consists of behaviors related to sharing knowledge, and on the other hand, it involves behaviors related to seeking knowledge. This occurs when employees who are willing and able to share and seek knowledge engage in an interactive and bidirectional process of knowledge exchange (Burmeister et al., 2018a, 2018b). Knowledge transfer occurs either through actively communicating what one knows or has experienced to others, or through actively consulting with others to learn what they know. Successful knowledge transfer means that the receiving entity accumulates or assimilates new knowledge. When organizations or employees within an organization identify knowledge that is crucial to them, they can utilize knowledge transfer mechanisms to acquire that specific knowledge. They can then continuously improve and share it most effectively with others who need it. They can also employ it in a creative or innovative manner to derive additional value from that knowledge (Liyanage et al., 2008).

Knowledge transfer is a challenging and complex process. According to the literature, it is one of the operational tasks of the knowledge management process and comprises four subprocesses: knowledge acquisition, sharing, dissemination, and knowledge exchange (Nonaka and Takeuchi, 2000). The first subprocess, knowledge acquisition, involves the flow of knowledge resources from the organization's environment into its internal domain. Knowledge acquisition also occurs within the organization when one team or employee, for example, during meetings or informal gatherings, acquires knowledge (in various forms) from another team or employee. Observing the work of others or teams can lead to the acquisition of tacit knowledge (Mleczko, 2012). The next subprocess, knowledge sharing, involves the exchange of information and knowledge among organization employees. Employees have access to IT database systems, and there is also a flow of knowledge from employees to the organization's environment. During this process, individuals provide information to their colleagues, giving them instructions, for example, on how to perform a particular operation, or employees gain access to databases or documentation. Allowing other employees to observe how a task is performed constitutes sharing tacit knowledge. Knowledge sharing is also the process of knowledge flow from the organization to its environment, thus being the reverse process of knowledge acquisition (Misiaszek, 2018). Dissemination of knowledge aims to make knowledge universally accessible without the fear of unauthorized access. Dissemination of knowledge is therefore an advanced form of knowledge sharing, with the difference between them lying in the scope of sharing. Specifically, knowledge sharing is a process directed at specific individuals or organizations, and knowledge may be protected to prevent it from reaching unauthorized entities (e.g., sharing a customer database with selected sales representatives). Conversely, disseminating knowledge is an action aimed at making a given knowledge resource universally accessible. Protection of knowledge is the opposite of knowledge sharing (Nonaka and Takeuchi, 2000). Knowledge exchange, the last of the aforementioned subprocesses, involves close collaboration among organization personnel. Individuals share their knowledge assets through the process of communication. Hence, knowledge exchange is a process of mutual knowledge transfer through communication and collaboration. Knowledge sharing and acquisition processes overlap here. The knowledge exchange process involves personalized, tacit, and implicit knowledge during direct contact, dialogue, and collaborative work, through which individuals collectively gain experience (Mikuła and Oczkowska, 2009).

In delineating an alternative classification, knowledge transfer is conceptualized from three perspectives: knowledge as solution, knowledge as experience, and knowledge as social relations (Ajmal and Koskinen, 2008). The first perspective, knowledge as solution, underscores the *p*-value of knowledge transfer among practitioners aiming to solve problems or enhance operations using novel technology. Knowledge is disseminated within the entire organization. The second perspective, knowledge as experience, portrays knowledge as a resource acquired and accumulated for future utilization. According to this perspective, knowledge flow occurs over time rather than within organizational space. Emphasis is placed on capturing practitioners' experiences to allow others access to these experiences and potentially learn from them. In the third perspective, knowledge as social relations, there is a focus on knowledge as a resource created and shared through interpersonal social relationships. In this context, it is imperative for organizations to implement practices and actions aimed at developing and strengthening interpersonal relationships, as employees should particularly engage in informal and unstructured communication to foster discussions crucial for knowledge transfer. Therefore, supporting an organizational climate that encourages informal interactions among employees is necessary to facilitate knowledge creation and dissemination (Ajmal and Koskinen, 2008).

Moreover, the literature points to three levels at which knowledge can be initiated and transferred: individual, group, and organizational levels (Ajmal and Koskinen, 2008). At the individual level, knowledge originates from individual employees and is subsequently passed on to others. At the group level, knowledge transfer can be understood as a social process facilitating the exchange of ideas among groups of employees and within those groups. At the organizational level, knowledge is normalized and codified and may lead to changes in existing organizational procedures and systems. Other researchers perceive this division differently, suggesting that knowledge transfer can occur at various levels: between individual units, between units and groups, within groups, from groups to organizations, and from individuals to groups (Alavi and Leidner, 2001).

The nature of the transmitted knowledge influences knowledge transfer. The presented views pertain to personalized knowledge (captured in mental form), inherent to individuals, constituting a fundamental component of human capital. It comprises explicit knowledge, which can be communicated, and tacit knowledge − incommunicable but acquirable through socialization processes (Mikuła and Oczkowska, 2009). Thus, two types of knowledge are distinguished: tacit (implicit) and explicit knowledge. Tacit knowledge is critical for organizations. Achieving successful knowledge transfer is challenging because the knowledge acquired by the organization may be in a hidden form, making it difficult to articulate. If knowledge cannot be articulated, its transmission poses a particular challenge, especially in the context of verbal or non-verbal communication. Tacit knowledge is personal knowledge embedded in the individual experiences of each employee, while explicit knowledge is readily accessible to individuals or groups because it is widely available within the organization. Tacit knowledge is more challenging to transfer than explicit knowledge (Lahti and Beyerlein, 2000; Schmidt and Muehlfeld, 2017). Conversely, explicit knowledge can be codified or grounded. Codified knowledge takes the form of records (symbols, schematics, etc.), usually on paper or electronic media, and appears in various types of documentation (e.g., technical, organizational), publications, or projects. Grounded knowledge, meanwhile, results from embedding knowledge in human activity products, such as products, services, systems, processes, brands, relationships, and technologies (Mikuła and Oczkowska, 2009). Therefore, knowledge can be transmitted through various channels. For instance, explicit knowledge, transferred from individual persons through discussions, can subsequently be codified into documents or databases within the organization and become universally accessible knowledge (Richert-Kaźmierska, 2012; Islam et al., 2021).

There are four phases of the knowledge transfer process: initiation, implementation, development, and integration (Hoxha et al., 2020). The initiation phase typically involves identifying knowledge gaps within a given organization. If these gaps are clearly defined during the initiation stage, implementation proceeds much more smoothly. During implementation, employees or a group of employees collaborate to exchange knowledge and experience. The development phase occurs when individuals acquiring knowledge apply it in practice and fill knowledge gaps. Finally, during the integration stage, the acquired knowledge is institutionalized through the creation of documents such as teaching programs or instructional manuals, and the dissemination of these documents to other organizational units (Hoxha et al., 2020). Additionally, alongside the structured knowledge transfer process, an unstructured process can also be identified, in which knowledge flow occurs spontaneously, informally, and unplanned. The unstructured knowledge transfer process depends on emerging situations and individual predispositions. It involves copying existing products, knowledge, or solutions and adapting this knowledge to a new context (Hoxha et al., 2020).

There is ample scientific evidence confirming the observation that knowledge and competencies are now considered the most important assets in organizations. Since knowledge-based resources are typically difficult to imitate and are socially complex, a knowledge-based organization approach assumes that these knowledge resources can create long-term, sustainable competitive advantage (Liyanage et al., 2008). Therefore, knowledge transfer as a way of managing it brings many benefits to the organization, particularly due to the nature of this resource. Knowledge itself is considered an intangible value. The opposite of knowledge is tangible fixed assets, which lose their value when used. However, knowledge has the characteristic that its value increases with its use; that is, knowledge grows each time an individual shares the knowledge they possess (Islam et al., 2021). Thus, potential benefits of knowledge transfer include: enhanced productivity and service delivery efficiency; increased innovation capability; development of core competencies; better decision-making; greater sensitivity to changes; more cohesive strategy; improved customer service through better knowledge about them; enhanced employee morale; strengthened relationships among employees; and improved financial performance (Islam et al., 2021).

In summary, over the past 20 years, there has been a growing interest not only in how to effectively manage organizational knowledge resources but also in how to achieve sustainable competitive advantage through knowledge utilization resulting from its transfer (Larkin and Burgess, 2013). Knowledge transfer is not a new phenomenon, as noted decades ago in psychological research. However, recently, management science researchers have begun to study this variable, analyzing the advantages and disadvantages of knowledge transfer, including considering the perspective of workforce diversity based on age. Several studies have been conducted on the construction of knowledge transfer as a dependent variable. There are also researchers who have examined knowledge transfer as a mediating variable (Islam et al., 2021). Therefore, knowledge transfer is extremely important and widely studied by researchers, but also by practitioners, as it encompasses all organization-supported learning practices and encourages employees to engage in continuous training and development (Cox and Holloway, 2011). This is because the ability to manage knowledge and build human capital determines success in contemporary organizations (Haak-Saheem et al., 2017).

3.4. Knowledge transfer in the context of workforce age diversity

Knowledge transfer among employees of different ages is gaining importance due to demographic changes (Burmeister et al., 2018a). However, knowledge transfer in this context is not straightforward − the existing literature lacks a clear definition of intergenerational knowledge transfer or knowledge transfer among employees of different ages (Schmidt and Muehlfeld, 2017). This is surprising considering that knowledge transfer, especially among employees with significant age differences, is becoming increasingly crucial for organizations (Schmidt and Muehlfeld, 2017). However, based on general knowledge transfer theory and theories from sociology and psychology, theoretical guidelines can be presented to deepen the understanding of the characteristics of knowledge transfer among employees of different ages (Xin and Xiaoying, 2010).

Firstly, during knowledge transfer among employees of different ages, there is a focus on the temporal dimension of this process, while general knowledge transfer focuses on the transfer of knowledge between different organizations, teams, or individuals. Secondly, in knowledge transfer among employees, knowledge is treated as a process of expressing, understanding, and developing universal knowledge. In contrast, general knowledge transfer usually pertains to technical knowledge, best practices, or a knowledge repository and refers to the static outcome of learning, where knowledge is treated as an element rather than a process. Thirdly, knowledge transfer among employees of different ages must involve bidirectional communication between the source and the recipient, and the effectiveness of the transfer depends on the communication skills of both parties. In contrast, general knowledge transfer partly focuses on one-way knowledge transfer, and the outcomes of knowledge transfer depend on the absorptive capacity of the recipient. Fourthly, knowledge transfer among employees of different ages requires organizations to establish long-term communication mechanisms for knowledge transmission. It must be conducted through joint tasks and shared experiences, so it is not a one-time event and cannot be completed in a short time. In contrast, general knowledge transfer only requires temporary transfer mechanisms (Xin and Xiaoying, 2010). However, there are developments in which this specific knowledge transfer refers to the general knowledge transfer among organization members of roughly the same age, without additional potential complications arising from significant age or generational differences among the involved individuals (Schmidt and Muehlfeld, 2017). Therefore, knowledge transfer among age-diverse employees refers to a process in which employees from different age groups exchange knowledge, for example, through discussion, imitation, or collaboration (Gerpott et al., 2017).

While the benefits of knowledge transfer, such as problem-solving, increased creativity, and productivity, are well-documented − e.g., at the individual level (Gilson et al., 2013) and group level (Mesmer-Magnus and DeChurch, 2009) − the perception of the consequences of knowledge transfer among age-diverse employees at the organizational level is less frequently considered. This may be because interactions among employees from different age groups can create both opportunities and challenges in the knowledge transfer process, making it a difficult area to study. The increasing age diversity of employees in organizations provides opportunities to motivate both older and younger employees by enabling them to derive mutual benefits from knowledge transfer, but several challenges should be noted (Burmeister et al., 2018a; Burmeister et al., 2020a).

Firstly, it is known that older and younger employees are motivated by different aspects of their work. Older employees tend to seek opportunities to be authorities for younger colleagues, while younger employees seek opportunities to acquire knowledge. Recent research suggests that older employees perceive themselves as individuals to turn to for knowledge and expertise based on their extensive professional experience. Older employees feel authoritative when they can impart knowledge to younger colleagues, providing them with a sense of autonomy and independence, as well as fulfilling certain goals that allow them to share their knowledge with younger colleagues. On the other hand, younger employees strive to be more independent in their work, so it is important for them to acquire new knowledge. Moreover, younger employees may perceive receiving knowledge as a way to expand their knowledge resources, become more competent employees, and increase their engagement in their professional tasks, thereby experiencing a sense of efficacy when they meet job-related requirements. Organizations can benefit from knowledge transfer only when employees are motivated to remain in the organization and continue their work. Employees who wish to leave the organization will be unwilling to participate in the knowledge-sharing process (Burmeister et al., 2018a, 2018b; Burmeister et al., 2020a, 2020b). Therefore, it is important to understand the factors that drive individual employees in the organization.

The second challenge may be conflicts. There is a possibility of conflicts arising among employees because they compete for knowledge resources with individuals from different age groups (North and Fiske, 2015; Bellotti et al., 2022).

Thirdly, appropriate communication is another challenge. Another indication for knowledge transfer among individuals of different ages is that older knowledge providers have the opportunity to deepen their social contacts with younger colleagues, which positively influences their socio-emotional experiences (Burmeister et al., 2018b; Burmeister et al., 2020a). For the knowledge transfer process to be successful, organizations must ensure the highest quality of communication and raise awareness among employees of a common goal (Burmeister et al., 2020b; Pivec and Potočan, 2021).

The fourth challenge lies in different learning methods (Sanaei et al., 2013). For example, older individuals are accustomed to acquiring knowledge from books or printed texts, while younger individuals rely on new technology and require continuous feedback as an informal teaching tool (Piktialis and Greenes, 2008).

Additionally, different methods of knowledge acquisition and sharing in the workplace used by various age groups (Sanaei et al., 2013) can be problematic. Older workers prefer to convey knowledge through direct interactions (Glass, 2007). This group of workers does not use electronic media and new technology in communication and learning, hence they are often referred to as “digital immigrants” (Piktialis and Greenes, 2008). However, younger employees prefer informal learning, even though they were often raised in a formal learning mode (Piktialis and Greenes, 2008). This group of workers values communication through new technologies more than face-to-face communication. Their focus is on the learning process rather than the subject matter, and they view learning as a form of entertainment rather than an obligation. They prefer visual learning and prefer to acquire knowledge through trial and error rather than relying on authority figures (Piktialis and Greenes, 2008).

Another possible factor is the functioning of age-related norms. Two perspectives of knowledge transfer are associated with age-related norms: one-sided and two-sided. According to the first approach, based on a one-sided perspective, preliminary theoretical and empirical evidence suggests that older workers seem to be perceived as knowledge providers, while younger workers appear to play the role of knowledge recipients (Deal et al., 2010; Voelpel et al., 2012). These observations seem to operate independently of the length of tenure, experience, and specialized knowledge of employees, which may indicate expectations regarding the roles that individuals should play at a certain age when engaging in knowledge transfer (Schmidt and Muehlfeld, 2017; Burmeister et al., 2018a). However, as further indicated in the literature, the one-sided conceptualization of knowledge transfer, in which older workers only serve as knowledge providers and younger ones only as knowledge recipients, has two main limitations. Firstly, younger workers possess valuable knowledge which, if shared with other employees, can contribute to organizational success. For example, younger workers may bring their latest scientific and technical knowledge to the organization and can act as catalysts, unlocking the knowledge base of older workers by asking them questions and engaging in discussions. Secondly, older workers, who are only expected to share their knowledge but not seek knowledge, may be deprived of opportunities for learning and further career development, which is significant for their motivation to continue working. Therefore, organizations that only facilitate one-sided knowledge transfer between older and younger employees may not fully utilize the potential of their diverse workforce. It is therefore worth considering another perspective on knowledge transfer − two-sided, in which older workers serve as both knowledge providers and recipients, and younger workers are not only knowledge recipients but also knowledge providers (Kooij et al., 2008; Gerpott et al., 2017; Schmidt and Muehlfeld, 2017; Burmeister et al., 2018b).

The potential benefits resulting from knowledge transfer among age-diverse employees are as follows:

- older and younger employees can collaborate by mutually exchanging knowledge, complementing each other's competencies (Gerpott et al., 2017);
- knowledge transfer among employees of different ages can contribute to mentoring knowledge; mentoring involves experienced employees (mentors) passing on knowledge to less experienced employees (protégés), which can result in benefits for the protégés, such as an enhanced learning process, but primarily can impact the overall organization's performance (Lankau and Scandura, 2002);
- improvement in mental and physical well-being among older individuals may occur; at the same time, mentors may experience satisfaction and recognition through mentoring relationships (Eby et al., 2006), which have been described as rejuvenating (Hunt and Michael, 1983);

- a slowdown in the aging process may occur; Schneider (2003) found that learning slows down the aging process and contributes to increased life expectancy; challenges associated with lifelong learning stimulate the body, mind, and brain to work constantly, thereby improving quality of life and increasing engagement in well-performed work, which translates into organizational outcomes (Williams van Rooij, 2012);
- increased motivation may be observed as younger employees gain valuable knowledge, while older employees can pass this knowledge on to appreciative listeners (Burmeister et al., 2020b);
- a desire to remain in the organization may increase; knowledge transfer is perceived as an important factor determining the intention to stay in the organization; intention to stay in the organization is particularly significant in organizations where employees are highly age-diverse (Wöhrmann et al., 2017).

Therefore, despite many challenges and difficulties, age diversity can be beneficial for organizations when employees of different ages share their diverse and valuable knowledge with others in the organization (Burmeister et al., 2018a). Knowledge transfer in organizations always involves the transfer of that knowledge at the individual level, so to examine transfer at the organizational level, research must be conducted among its employees (Schmidt and Muehlfeld, 2017). Drawing from cognitive and behavioral sciences, it is argued that the realization of absorptive capacities depends on an individual's ability to acquire, assimilate, and utilize knowledge for organizational purposes, thereby transforming individual knowledge into organizational knowledge (Larkin and Burgess, 2013). In light of the above, the following hypothesis can be proposed:

H6. Age diversity among employees is positively associated with knowledge transfer.

Human capital is becoming increasingly diverse in terms of age due to demographic changes (Burmeister et al., 2018b). As society ages, new challenges arise, particularly the risk of substantial loss of valuable knowledge when older employees retire (Calo, 2008). Effective management of age diversity among employees can facilitate knowledge sharing between workers (Burmeister et al., 2018b). However, bidirectional knowledge transfer (i.e., the exchange and receipt of knowledge between two employees) is a challenging process that requires time and effort from both parties (Burmeister et al., 2018b). In this context, the task of management and the HR department is to develop tools and effective frameworks for knowledge transfer (Alina-Daniela, 2018).

Currently, it is noticeable that the age structure of the labor market, as well as the age structure within organizations, is changing, with an increasing proportion of older employees. These shifts in age structure within organizations are likely to affect how members of the organization interact with one another. Knowledge transfer between employees significantly different in age is becoming increasingly important for organizations: if companies fail to stimulate internal knowledge transfer, the knowledge of retiring employees will be lost. In other words, for organizations, the near-simultaneous retirement of a large number of employees poses a significant threat in terms of losing valuable knowledge (Schmidt and Muehlfeld, 2017).

The topic of interrelationships among variables such as HR practices promoting age diversity, a workplace climate supportive of age diversity, and knowledge transfer has been addressed in a limited number of scientific publications (Burmeister et al., 2018b). This highlights the need for further exploration of the connections between these variables. Existing literature indicates that HR practices promoting age diversity are positively related to both sharing and receiving knowledge, considering the context of a workplace climate supportive of age diversity. This suggests that a workplace climate supportive of age diversity, initiated by HR practices, can facilitate behaviors directed towards colleagues, such as knowledge transfer. Moreover, a bidirectional perspective on HR practices, based on planning and subsequently implementing these practices at the organizational level and employees' perceptions of HR practices, is particularly useful when examining relational outcomes, such as knowledge transfer behaviors (Haak-Saheem et al., 2017).

It is likely that behaviors such as participating in knowledge transfer are driven by shared employee experiences and a common work environment (Burmeister et al., 2018b). In other words, for an organization to achieve success in knowledge transfer, it must retain key employees who are or will become so--called knowledge keepers (Larkin and Burgess, 2013).

Researchers suggest that future studies should focus on the impact of age on knowledge transfer behaviors. It appears worthwhile to investigate how organizational practices, such as age-inclusive HR practices and an age-diverse climate, create a positive work atmosphere for employees of all age groups and how age context influences knowledge sharing and acquisition. Age-inclusive HR practices may buffer or even alter the relationship between age and knowledge transfer (Burmeister et al., 2018a; Burmeister et al., 2018b).

The aforementioned workplace atmosphere as a collaborative solution is based on the concepts of "high involvement" or "high concern" for the transfer and creation of knowledge among team members. Features of high concern include mutual trust, the belief that other team members have the capacity to absorb and retain knowledge, and a high level of empathy, meaning emotional understanding of the situation of others. This team atmosphere, as genuine internal collaboration among team members, can be built through several initiatives led by a leader whose main task is to coordinate and integrate the various perspectives within the organization. In addition to guidelines for establishing a reward system related to knowledge sharing, the leader can provide both physical and virtual spaces for teamwork training and organize social events to strengthen formal and informal interactions among team and organization members (Martín-de-Castro and Montoro-Sánchez, 2013).

Furthermore, an appropriate workplace atmosphere and trust are considered crucial variables for reducing counterproductive behaviors associated with fear and uncertainty, as they foster increased willingness to change and accept new ways of working and thinking (Bengoa, 2013). Knowledge transfer can indeed generate some anxiety, uncertainty, and fear of the unknown. It is commonly acknowledged that adopting something new is perceived as risky and potentially problematic. There is a strong preference among employees to value their expertise and avoid new initiatives, even if they offer potential improvements in performance (Bengoa, 2013). In other words, the potential for improvement and development is hampered if appropriate HR practices and a supportive climate are not properly implemented in the organization. Considering the above arguments, the following hypothesis can be formulated:

H7. HR practices promoting age diversity and a workplace climate supportive of age diversity are positively associated with knowledge transfer.

Knowledge sharing among employees is particularly important in today's labor market, where there is an unprecedented age gap between the youngest and oldest employees (Appel-Muelenbroek and Haynes, 2011). To ensure the competitiveness of a company, managers are obligated to organize the knowledge exchange process between employees who are retiring and those who are just beginning their careers (Stevens, 2010). Managers must focus on both creating and maintaining knowledge, sharing this knowledge among employees, and facilitating connections between employees using the methods and tools available within the organization. This is especially crucial since each age group of employees has grown up in different social and economic realities, values different things, and has different experiences.

In summary, managers must determine how to bridge the mental age boundaries and increase knowledge sharing within the organization. They need to assess whether the attributes of employees from different age groups shape knowledge-sharing patterns and identify the most common methods of knowledge exchange within specific age groups (Sanaei et al., 2013).

The vision of future difficulties in accessing skilled labor, the prospect of workforce attrition due to the retirement of older employees, and the departure of leaders who have built the largest and most dynamic enterprises of today, including Polish enterprises, necessitate the implementation of knowledge transfer systems among age-diverse employees. However, scientific research indicates that this is a complex and challenging process. Its implementation is hindered by factors such as:

- lack of awareness and/or underestimation by management of the threats posed by global demographic changes;
- manifestations of workplace discrimination based on age;
- reluctance of older employees to develop their knowledge and skills;
- inability and unwillingness to share knowledge;
- absence of management systems that consider the changing roles of employees in the context of age and experience (Richert-Kaźmierska, 2012).

Research conducted by Senior Intergenerational Social Capital (SISC) (*Knowledge sparing*…, 2009) in Poland and Germany indicates that Polish companies view the loss of knowledge due to the retirement of older employees as a critical issue, whereas German companies consider it relatively insignificant. General, universal reasons why companies do not fear losing know-how when employees retire include:

- the practice of employees passing on knowledge and experience during work;
- efforts to ensure that knowledge lost due to the retirement of older employees can be relatively easily replenished through training remaining employees;
- the existence of a system for recording and archiving organizational knowledge;
- the work norm that employees exchange knowledge and experience while working in multi-generational teams (*Knowledge sparing*…, 2009).

Previous research suggests that age-inclusive HR practices can impact organizational outcomes by influencing employee behavior (Haak-Saheem et al., 2017). Additionally, HR practices can positively affect knowledge transfer (Burmeister et al., 2018b). Specifically, age-inclusive HR practices can foster positive professional behaviors among employees of all age groups, such as knowledge transfer. HR practices aim to leverage employees' knowledge, skills, and abilities, providing them with the means to perform their jobs optimally. Employees from all age groups are then more likely to engage in knowledge transfer as they feel accepted by their colleagues and are motivated to fulfill their professional duties to the best of their abilities. For example, instead of hindering older employees' access to training and development activities or limiting younger employees' chances for promotion to managerial positions, age-inclusive HR practices ensure that employees of all age groups have equal opportunities at work (Barjak et al., 2015; Burmeister et al., 2018b). Organizations cannot change the age of their employees, but they can influence the perceived ability and motivation of employees to share and receive knowledge (Burmeister et al., 2018b).

As previously discussed, there are clear benefits associated with knowledge transfer. Unfortunately, these potential organizational benefits are not always readily apparent to individual employees, which can result in a lack of willingness to participate in knowledge exchange. Therefore, applied HR practices should highlight the benefits of certain behaviors, such as active engagement in knowledge transfer, or directly provide these benefits (Ajmal and Koskinen, 2008). It is also crucial to recognize the contributions of older, experienced employees. Specialists and managers must support employees undergoing age-related changes (Alina-Daniela, 2018).

This is particularly important as knowledge loss can result from the retirement of senior employees, workforce planning deficits, and the general aging of the workforce. An inevitable reality of organizational life is that valuable employees leave voluntarily or due to circumstances beyond their control. While some knowledge loss can be anticipated and managed, other losses are unpredictable. Events such as death, disability, voluntary resignation, and other life events cannot always be foreseen and controlled. However, organizations have significant capabilities and resources to anticipate and, to some extent, manage the retirement of certain groups of employees. Organizations risk losing substantial knowledge resources due to the impending retirement of a large number of employees. Many of these employees have accumulated extensive knowledge, skills, and wisdom that have either not been captured in the organization's collective memory system or personally transferred to others within the organization (Calo, 2008).

Therefore, managers must visibly support the organization's commitment to the knowledge transfer process to adapt to the changing demographic landscape, as achieving this goal will require changes to past practices and ingrained attitudes. The principles and practices necessary for knowledge transfer are embedded within HR functions, making engagement and leadership in human resource management essential (Calo, 2008).

The literature identifies several specific HR practices that can relate to employees of different ages and influence their engagement in knowledge transfer. Firstly, three sets of practices can be distinguished:

- practices enhancing abilities, such as formal selection tests, structured interviews, selective hiring, high compensation, and training opportunities;
- practices boosting motivation, such as rewards based on individual and group performance, formal performance evaluation mechanisms, and merit-based promotion systems;
- practices increasing opportunities, such as formal participation processes, regular communication, and work autonomy (Caligiuri, 2014; Haak-Saheem et al., 2017).

Secondly, it is important to consider HR practices with relational implications, such as on-the-job training, cross-training, collective performance rewards, job co-design, onboarding, and job rotation (Kaše et al., 2009; Caligiuri, 2014). It is also worth noting HR practices that view work systems as an integral part of any strategic human resource management model. This approach can encompass practices influencing work time, physical workspace, and the nature of work tasks (Kaše et al., 2009). During collaborative projects, the creation of shared workspaces, or the achievement of common goals, the perception of HR practices affects the intensity of employees' social interactions. Researchers emphasize face-to-face interaction as a necessary condition for the transfer of tacit knowledge. This relationship consists of goodwill and competence-based trust, which, as shown by researchers, play a crucial role in interpersonal knowledge transfer. Goodwill trust refers to the belief in a colleague's good intentions, while competence-based trust denotes confidence in a colleague's abilities. This is particularly important for tacit knowledge, which is difficult to formalize and is best transmitted through direct social interaction. Similarly, participation in group training increases the likelihood of interaction with colleagues, unlike individual training (Kaše et al., 2009; Caligiuri, 2014). Training programs can aim to improve employees' communication skills, enhance team-building behaviors, and increase employees' self-efficacy in knowledge transfer, thereby reinforcing the importance of knowledge sharing (Caligiuri, 2014). Mentoring follows a similar principle. Mentors who can help their mentees more effectively engage in knowledge sharing should positively impact the knowledge transfer process. The presence of experienced mentors increases perceived efficacy in the knowledge transfer process (Caligiuri, 2014).

The third group of practices supporting knowledge transfer consists of motivational and reward-oriented practices. Researchers have demonstrated that incentive systems directly impact knowledge transfer. These observations are based on the reasoning that incentives and other explicit motivational factors drive individual behaviors, including those related to knowledge transfer, thereby promoting interpersonal knowledge sharing. Consequently, such behaviors should be rewarded more than merely accumulating knowledge. This not only stimulates knowledge sharing but also increases the willingness to acquire and integrate knowledge (Kaše et al., 2009; Caligiuri, 2014). This implies that rewards can effectively encourage employees to transfer and share knowledge, whereas the lack of incentives is a significant barrier to knowledge transfer and sharing (Caligiuri, 2014; Meddour et al., 2016).

The fourth example of HR practice packages includes performance appraisal systems, which ensure that employees receive feedback on their effectiveness and competencies, and that measures to improve their skills in areas important to the company are discussed and agreed upon. There is substantial evidence that investments in employee training pay off in terms of increasing the company's human capital, with a generally positive relationship between employee training and organizational performance. The effectiveness of even highly skilled employees will be limited if they lack the motivation to act. In this context, several HR practices can influence individual performance by providing incentives that elicit desired behaviors. Such motivational systems may include performance-based compensation, which promotes desired behaviors, and internal promotion systems that focus on employee merit and help them overcome invisible barriers in career development. Promoting employees from within the company is likely to provide a strong motivation for employees to work hard to achieve advancement. Additionally, previous studies have shown that employees are more motivated when they are aware of what is happening within the company. Therefore, extensive internal communication within the organization is also likely to contribute to employee motivation (Minbaeva et al., 2003; Caligiuri, 2014).

The fifth package of HR practices focuses on employees transitioning into retirement. Continuing employment after reaching retirement age may discourage workers from maintaining intensive work efforts once they are eligible for retirement benefits. An approach that removes age and years of service as the sole criteria for retirement aims to retain older employees and facilitate knowledge transfer between employees. Employee well-being within the organization should be considered. Implementing a more flexible approach benefits both employees wishing to continue working and organizations valuing the skills of older employees. Adjusting the work environment to the needs of older employees should only require applying or extending many family-friendly policies and practices, such as job sharing, telecommuting, flexible working hours, and part-time work. Additionally, a flexible retirement system should be implemented to promote a gradual transition into retirement rather than a sudden separation from the organization (Calo, 2008).

The aforementioned examples highlight the *p*-value of human resource management (HRM) practices in enhancing employees' capabilities and motivation for knowledge sharing, which in turn impacts knowledge transfer (Shen et al., 2012; Shen et al., 2014). If employees are responsible for creating an open, accepting, respectful, and psychologically safe climate, they should be more effective in engaging in knowledge transfer. HR management practices can encourage knowledge transfer when they promote more cooperative and open group functioning and reward effective knowledge sharing (Caligiuri, 2014). Based on this, the following hypothesis is proposed:

H7a. HR practices that support age diversity among employees are positively associated with knowledge transfer.

It is frequently noted in the literature that organizational culture is positively associated with knowledge transfer (Chen et al., 2017). An organization must cultivate an appropriate culture to encourage individuals to create and share knowledge, as organizational culture fosters a supportive environment that facilitates knowledge sharing at the individual, group, and organizational levels. Furthermore, culture acts as a mechanism of social control that can either encourage or impede the creation, transfer, and sharing of knowledge within the organization. Promoting positive organizational values such as openness, trust, error tolerance, and shared goals enhances knowledge transfer and sharing, thereby improving organizational performance (Meddour et al., 2016).

Despite the recognized importance of a conducive workplace atmosphere for knowledge transfer, it is crucial to consider the obstacles and barriers that may arise in this process. Specifically, there are barriers related to the fair and transparent analysis of errors that employees might commit. There is often a lack of an open atmosphere that would facilitate the articulation and analysis of mistakes (Ajmal and Koskinen, 2008). In many ways, these issues reflect deficiencies in organizational culture. Depending on specific characteristics and circumstances, knowledge transfer can even be detrimental to organizational performance. When the organizational environment becomes more turbulent, the benefits of knowledge transfer diminish. Additionally, at the organizational level, broader access to organizational memory can make global knowledge transfer less beneficial for organizational outcomes. Research suggests that organizations might forego investments in both organizational memory systems and knowledge sharing if they deem that access to common knowledge could be irrelevant or even harmful to achieving their core objectives.

Studies have shown that knowledge transfer among employees has significant implications for various organizational processes and outcomes, such as the dissemination of best practices, organizational learning, innovation, and ultimately financial performance (Levine and Prietula, 2012). Therefore, it is crucial to ensure every element that enhances positive knowledge transfer is addressed. Given that organizational climate heavily depends on organizational culture, the greatest challenge to knowledge transfer is not a technological barrier, such as the existence of information systems, but a cultural barrier. This barrier is associated with the prevailing attitude that possessing information is less important than sharing it (Ajmal and Koskinen, 2008).

The literature more frequently points to the relationship between the overall organizational climate and knowledge transfer than to the relationship between organizational culture and knowledge transfer (Zhang and Begley, 2011). Knowledge transfer is facilitated when employees can leverage knowledge resources in an atmosphere of collaboration and mutual integration. Both informal cooperative ties and clearly defined rules for formal contact are conducive to this process (Zhang and Begley, 2011). Building trust is crucial in this context. Trust is the extent to which an individual is willing to initiate contact and interaction with others, serving as a potential determinant of knowledge transfer between employees. A low level of trust results in less knowledge sharing. Therefore, it is essential for an organization to foster a climate of trust and openness in an environment where continuous learning and experimentation are highly valued and supported (Maurer et al., 2011).

Communication also plays a significant role in knowledge transfer (Bengoa, 2013). Communication creates a space for people to collaborate in order to achieve individual or collective improvements in knowledge transfer (Rahman et al., 2018). Knowledge transfer involves a certain degree of uncertainty regarding whether colleagues are capable and motivated to share or receive knowledge, highlighting the importance of credibility in the context of knowledge transfer. Credibility is defined as a continuum of competence, benevolence, and honesty of individuals, which can lead to trust if positively assessed in a given situation. Generally, colleagues rely on each other based on the expectation that the other party will act in a trustworthy manner (Burmeister et al., 2018a). This perspective further reinforces the belief that if the overall organizational climate positively influences knowledge transfer, a similar relationship should exist for a climate specifically focused on the age diversity of employees.

There is limited research available in the literature confirming that a climate supporting age diversity is positively related to knowledge transfer and age diversity among employees (Shen et al., 2012; Shen et al., 2014; Burmeister et al., 2018b). An age-diverse climate reflects the shared understanding among employees that age is not a limiting factor that could restrict access to development tools or effective communication for employees of different ages. A neutral or even supportive environment for diversity should motivate both older and younger employees to develop their full potential and contribute to organizational goals by engaging in knowledge transfer. Knowledge transfer provides employees from different age groups the opportunity to learn through receiving and consolidating their knowledge and to share their knowledge with others.

Furthermore, an age-diverse climate can facilitate knowledge transfer by creating an environment that encourages the utilization of acquired knowledge in everyday work across all age groups. As a result, employees may be more willing to share their knowledge with others, as they do not fear ridicule or the devaluation of their knowledge as worthless or irrelevant (Burmeister et al., 2018b). Research shows that individual agility and intergenerational learning are positively linked to innovative work behavior. An age-diverse climate acts as a mediator, strengthening the connection between these factors by promoting teamwork and mutual learning. Furthermore, intergenerational leadership enhances the relationship between an age-diverse climate and innovative behavior, emphasizing the importance of guidance that encourages collaboration across age groups. In this way, both knowledge transfer and innovation can flourish when a workplace actively supports age diversity (Putra et al., 2024). Considering the above, it is worthwhile to examine the impact of a climate supporting age diversity on knowledge transfer, proposing the following hypothesis:

H7b. A workplace climate that supports age diversity among employees is positively related to knowledge transfer.

In the extant literature, empirical evidence is indicated for the moderating role of age diversity, for instance, in the relationship between HR practices fostering age diversity and the workplace climate supportive of age diversity, and knowledge transfer (Burmeister et al., 2018b). However, an alternative perspective worth considering is the mediation perspective:

H8. Age diversity among employees mediates the relationship between HR practices fostering age diversity and the workplace climate supporting age diversity, and knowledge transfer.

Considering the scarcity of articles addressing such a narrow research area as mediating variables in the relationship between HR practices and climate and knowledge transfer, several other related studies can be identified. It has been confirmed that HR practices indirectly influence organizational outcomes (Kaše et al., 2009). Researchers have suggested that social networks be the mediator in this relationship. Following this line of reasoning, it is plausible to consider another assumption, namely, that age diversity among employees serves as the mediating variable, given this specific diversity context. Thus, the following hypothesis can be posited:

H8a. Age diversity among employees mediates the relationship between HR practices fostering age diversity and knowledge transfer.

A work environment characterized by a positive approach to learning positively affects the knowledge exchange process. Scholars suggest that this effect will be even stronger in a multigenerational environment, where age diversity among employees is high. This suggestion is based on several arguments: a trust-enhancing climate increases employees' belief that knowledge exchange and integration will bring value not only to individuals but also to the entire organization. There is also a belief that employees, regardless of age, can acquire new knowledge, assimilate it, and utilize it if they are surrounded by supportive individuals who are friendly towards them and can assist them in any situation

(Schmidt and Muehlfeld, 2017). The literature also emphasizes that knowledge transfer is an organizational goal dependent on four interrelated skills of individuals of different ages: open communication, trust, conflict resolution skills, and integration (Cox and Holloway, 2011). The team's communication style influences its dynamics. The ability to decipher the communication style of individuals from a different age group is important for team cohesion. Creating an age--diverse team that can openly discuss and agree on communication methods requires team members to develop traits such as tolerance, understanding, and distance. Open communication and trust are closely related. One of the guidelines for building trust is communication, as employees should be provided with timely information about work, explain rules and decisions, and provide constructive feedback. Open communication and conflict resolution are also closely linked, as evidenced by numerous studies indicating that most conflict situations arise due to a lack of open communication and willingness to listen to the other party. Open communication and integration are also closely linked, as integration often relies on acceptance, understanding, and appreciation of different communication styles. As mentioned earlier, trust and open communication are strongly linked. Lack of trust will always be an obstacle to conflict resolution. Participation is the ability to engage people who may act and solve problems in a completely different way than employees of a different age. It is a two-way relationship. Inclusion, participation, and integration are also the ability to engage and interact with a diverse group. Engaging in a diverse, different group requires skills, maturity, distance, and patience to understand and appropriately adjust one's behavior to the generally accepted behavior in the workplace (Cox and Holloway, 2011). Highlighting the above arguments and demonstrating the existence of a research gap arising from the scant number of studies on the relationship between these variables in the context of age diversity, the following hypothesis can be proposed:

H8b. Age diversity among employees mediates the relationship between the workplace climate supporting age diversity and knowledge transfer.

Often in the literature, the moderating role of age diversity is pointed out between: practices applied in work and work outcomes (Chan and Wu, 2009); the nature of work (e.g., autonomy) and job satisfaction (Drabe et al., 2015); highly effective work systems (HPWS) and organizational outcomes (Lin et al., 2014; Lu et al., 2015); team cohesion and trust, and cohesion and creativity (Wei et al., 2018); leadership and team outcomes (Hoch et al., 2010). Age, as a chronological measure, also appears as a moderating variable between: the level of mentorship and career development (Ferrero-Ferrero et al., 2015); groups of employees (younger and older) and the evaluation of their work performance

(Finkelstein et al., 1995); procedural justice perception and longer sick leaves (Tenhia¨la¨ et al., 2013); perceived workload and self-efficacy (Gärtner and Hertel, 2020); HR practices and employee positive attitudes (Innocenti et al., 2013); integration and work engagement (Li et al., 2021a); age diversity and employee health (Liebermann et al., 2013); adaptation to the demands of the digital economy and corporate system and the utilization of the potential of older workers (Soja and Soja, 2020).

3.5. Knowledge transfer in the context of age diversity and organizational outcomes

The intellectual capital and talent of employees have become significant competitive advantages for organizations, even influencing their survival (van Wijk et al., 2008; Maurer et al., 2011; Meddour et al., 2016; Chen et al., 2017). In a knowledge-based economy, the competitive advantage of organizations lies in their ability to adapt to a changing environment through continuous generation and utilization of new knowledge as a valuable intangible asset. This specific ability is referred to as knowledge productivity (Đorić, 2019). It implies that the absorptive capabilities of organizations, their ability to create, transfer, assimilate, transform, and utilize knowledge, are crucial for organizational success (Caligiuri, 2014). Knowledge held by individual employees is more crucial for this competitive advantage than physical assets and other material resources (Barry Hocking et al., 2004). The knowledge possessed by individuals must be transmitted to others to be used for organizational goals (Calo, 2008). This is because knowledge is considered the most important resource an organization can have, as possessing knowledge is a fundamental condition for progress and economic success in a knowledge-based society (Schmidt and Muehlfeld, 2017). Therefore, organizations have initiated the process of codifying and unifying knowledge, creating organizational memory systems. Organizational knowledge resides in the organization's memory system, not just in the competencies and experiences of individual employees. This ensures that the knowledge does not disappear as individual employees come and go, and its existence enables organizational actions. This protects the organization from knowledge loss and, consequently, from a decrease in its ability to operate effectively or make decisions (Calo, 2008).

According to the prevailing view, organizational knowledge transfer is positively associated with outcomes and innovations (van Wijk et al., 2008).

Potential benefits of more effective knowledge management include: better work organization and financial performance; increased innovation capability; development of core competencies; better decision-making; greater sensitivity to changes; more unified strategy; better customer service due to increased knowledge about them; improved employee morale; strengthened workplace relationships; and optimized labor costs (Islam et al., 2021). It is also worth noting that organizational outcomes are a multidimensional construct. Therefore, it is not surprising that researchers examining organizational outcomes have employed a range of different effectiveness indicators, such as those related to cost reduction or the shortening of the time required to complete a task, produce a product, or deliver a service, development of new or improved products, organizational flexibility, and risk approach. Considering these highly promising arguments, the following hypothesis can be proposed:

H9. Knowledge transfer is positively associated with organizational outcomes.

It is now beyond doubt that knowledge transfer serves as a source of competitive advantage for firms. Furthermore, competition acts as an external factor influencing a firm's potential to generate outcomes, including financial ones, and necessitates the assessment of these outcomes in comparison with those of competitors (Bahl et al., 2020). Therefore, in the conducted explanatory research, financial outcomes were analyzed within a specific time frame – three years – and in relation to competition. Hence, it seems reasonable to posit the following hypothesis:

H9a. Knowledge transfer is positively associated with organizational financial outcomes.

The study also hypothesized that knowledge transfer influences not only financial outcomes but also non-financial ones, as will be elaborated below:

H9b. Knowledge transfer is positively associated with organizational non--financial outcomes.

Among the types of non-financial outcomes are innovations. Innovation occurs through a process of recombining existing knowledge, in which existing knowledge is reapplied to solve a new problem. The potential for innovation is enhanced by knowledge transfer, which occurs through observing various experiences of other employees and supplementing one's own, which depends on the experiences of others (Jandhyala and Phene, 2015; Rudolph and Zacher, 2024).

The *p*-value of knowledge transfer as a contribution to innovation has found ample support in the literature. The ability to effectively transfer knowledge between units is crucial for innovation in creating new products, services, and even work organization (Zhang and Begley, 2011). Knowledge transfer enables organizations to generate new ideas for developing new products because it stimulates the combination of existing and newly acquired knowledge and enhances an individual's ability to create new connections and associations. Moreover, knowledge accumulation not only allows for more efficient use of related knowledge but also enables organizations to better understand and evaluate the commercial potential of technological progress (van Wijk et al., 2008). Efficient knowledge transfer is also a necessary condition for organizational innovation, as know-how, experiences, and best practices must be shared among employees to achieve a higher level of innovativeness (Spraggon and Bodolica, 2020). In summary, knowledge transfer can contribute to the reallocation of existing resources or the combination of new resources, which generate greater innovation (Maurer et al., 2011).

Given that previous research suggests that organizational-level knowledge transfer enhances innovation (Huysman and de Wit, 2004; van Wijk et al., 2008; Bengoa, 2013; Chen et al., 2017; Rudolph and Zacher, 2024), the following hypothesis can be proposed:

H9b1. Knowledge transfer is positively associated with organizational innovation.

Organizations face both apprehension regarding the implementation of knowledge transfer and the inherent risks associated with any investment. However, well-executed and supported knowledge transfer can aid in investment decision-making.

Amidst the many threats that may hinder the process of knowledge transfer, perceiving the credibility of the other party becomes essential for employees to be willing to take risks and engage in potential knowledge exchange. It appears that realizing such knowledge transfer requires an adequate level of trust in other employees (Becerra et al., 2008).

Knowledge exchange among employees can reduce uncertainty levels within an organization and provide firms with strategic benefits, such as preventing competition. Previous research typically assumes that when a certain level of uncertainty is reduced, it becomes common knowledge within an investing organization. In other words, the details of organizational learning – namely, how employees learn about new technology and how knowledge is transferred from one employee to another within the organization − have not been precisely examined, as otherwise, it would be common knowledge (Geng et al., 2009). Employees are encouraged to make risky decisions, test proposed solutions, and implement new ideas. Therefore, the following hypothesis can be proposed:

H9b2. Knowledge transfer is positively associated with risk-taking approach in the organization.

The final type of non-financial outcomes is organizational flexibility. The organization of the future is a modern one that combines the knowledge of older employees with the enthusiasm of younger employees and utilizes management tools adapted to knowledge and experience transfer. The global world must anticipate technological development, climate change, migration phenomena, and demographic changes related to age. Research conducted in international companies affected by the aging workforce problem has shown that organizations are not ready for knowledge transfer between employees of different age groups. It turned out that employees need to be trained to be aware that knowledge, at least in key positions, must be passed on to young employee representatives. It is important to remember that human capital is very sensitive. For example, older people are not as open to communication as younger employees. Due to age, they are afraid to be communicative and open to learning from younger colleagues. Older workers must be recognized as a real asset to the company. This indicates that an increasing number of individuals are working later in life due to the extension of professional careers, necessitating organizational adaptation to the varying expectations and work styles of different generations (Bellotti et al., 2022). In this case, it is the task of management and the HR department to create tools and effective frameworks for knowledge transfer. Very important in this change management, even in approaches to knowledge exchange, is identifying a person who has the ability to be a change promoter. It is estimated that adapting one organization to change can take up to 5 years, and the change must begin at the level of organizational culture (Alina-Daniela, 2018). Change is important for the survival and development of companies (Bahl et al., 2020). Therefore, the following hypothesis can be proposed:

H9b3. Knowledge transfer is positively associated with organizational flexibility.

In summary, the literature suggests that knowledge transfer is significant for organizations with diverse age groups of employees. Firstly, due to the involvement of various age groups in organizations, knowledge transfer activities should be tailored to the often diverse developmental needs of employees of different ages (Kulik et al., 2014). Secondly, with the increasing number of older employees, organizations are forced to find ways to preserve valuable knowledge within the organization before older employees retire to ensure organizational success (Gerpott et al., 2017).

Scientific research on knowledge transfer among employees from different age groups has recently become the focus of scholars' interest (Kulik et al., 2014). Preliminary empirical evidence suggests that knowledge transfer between younger and older employees can be valuable because it allows for the utilization of the diverse knowledge of others to achieve good financial and non--financial organizational outcomes. However, age diversity among employees can also hinder knowledge transfer, as employees naturally tend to prefer interaction with peers, people with similar characteristics, especially regarding sociodemographic traits such as age. Age differences can thus complicate communication, collaboration, and knowledge transfer. Therefore, knowledge transfer among employees diversified by age is a challenging process that must be supported by the organization (Burmeister et al., 2018b). These arguments lead to the conjecture that knowledge transfer mediates the relationship between age-diverse employee groups and organizational outcomes, as reflected in the following hypothesis:

H10. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational outcomes.

Literature suggests that there are studies confirming the direct impact of social capital on organizational outcomes. However, these studies largely neglect the empirical analysis of the processes through which social capital influences organizational outcomes. Although knowledge transfer is one of the possible processes that can help explain why and how social capital can affect organizational outcomes, it is not the only important element in this relationship. Social capital can influence organizational outcomes not only through enhanced knowledge transfer within the organization but also through supporting internal resource exchange or joint utilization of material or human resources. Furthermore, it can be argued that social capital affects organizational outcomes because intra-organizational ties among members form the basis for social comparison processes. As a result of these processes, employees are motivated to perform in line with or better than others at work. Therefore, it is worthwhile to empirically examine whether knowledge transfer mediates between social capital and organizational outcomes (Maurer et al., 2011). Concerning non-financial organizational outcomes, such as innovation and creativity, research indicates that diversity – albeit related to employees' knowledge – is significantly and indirectly associated with team creativity through knowledge sharing at the individual level (Hou et al., 2021). Thus, it can be considered whether knowledge transfer may mediate the relationship between age-diverse employee groups and organizational outcomes by empirically testing the following hypotheses:

H10a. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational financial outcomes.

H10b. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational non-financial outcomes.

H10b1. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational innovation.

H10b2. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational risk-taking approach.

H10b3. Knowledge transfer mediates the relationship between age-diverse employee groups and organizational flexibility.

In conclusion, society is rapidly aging, although its demographic changes are only beginning to be treated by many organizations as a strategic and competitive process. Organizations must take steps to develop effective strategies for transferring valuable knowledge held by older employees to other organization members (Alina-Daniela, 2018). Organizations must have the ability to transfer knowledge, especially tacit knowledge, as it is embedded in individuals and contexts. Its transfer among people can be slow and uncertain, making the transfer of tacit knowledge one of the most challenging aspects of knowledge management processes. Since the value of knowledge transfer is so obvious, why does it not occur naturally and universally? In reality, most employee behaviors are determined by organizational culture, and while there are cultures that reward and encourage knowledge transfer, other cultures inadvertently discourage knowledge transfer. Additionally, researchers have found that knowledge contribution is an altruistic action because it is made for the benefit of other organization members. Scholars argue that the fact that individuals contribute their knowledge for the benefit of others can be explained by social exchange theory, which assumes that individuals will contribute their knowledge even if it is not formally rewarded. Investigating how external and internal benefits may differ in terms of their impact on knowledge contributors, it was found that the joy of helping others is more important than organizational rewards serving as motivators for knowledge sharing. Therefore, it should be evident that knowledge sharing will occur even more frequently if the organizational culture supports, encourages, and fosters knowledge transfer. Good intentions will not yield desired results if the work environment and culture in the organization do not encourage and support knowledge transfer (Calo, 2008). Knowledge transfer requires a group or individual's willingness to work with others and share knowledge for mutual benefit. Without knowledge sharing, it is nearly impossible to transfer knowledge to another person. Therefore, knowledge transfer will not occur in an organization if its employees do not exhibit a high level of cooperative behaviors, such as cooperation, integration, trust, communication, kindness, and honesty (Islam et al., 2021). This is important because organizational knowledge transfer contributes to the development of capabilities and utilization of existing competencies. Moreover, as previous research has shown, knowledge transfer has a significant impact on organizational outcomes, such as financial and non-financial outcomes (including innovation) (van Wijk et al., 2008; Rudolph and Zacher, 2024).

Chapter 4

EMPIRICAL RESEARCH METHODOLOGY: EXAMINING AGE DIVERSITY, HUMAN RESOURCE PRACTICES, KNOWLEDGE TRANSFER, AND ORGANIZATIONAL OUTCOMES

This chapter is of critical importance to the overall study as it establishes the methodological framework that underpins the empirical investigation. The robustness of any research lies in its methodology, which ensures the credibility and reliability of the findings. By meticulously detailing the research model, hypotheses, and the operationalization of variables, this chapter provides the necessary foundation for exploring the complex relationships between age diversity among employees, human resource practices, knowledge transfer, and organizational outcomes (Czakon, 2011). The careful articulation of these elements is not only crucial for validating the research but also for contributing to the broader academic discourse on age diversity and its impact on organizational performance.

The chapter begins by presenting the conceptual research model, which is derived from an extensive literature review and is instrumental in guiding the empirical analysis. This model serves as a theoretical framework that links age diversity with organizational outcomes, while also considering mediating variables such as a supportive workplace climate and effective HR practices.

In addition to the theoretical underpinnings, the chapter provides a detailed description of the empirical research design, including the process of sample selection and the characteristics of the research sample. This section is particularly important as it outlines the rationale behind the selection of the sample and ensures that the research findings are generalizable to the broader population. The methodology section also discusses the tools and techniques used for data collection, such as surveys and questionnaires, which are designed to accurately measure the variables of interest. The choice of these tools is justified by their relevance and validity in the context of the study, ensuring that the data collected is both reliable and valid (DeVellis, 2016).

Furthermore, the chapter delves into the statistical methods employed for data analysis, including the procedures for testing the research hypotheses. These methods are critical for assessing the relationships between the variables and for determining the extent to which the empirical data supports the theoretical model. The inclusion of detailed descriptions of these methods provides transparency to the research process and allows for the replication of the study by other researchers. This methodological rigor is essential for advancing knowledge in the field and for providing actionable insights that can inform both academic research and practical applications in human resource management and organizational behavior (Yauch and Steudel, 2003).

4.1. Basic research assumptions

Existing research has not provided sufficient models or analyses regarding the impact of age diversity among employees on organizational outcomes, particularly in relation to variables such as age-diversity-supportive workplace climate, HR practices, and knowledge transfer. The academic literature lacks detailed discussions on these relationships and their effects on organizational outcomes (scientific problem).

Current knowledge does not address how HR practices and a supportive climate for age diversity influence the level of age diversity and the effects of knowledge transfer within organizations. Additionally, studies have not considered how these variables impact both financial and non-financial organizational outcomes (research problem).

In light of this, the primary aim of further research is to understand how age diversity among employees affects organizational outcomes, considering the roles of variables such as a supportive workplace climate, HR practices, and knowledge transfer. To achieve this goal, ten main hypotheses and nineteen detailed hypotheses have been formulated, addressing both direct and indirect relationships between these variables. The main hypothesis posits that age diversity among employees significantly influences organizational outcomes, with its effect mediated by age-diversity-supportive workplace climate, HR practices, and knowledge transfer.

The above dependencies have been incorporated into the research model presented in Figure 4. Each arrow in the model describes the relationships between variables that are mutually linked. The direction of the arrow indicates which variable is the explanatory construct and which one is the explained construct. Above the arrows, research hypotheses describing the specific dependencies are indicated. In the case of hypotheses H4, H8, and H10, the assumed mediating effects are: age-diversity-supportive workplace climate (H4), age diversity among employees (H8), and knowledge transfer (H10), respectively.

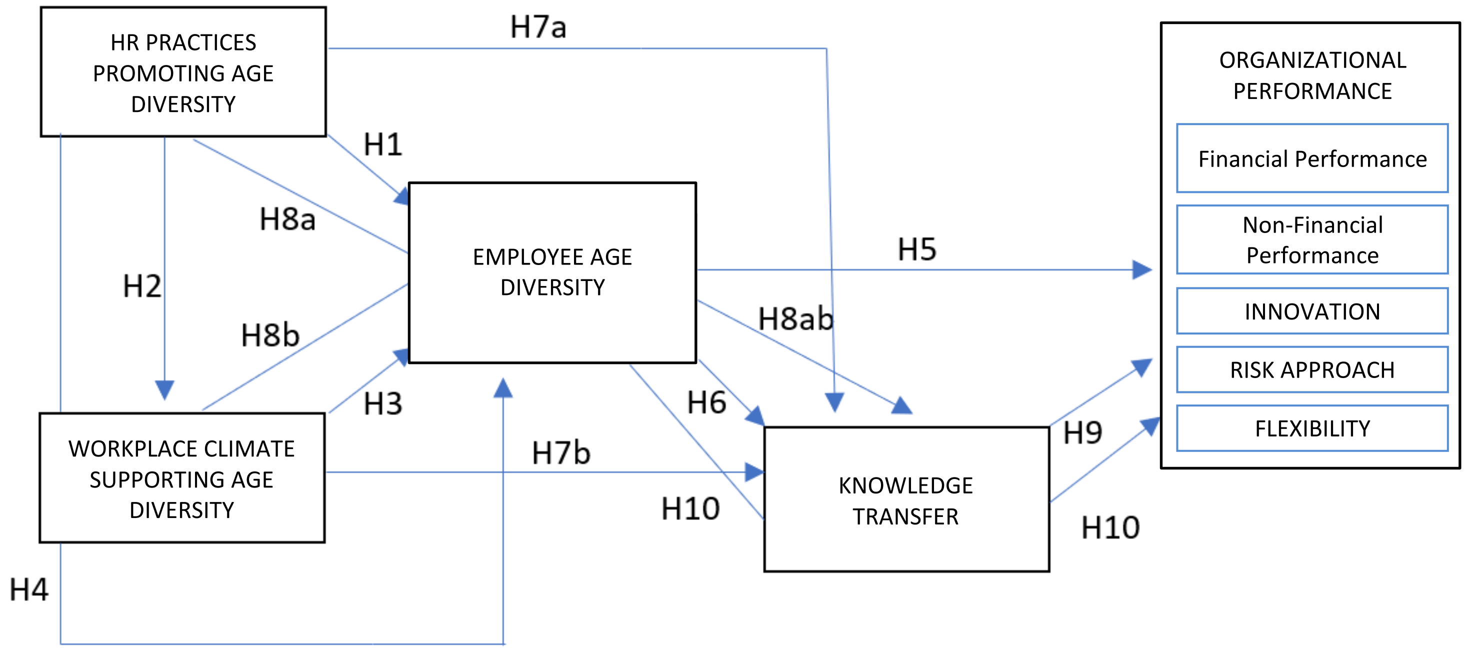


Figure 4. Conceptual model of the relationship between employee age diversity and organizational outcomes, HR practices promoting age diversity, knowledge transfer, and workplace climate supporting age diversity

Source: Compiled by the author.

In summary, the specificity of the adopted research assumptions suggests that the exploratory approach takes on the character of incomplete enumerative induction − the formulated specific hypotheses may not encompass all possible or exploited relationships concerning age diversity among employees (Czakon, 2011).

4.2. Description of the procedure of conducted empirical research

The entire research process, subordinate to abductive logic, proceeded in two parts, focused on secondary and primary exploration (Part I) and quantitative explanation (Part II). The first part of the research stage was of a reconnaissance nature. Its aim was to justify the need for research, recognize the existing state of knowledge (both scientific and industry-specific), identify limitations of the existing scientific knowledge base, identify knowledge gaps and recommended directions for further research, and identify basic assumptions regarding the operationalization of the relationship between the impact of age diversity among employees and organizational outcomes, taking into account other variables, such as, for example, a climate supporting age diversity. The implementation of the first part constituted a preliminary stage of proper research, aimed at solving the research problem. The research undertaken in the first part was indirect. In total, in the reconnaissance part of the research process, described and presented in chapters 1, 2, and 3, two research techniques were used: a systematic literature review with ongoing updates and a critical analysis of the so-called grey literature, including non-academic publications dedicated to the examined topic and considering the identification of examples from business practice (so-called best practices).

The second, explanatory part of the research procedure aimed to provide empirical material allowing for testing hypotheses and the research model, but above all, it served to solve the research problem. The results of the work were presented in chapter 5 of this monograph. The research carried out in the second part was indirect and utilized a questionnaire survey in quantitative research.

In the first stage, a systematic literature review was conducted to recognize the state of knowledge regarding the influence of age diversity among employees on organizational outcomes and related factors, as well as to justify the consideration of aspects pertaining to this relationship. The objective was achieved by employing the methodology of systematic literature review, enabling a critical and objective synthesis of the scholarly literature in the selected research area. The analytical approach facilitated the identification and assessment of existing theoretical approaches, the identification of key knowledge gaps and limitations of previous research, which collectively formed the basis for constructing operational and measurement assumptions for future research (Yauch and Steudel, 2003).

The literature on age diversity among employees was collected from 2018 onwards, primarily from academic sources. Publications indexed in major international electronic databases, such as ProQuest, EBSCO, Scopus, and Web of Science, were considered, encompassing a significant portion of peer-reviewed publications in management journals, particularly in human resource management. Dedicated search engines for academic publications, including ResearchGate and Google Scholar, were utilized. Grey literature, including non-academic writings on the subject, such as reports from organizations like the European Foundation for the Improvement of Living and Working Conditions, was also included.

Following predefined criteria for literature collection, the process began with the application of keywords such as “age diversity”, “age diversity in the workplace”, and “age-diverse workforce”. Subsequent steps involved refining the search criteria, including limiting the search to publications in the social sciences, full-text availability, peer-reviewed publications, and publications dating from 2000 onwards. Additional keywords related to other variables, such as “practices of age”, “age-diversity climate”, “knowledge transfer”, and “organizational outcomes”, were incorporated to narrow down the literature base. A total of over 1730 publications meeting the initial criteria were identified.

The second stage involved analyzing case studies from business practice concerning HR practices supporting age diversity among employees. Grey literature analysis aimed to identify specific examples of supporting age-diverse employees in the workplace. Grey literature refers to documents not available through traditional book distribution channels, often inaccessible through normal bibliographic channels, and includes unconventional literature publicly available but not subjected to bibliographic control (Conn et al., 2003). In this study, grey literature consisted of business reports and codes of good practices focusing on HR management, particularly regarding age-diverse employees. Sources commonly recommended by other researchers, such as industry reports and online publications, were utilized. Examples include a report on good practices in age management conducted in 31 companies in the UK as part of a government awareness campaign (Bunt et al., 2005), and the proposal for the European Code of Good Practice on Age Management in Enterprises (Positive, 2007). Business report analysis corroborated the findings from academic literature analysis, highlighting age diversity among employees as a contemporary challenge for organizational leadership, warranting further investigation.

The third stage of the research comprised primary, intermediary quantitative investigations. This exploratory phase aimed to verify, refine, and complement the list of considered relationships between age diversity among employees and organizational outcomes. To empirically verify the previously presented hypotheses, a choice was made between two alternative avenues of inquiry, particularly the use of qualitative and quantitative research instruments, with the latter path selected. Utilizing quantitative research instruments involved operationalizing the variables under study, developing a research questionnaire, selecting a research sample, technically conducting the research – data collection, analyzing individual variables, and finally conducting an analysis of dependencies between the variables to verify the stated hypothesis (Yauch and Steudel, 2003).

The characteristics of the research sample are presented later in the work. The research was conducted from May to October 2021 using a questionnaire distributed via traditional and electronic methods. The survey is a data collection technique involving the completion, usually by the respondents themselves, of specially designed questionnaires, typically highly standardized.

To ensure the credibility of the research results, serving as the basis for the pace and quality of knowledge development, particular attention was paid to meeting the basic requirements of methodological rigor (according to the positivist paradigm) (Czakon, 2014a). Firstly, validity and internal consistency were ensured in the quantitative research (i.e., the adequacy of truth reflection), concerning measurement and inference, through the integration of literature review findings and discussions with representatives of the research population (consultations with representatives from academia and selected HR department representatives in organizations). Secondly, construct validity in quantitative research (i.e., the adequacy of operationalization) regarding the relationship between age diversity among employees was verified using previously developed tools meeting all methodological rigor (tools related to age-diversity climate, HR practices favoring age diversity, knowledge transfer, age diversity among employees, and tools for measuring organizational outcomes). Additionally, the adopted operationalizations, forming the basis for hypothesis testing and drawing conclusions, were verified at the initial stage of quantitative research (factor analysis and reliability analysis). Thirdly, external validity was confirmed in quantitative research (i.e., the ability to generalize results) within a limited industry scope. By integrating data from geographically unrestricted sources (international databases and secondary research results representing situations in other countries, as well as primary research conducted in Poland), it can be assumed that similar results to those indicated by international literature can be obtained in research conducted in Poland and other countries. Fourthly, efforts were made to maintain reliability to allow other researchers to achieve the same results if they follow the same steps, as during the research implementation, actions previously undertaken by other researchers dealing with age diversity were taken (Czakon, 2014b).

Other criteria for assessing methodological rigor (within the interpretive paradigm) include fidelity, transferability, solidity, and confirmability of the research process. Fidelity involves ensuring that the beliefs of the research participants are accurately reflected, relating to the adequacy of truth reflection. The next criterion is transferability, which denotes the ability to use research results by other researchers in their own studies, mainly through detailed descriptions of the empirical context – thus, it concerns a kind of ability to generalize results. Solidity is another criterion that pertains to the research process, from the detailed justification of the purposeful selection of the subject, through the preparation of data collection protocols, to their analysis, as done by previous selected researchers. The final principle is confirmability, which refers to the possibility of confirming the obtained results by other researchers while maintaining the adequacy of operationalization (Czakon, 2014a).

Building on the results obtained in the process of analysis, the subsequent part of the work involved verifying the formulated research hypotheses and creating the final version of the age diversity model in the context of its impact on organizational outcomes, considering the conditions: workplace climate supporting age diversity, HR practices favoring age diversity, and knowledge transfer among employees. Such comprehensive empirical research allowed for achieving the goals of the study, formulating theoretical and practical implications, and identifying future research directions in the area of age diversity among employees.

4.3. The selection and structure of the research sample

The selection and structure of the research sample were guided by previous studies presented in the literature, which also focused on the organizational level and employed quantitative methods. For instance, Kunze, Boehm, and Bruch (2011) analyzed responses from 128 firms, comprising a total of 18.269 line employees and managers. In a subsequent study in 2013, the same researchers collected responses from six individuals in each of 93 firms: an HR manager, four employees, and a line manager (Boehm et al., 2013). Ahlin, Drnovšek, and Hisrich (2014) conducted analyses based on responses from 20 employees and managers from 400 medium and large firms. Kunze and Menges (2017) conducted a two-stage study involving 61 firms, initially analyzing responses from all employees and then, in the second stage, repeating the study with 25% of employees, department managers, and HR directors in each organization. Additionally, del-Corte-Lora, Vallet-Bellmunt, and Molina-Morales (2017) obtained data from 246 firms, with managers and non-managerial employees serving as respondents from each firm. Seong and Hong (2018) analyzed responses obtained in 2018 from 1575 employees and 168 managers from 133 firms.

In selecting the research sample for this study, the most informative were the studies conducted by Boehm, Kunze, and Bruch in 2013. Similar to the present study, the respondents in these studies included an HR manager and non-managerial employees, although there were slightly fewer respondents per organization, with three non-managerial employees participating from each organization. Thus, in the described study, there were four participants per organization. Conversely, in the aforementioned 2013 studies, respondents included an HR manager, four employees, and a line manager, totaling six individuals per firm (Boehm et al., 2013).

To verify the hypotheses formulated in this study, quantitative research was conducted among enterprises in Poland. Data were collected from May to October 2021 from organizations employing more than 50 employees (medium, large, and very large organizations).

The rationale for conducting research exclusively among medium, large, and very large organizations lies in the subject matter of the study − age diversity among employees and the institutionalized practices supporting age diversity, primarily prevalent in medium, large, and very large organizations. Micro and small enterprises, due to their often limited formalization and relatively low quality of human resource management, are significantly less likely to engage in activities supporting age diversity among employees (e.g., Boehm et al., 2013; Seong and Hong, 2018).

In the study described in this paper, principles regarding the determination of the population and sample selection were adopted from other researchers, as presented above. The criterion used was the size of the company expressed by the number of employees in the organization. The population consisted of medium, large, and very large companies, from which a research sample was selected, including organizations with more than 50 employees. To select the sample, the national register of entities of the national economy, called the REGON register, maintained by the Central Statistical Office (GUS), was utilized. According to statistical data, the number of enterprises operating in Poland as of March 31, 2021, was 4.694.912 (*Miesięczna informacja…*, 2021). Enterprises with 0 to 9 employees accounted for 4.529.205, representing 96.47% of all organizations. Following these, there were 134.125 enterprises with 10 to 49 employees (2.86%), 27.300 with 50 to 249 employees (0.58%), 3.537 with 250 to 999 employees (0.08%), and 745 very large enterprises employing 1000 or more employees (0.02%). The set of all possible units in a given set, i.e., the population size corresponding to the study, included 31.582 organizations, accounting for 0.67% of all organizations in the public and private sectors.

Simple random sampling was employed, where the required number of sample elements is directly drawn from the population. As a result of using simple random sampling without replacement from the population, 316 entities were selected (more than 1% of the population), to which the research survey was distributed. In the conducted research, 200 companies participated, allowing for a maximum error of approximately 7%, with other parameters held constant, i.e., a confidence level of 95% ($\alpha = 0.95$); with a fraction size of 0.5. From a statistical standpoint, the sampled group was considered representative, as the minimum sample should consist of 195 organizations. This means that the sampled group is a subset of the population that approximately describes the entire population in terms of the studied characteristics (variables).

The respondents in the study were HR managers or directors of HR departments, as well as non-managerial employees within the organizations. A complete set of completed survey questionnaires was obtained from the HR management and from 3 employees from each company, resulting in a total of 800 completed survey questionnaires.

4.4. The characteristics of the research tools

Operationalizing variables involves translating key research concepts into clear statements or questions that respondents or study participants can easily understand and answer (DeVellis, 2016). The result of such operationalization is a survey questionnaire consisting of questions aimed at characterizing the theoretical constructs under investigation as precisely as possible. In this study, the technique of opinion survey was employed, which is a valid tool for assessing phenomena in management sciences, with human resource managers and employees of selected medium, large, and very large enterprises in Poland serving as respondents.

It should be noted that the variables were translated into statements that respondents evaluated on a Likert scale, a unidimensional, nominal scale consisting of seven positions. For constructs well-recognized in the literature, existing scales were chosen for measurement. The scales for measuring individual variables were derived from English-language sources. Therefore, they underwent translation using the forward-back translation method (Maneesriwongul and Dixon, 2004; Hawkins et al., 2020).

Translating such a tool is not a straightforward process. On the contrary, it adheres to certain principles, and after translation, the final product undergoes an adaptation process. The aim of the linguistic adaptation process is to obtain different language versions of the instrument originally developed in English, which are conceptually consistent regardless of culture and target language. The instrument should sound natural and be accepted in the target language and, regardless of the language, yield identical results. The focus is on achieving cultural equivalence and avoiding literal translation. A recognized method to achieve this goal is to use forward translation to the target language and then back translation (Hawkins et al., 2020).

In the study, five variables were measured: age diversity of employees, workplace climate supporting age diversity, HR practices conducive to age diversity, knowledge transfer, and organizational outcomes (innovation, risk response, flexibility, financial performance). Two groups of respondents were subjected to the study. The employee group was asked to complete a questionnaire on workplace climate supporting age diversity, HR practices conducive to age diversity, and knowledge transfer. HR department managers provided data allowing for the measurement of the level of age diversity among employees and also made subjective assessments of workplace climate supporting age diversity, HR practices conducive to age diversity, knowledge transfer, and organizational outcomes. The study of some variables involving both groups of respondents is justified by the potential significant difference between implemented HR programs and perceived HR practices or workplace climate. Therefore, the measurement of both intended and perceived HR actions and workplace climate was planned (Richard et al., 2013; Wright and Nishii, 2013; Kulik, 2014; Li et al., 2019).

4.4.1. Measurement of age diversity

Many studies routinely consider age as a control variable because this variable often influences employee behaviors. However, until recently, researchers did not delve deeper into why this is the case and included age more out of habit than for theoretical reasons (Zenger and Lawrence, 1989). Meanwhile, in some studies, age serves both as an independent variable and a control variable (Boehm et al., 2014). Therefore, several validated methods for measuring age are necessary for further measurement of age diversity among employees. Table 8 presents the characteristics of measuring age diversity among employees.

Table 8. Characteristics of age diversity measurement among employees

No.	Measurement method	Researcher(s), year
1.	Calendar age	− Cho and Mor Barak (2008)
2.	Mean age	− Simons et al. (1999) − Backes-Gellner and Veen (2013)
3.	Standard deviation	− Kilduff et al. (2000) − Kunze et al. (2011) − Boehm et al. (2013) − Ries et al. (2013) − Backes-Gellner and Veen (2013) − Seong et al. (2015) − Seong and Hong (2018) − Bal and Boehm (2019)
4.	Variability index / variance	− Simons et al. (1999) − Ely (2004) − Bal and Boehm (2019)
5.	Blau index	− Kilduff et al. (2000) − Bunderson and Sutcliffe (2002) − Sacco and Schmitt (2005) − Harrison and Klein (2007) − Kunze et al. (2009) − Ries et al. (2013) − Seong et al. (2015) − De Meulenaere et al. (2016)
6.	Teachman index	− Zenger and Lawrence (1989) − Harrison and Klein (2007) − Seong et al. (2015)
7.	Length of service	− Bunderson and Sutcliffe (2002)
8.	Age Diversity Management in Organizations (GeDEO − Gestão da Diversidade Etária nas Organizações)	− Seidl et al. (2022)

Source: Compiled by the author.

In the study, the estimated mean age of employees, the Teachman index, and the Blau index were ultimately utilized for examination purposes. The estimated mean age of employees working in a given organization in Poland was provided by HR managers and referred to the status as of December 31, 2020.

The Teachman index is calculated using the formula:

$$IT = -\sum_{i=1}^{n}[P_k \times \ln(P_k)]$$

where P_k represents the fraction expressed in decimal form of members in each age category in the total number of employees, and n is the number of categories. In this study, there were four categories corresponding to four generations. The Teachman index value ranges from 0 to 1.39 (according to the formula: $0 - 1 \times \ln(1/n)$). Its highest value is achieved when the number of employees in each age category is equal (Harrison and Klein, 2007). In the surveyed sample of organizations, the Teachman index averaged 1.19, indicating a high age diversity.

On the other hand, the Blau index is calculated using the formula:

$$IB = 1 - \sum_{i=1}^{n} P_k^2$$

where P_k represents the fraction expressed in decimal form of members in each age category in the total number of employees, and n is the number of categories. In this study, there were four categories corresponding to four generations. The Blau index value ranges from 0 to 0.75 (according to the formula: 0 − (n − 1) / n). Its highest value is achieved when the number of employees in each age category is equal (Harrison and Klein, 2007). In the surveyed sample of organizations, the Blau index averaged 0.65, indicating a high age diversity.

To calculate the Blau and Teachman diversity indices (Seong and Hong, 2018), managers were asked to provide the estimated percentage share of each age category in the total number of employees in four age categories corresponding to the boundary years of each generation: 18–24 years, 25–39 years, 40–55 years, and above 56 years. The method of measuring age diversity using the estimated percentage share of each age category in the total number of employees in four age categories has not been verified in other publications. However, obtaining information about the age of individual employees in another way would be practically impossible given the size of the analyzed organizations. The estimated information about the percentage of employees in each age category allows for the approximate and reliable calculation of the Blau and Teachman indices and the verification of whether age diversity exists.

To further verify the provided value, managers were also asked to provide the estimated average age of employees in the organization (Boehm et al., 2014). Information regarding the average age of employees in the organization could be compared with the estimated percentage share of each age category in the total number of employees in four age categories to verify the credibility of the information from the managers.

In both cases of the above questions, geographical limitations were indicated. This was due to the fact that many large or very large organizations conduct their business abroad. For research purposes, the geographical area could be limited to Poland by examining organizations operating in Poland, disregarding the existence of branches abroad. A time limitation was also indicated. Since the research was conducted during the COVID-19 epidemic, when some personnel processes were conducted in a different, non-standard, remote manner, and due to the fact that many organizations report at the end of the year, with the closing of the fiscal year or even later, the decision was made to verify the size of employment at the end of 2020 to ensure that all information is complete and equally easy to obtain in each company.

The absence of a requirement to provide age by individual employees stemmed from the fact that age is a variable at the individual level (Boselie et al., 2005), and the study considered the organizational level, where the age of all employees, even if estimated, was significant. Additionally, organizations with more than 50 employees were surveyed, making it very difficult to collect age data for all employees.

4.4.2 Measurement of the workplace climate supporting age diversity

Measurement of the workplace climate supporting age diversity among employees has been addressed in several questionnaires found in the literature. Most authors refer to earlier studies by other authors, utilizing existing tests and adapting them to the conditions of the specific study, the sampled population, the size of firms, the industry, etc. There are many similarities among different tests, and in most cases, the areas covered by these tests overlap. Table 9 presents the identified questionnaires for measuring the workplace climate supporting age diversity among employees resulting from the literature review.

Table 9. Characteristics of questionnaires on workplace climate supporting age diversity among employees

No.	Author(s), year	Number of statements/questions
1.	Noorani (2014)	20
2.	Boehm et al. (2013) Pugh et al. (2008)	4
3.	Appannah and Biggs (2015)	29
4.	King and Bryant (2017)	18
5.	van Dam et al. (2017)	4

Source: Compiled by the authors.

In the measurement of workplace climate supporting age diversity among employees, a scale adapted and enhanced by the team led by S.A. Boehm (Boehm et al., 2013) was considered. This scale incorporates four statements. The selection of a specific questionnaire from those already existing, as presented in Table 9, was guided by the following criteria: the tool assesses employee attitudes at the organizational level; it allows responses from both HR managers and employees without requiring tool modification; using the tool is time-efficient, making it respondent-friendly; the tool is understandable to respondents; it has been at least partially positively validated by other researchers; the questionnaire provides information in the most comprehensive manner compared to other tools; and the source of the research instrument is reliable and trustworthy.

4.4.3. Measurement of HR practices promoting age diversity

The literature on the subject includes several questionnaires designed to study HR practices that promote age diversity. The areas covered by these questionnaires generally overlap. An exception is the tool developed by Armstrong--Stassen, which is particularly comprehensive and includes 45 statements (Armstrong-Stassen and Ursel, 2009). Table 10 presents the questionnaires used by various authors.

Table 10. Characteristics of questionnaires on HR practices promoting age diversity

No.	Author(s), year	Number of statements/questions
1.	Armstrong-Stassen and Ursel (2009)	45
2.	Kunze et al. (2013)	3
3.	Boehm et al. (2013) Burmeister et al. (2018b)	**5**
4.	Kulik et al. (2016)	8
5.	Sousa and Ramos (2019)	7

Source: Own elaboration.

To measure HR practices promoting age diversity, the scale developed by S.A. Boehm's team (Boehm et al., 2013) was used, which includes five statements. The choice of this specific questionnaire from those presented in Table 10 was based on the same criteria used for assessing a climate supportive of age diversity among employees. For example, the tool assesses employee attitudes at the organizational level and allows responses from both HR managers and employees without needing modification. Furthermore, as the literature indicates, this is the first validated scale for measuring HR practices promoting age diversity.

The scale was developed based on existing conceptual and descriptive research on managing older employees (Armstrong-Stassen and Templer, 2006; Armstrong-Stassen and Lee, 2009), a list of practices related to a diverse work climate (Avery and McKay, 2010), and conclusions from research on HR system framework levels (Lepak et al., 2004). Consequently, a scale containing five items was created, rated on a seven-point Likert scale (1 = very low intensity; 7 = very high intensity). In the original scale, items were rated on a five-point Likert scale, but in the studies presented here, the scale was extended to seven points to standardize all scales used and minimize the risk of respondents choosing neutral responses excessively.

The scale items included:

- age-neutral recruitment activities,
- equal access to training and further education for all age groups,
- equal opportunities for promotion, transfer, and career advancement regardless of age,
- training and education for managers on managing an age-diverse workforce and responding to the needs of different age groups,
- promoting an organizational culture that is friendly to individuals of all ages (Boehm et al., 2013).

4.4.4. Measurement of knowledge transfer

The literature on the subject includes several questionnaires designed to study knowledge transfer. These questionnaires vary depending on the specific conditions of the study, the population and sample being studied, the size of the companies, the industry, and other factors. Table 11 presents the questionnaires used by various authors.

Table 11. Characteristics of questionnaires on knowledge transfer

No.	Author(s), year	Number of statements/questions
1.	Cummings (2004)	2
2.	Bock et al. (2005)	38
3.	Jerez-Gomez et al. (2005)	4
4.	Liebowitz et al. (2007)	29
5.	Martín-Pérez et al. (2012)	**7**
6.	Stothard (2014)	4

Source: Own elaboration.

To measure knowledge transfer, the scale developed by V. Martín-Pérez's team (Martín-Pérez et al., 2012) was used, which includes seven statements. The choice of this specific questionnaire from those presented in Table 11 was based on the following criteria: the tool assesses employee attitudes at the organizational level; it allows responses from both HR managers and employees without requiring modification; it is time-efficient and user-friendly for respondents; it is understandable and clear for respondents; the tool has been at least partially validated positively by other researchers; it measures the variable in the most comprehensive manner compared to other tools; and the source of the research tool is reliable and credible.

4.4.5. Measurement of organizational performance

The academic literature includes several questionnaires for assessing organizational performance, covering both financial and non-financial outcomes. Table 12 presents the questionnaires used by various authors.

Table 12. Characteristics of questionnaires on organizational performance

No.	Author(s), year	Number of statements/questions
	Organizational innovation	
1.	Ahlin et al. (2014)	**6**
2.	Kim and Yoon (2015)	3
3.	del-Corte-Lora et al. (2017)	5
4.	Johnson et al. (2019)	4
	Risk approach in organizations	
1.	Kontoghiorghes et al. (2005)	**4**
	Flexibility to changing environmental conditions	
1.	Fernández-Pérez et al. (2012) Fernández-Pérez et al. (2014)	3
2.	Perez-Valls et al. (2016)	**8**
	Financial performance	
1.	Gentry and Shen (2010) Uyar (2010) Bahhouth et al. (2014)	4
2.	Yu et al. (2013)	**5**
3.	Boehm et al. (2013) Kunze et al. (2013)	5
4.	Sok and O'Cass (2015)	**3**

Source: Own elaboration.

To measure innovation as a non-financial outcome of the organization, the scale developed by B. Ahlin's team (Ahlin et al., 2014), which includes six statements, was used. To measure the organization's risk approach as a non--financial outcome, the scale developed by C. Kontoghiorghes's team (Kontoghiorghes et al., 2005), which includes four statements, was applied. To measure flexibility in response to changing environmental conditions as a non-financial outcome, the scale developed by M. Perez-Valls's team (Perez-Valls et al., 2016), which includes eight statements, was used. For measuring the organization's financial performance, a compilation of scales developed by the teams of W. Yu (Yu et al., 2013) and P. Sok (Sok and O'Cass, 2015), which contains five statements, was utilized. This tool assesses subjective opinions regarding performance relative to competitors, facilitating the data collection process.

4.4.6. Measurement of control variables

Control variables are factors that researchers include in their studies to rule out alternative explanations for their findings or to reduce error and improve the quality of the conducted statistics (Becker, 2005). This means that control variables are only included when they help eliminate alternative explanations or when their inclusion is logical and/or previous studies have confirmed their *p*-value in explaining the analyzed variables (De Meulenaere et al., 2016). Table 13 presents control variables indicated by previous researchers studying age diversity among employees.

Table 13. Characteristics of control variables indicated in scientific studies

No.	Author(s) and year	Control variables
1	*2*	*3*
1.	Simons et al. (1999)	− number of team members − firm age − number of employees − number of managers − tenure of managers
2.	Kilduff et al. (2000)	− firm market position − number of team members − roles in the team − degree of decision-making by the team (habit, routine, certainty)
3.	Tsai (2001)	− number of employees − local competition
4.	Bunderson and Sutcliffe (2002)	− number of team members − job tenure − employee age
5.	Cummings (2004)	− type of tasks − number of team members − duration of tasks − resource availability during task execution
6.	Ely (2004)	− nationality − employee gender − job position in the organization − job tenure
7.	Boselie et al. (2005)	− organization size − firm age − industry − employee age − employee gender − education level − job tenure − nationality
8.	Cho and Mor Barak (2008)	− employee gender − employee age − religion − marital status − job position − job tenure

Table 13 cont.

1	*2*	*3*
9.	Grund and Westergård-Nielsen (2008)	− employee age − employee gender − job tenure − education − salary − firm age − number of employees
10.	Cho and Mor Barak (2008)	− employee age − employee gender − education − region − religion − job position − marital status − job tenure
11.	Pugh et al. (2008)	− employee gender − household income
12.	Backes-Gellner and Veen (2009, 2013)	− job tenure − education − gender − age − firm size − number of employees − industry − employment type
13.	Kunze et al. (2011)	− organization size − industry − employee age
14.	Kooij et al. (2013)	− employee gender − education level − job position
15.	Kunze et al. (2013)	− number of employees − year of study − age difference between managers and employees − employee supply − industry
16.	Boehm et al. (2013)	− employee age − job tenure − firm age
17.	Boehm et al. (2014)	− employee age − employee gender − ethnicity
18.	Shen et al. (2014)	− employee gender − employee age − job position − education − organization size
19.	Seong et al. (2015)	− number of team members − classification of tasks − degree of task interdependence
20.	Kulik et al. (2016)	− employee age − employee gender − education − job tenure

Table 13 cont.

1	2	3
21.	De Meulenaere et al. (2016)	− proportion of physical and mental workers − employee age − year of observation − industry − job tenure − firm age − employee gender
22.	Dello Russo et al. (2017)	− employee gender − employee age − industry and sector
23.	Mobarez (2018)	− employee age − employee gender − education level − job tenure − weekly working hours − employment type − number of children under 18
24.	Seong and Hong (2018)	− number of team members − team tenure − type of tasks − employee gender
25.	Bal and Boehm (2019)	− education level − employee gender − employment type − industry − number of employees

Source: Own elaboration.

Based on certain rules and decision-making schemes that emerged after a critical analysis of the literature, the following variables were chosen and described below. These variables were controlled because they could be significantly associated with both dependent and independent variables in this study (Kooij et al., 2013).

In the case of the questionnaire, both for employees and HR managers, the control variables were: the type of organization's activity and sector – the industry in which the organization operates, as done in previous studies (Boselie et al., 2005; Kunze et al., 2011; De Meulenaere et al., 2016).

Regarding the size of the organization, employees were asked about the number of employees employed in the organization in Poland in two categories: up to 249 and above 249 people. This was because while rank-and-file employees may not have knowledge of the exact number of employees in the organization, they can assign it to one of the specified ranges. HR managers, on the other hand, having specialized knowledge of personnel matters, were asked to provide information about the estimated total number of employees in the organization in Poland as of December 31, 2020 (Boselie et al., 2005). This information was necessary for the correct calculation of Blau and Teachman indexes. Company size is the number of full-time employees (Simons et al., 1999; Shen et al., 2014). Organization size, or the number of people employed in it, can affect innovation and enterprise performance. Large organizations usually have more resources, which can increase their innovation and performance. Large organizations have certain advantages in obtaining support for business and innovation activities (Tsai, 2001). Therefore, the size of the organization, measured by the number of employees, at the organizational level, was controlled. As the literature suggests, organization size is associated with various attitudes and behaviors of employees (Ragins et al., 2000; Pierce and Gardner, 2004; Kunze et al., 2011). Company size is important for this study because previous research has shown it may be a variable associated with human resource management systems, organizational performance, workplace climate, and specific HR practices that are more prevalent in large than in small firms. For multinational organizations, respondents indicated the number of employees in the country where the research was conducted (Bal and Boehm, 2019).

Managers were also asked to specify the number of years the organization has been on the market. Company age may also be related to the use of more advanced human resource management processes, HR practices, or organizational climate-shaping activities, and refining the human resource management system takes time. The measure of company age in the study is the number of years the organization has been in existence (Simons et al., 1999; Boselie et al., 2005).

Employees provided the length of their tenure in the current organization. This was necessary to estimate how long the employee can observe and benefit from HR practices implemented by management and how long the organizational climate can influence the attitudes and behaviors of the employee (Ely, 2004). Additionally, employees were asked to specify their gender (Boehm et al., 2014). Gender was used as a control variable collected through a self-report questionnaire (Dello Russo et al., 2017). The entire survey questionnaire is presented in Appendix A (HR manager survey) and Appendix B (rank-and-file employee survey).

4.5. Conclusions

The study presented in this chapter adhered to the principles regarding the definition of the population and sample selection as outlined by other researchers. The criterion for selection was the size of the company, expressed by the number of employees. The population thus consisted of medium, large, and very large companies, from which a research sample was selected.

The research model included five variables. Age diversity among employees was a key variable in the study. Organizational outcomes constituted one of the fundamental and the most important categories in management, serving as the dependent variable and playing a crucial role in the study. Knowledge transfer served as a mediating variable between age diversity among employees and organizational outcomes. HR practices conducive to age diversity among employees and a supportive workplace climate for age diversity were antecedents examined in the study.

Thus, the research process, subordinate to abductive logic, allowed for deriving "a" as an explanation for "b". Abduction operates in contrast to deduction, enabling the extraction of a preliminary condition "a" present in the rule "a implies b" from the conclusion "b". In other words, abduction is a process of explaining what is already known. HR practices favoring age diversity among employees, a supportive workplace climate for age diversity, and knowledge transfer were examined among both employees and HR managers. Measurements were compared and subjected to statistical analysis. However, information regarding organizational outcomes and the age diversity of employees was obtained solely from HR managers, as they should possess such knowledge. The choice of research tools stems from the adopted research objectives and model.

Control variables used in the study, similar to other research, included company size, industry, sector, company age, as well as estimated age and gender of the employee, along with their tenure.

Chapter 5

RELATIONSHIPS BETWEEN AGE DIVERSITY AMONG EMPLOYEES AND ITS ANTECEDENTS, ORGANIZATIONAL OUTCOMES, AND KNOWLEDGE TRANSFER – IN LIGHT OF EMPIRICAL RESEARCH

The ongoing socio-economic changes in modern society necessitate adjustments in organizational management and a need for adaptation to evolving environmental conditions. Poland's demographic landscape, projected for the coming decades, aligns with broader European trends, notably in terms of population decline and significant shifts in age structure. Forecasts indicate a gradual decrease in population, coupled with an aging society, driven by declining birth rates and increasing life expectancy. By 2050, the average life expectancy for men is expected to rise by 9 years (to 82.1 years), and for women by 6 years (to 87.5 years), significantly narrowing the life expectancy gap between genders (Statistics Poland, 2020; Gross-Gołacka, 2016, 2018a).

Of particular relevance to the labor market are the anticipated changes in the working-age population. A substantial reduction is expected in both the pre-working age group and the mobile working-age group (18–44 years), with a projected decrease of 6 million individuals by 2050. This demographic shift will lead to labor shortages, particularly in skilled professions, as a declining youth population reduces the availability of certain educational programs and specialized training opportunities (Szukalski, 2015; Gross-Gołacka, 2016, 2018b).

Depopulation, driven by both negative natural population growth and migration patterns, presents additional challenges. The emigration of younger generations decreases the reproductive potential of the remaining population, further exacerbating the decline in birth rates. While depopulation could theoretically lead to higher wages and lower unemployment, as posited by Easterlin's hypothesis, the Polish context shows that it may instead result in reduced demand for goods and services, thus diminishing labor demand overall. Moreover, labor shortages will likely complicate the replacement of retiring workers with younger employees, creating a strain on workforce sustainability in many sectors (Drela, 2017; Soja and Soja, 2020).

This demographic context is critical for understanding the empirical research conducted in this study, as the demographic challenges faced by Poland provide a backdrop for exploring age diversity and its management within organizations.

This chapter is a cornerstone of the monograph, offering an empirical examination of the relationships between age diversity among employees, its antecedents, and organizational outcomes. The *p*-value of this chapter lies in its detailed analysis of the empirical data, which is crucial for validating the research model and hypotheses that have been developed in the preceding chapters. By systematically analyzing the relationships between age diversity, HR practices, workplace climate, knowledge transfer, and organizational outcomes, this chapter provides a comprehensive understanding of how these factors interact within organizations. This empirical investigation is essential for both advancing theoretical knowledge and offering practical insights into the management of age-diverse workforces (Czakon, 2011).

The chapter is structured into several key sections. Initially, it presents a statistical description of the research sample, offering insights into the demographics and characteristics of the surveyed organizations and their employees. This is followed by an in-depth presentation of the empirical findings, where each hypothesis is tested using appropriate statistical methods. The results are then interpreted to assess the validity of the proposed research model.

5.1. Statistical description of the sample

The study population comprised medium, large, and very large companies, from which a research sample was selected, including organizations employing more than 50 employees. The selection of the sample was based on the national register of economic entities, known as the REGON register, maintained by the Central Statistical Office (GUS). According to statistical data, the set of all possible units in the given set, corresponding to the study population, included 31.582 organizations operating in Poland as of March 31, 2021. Two hundred business entities responded to the survey. The respondents in the study were HR managers or HR directors (one person per organization, resulting in the participation of 200 HR managers) and non-managerial employees of the organizations (three employees from each organization, totaling 600 employees). The total number of respondents from each organization was 4 persons, meaning that a total of 800 completed questionnaires were received. Statistics regarding the type of activity and industry in which the surveyed organization operates are presented in Figure 5.

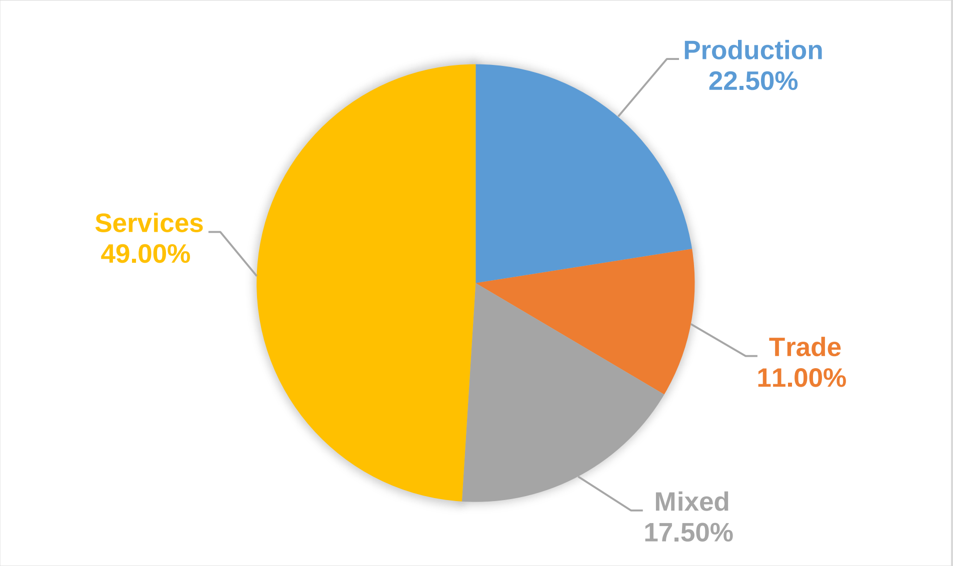


Figure 5. Sample structure by type of activity

Source: Compiled by the author.

A total of 200 companies were surveyed. The majority of firms in the sample, 98 in total, were engaged in service activities, constituting 49.00% of all surveyed firms. Following closely were manufacturing companies, accounting for 25.50% of the sample. 17.50% of organizations indicated that their activities were of a mixed nature. Conversely, the fewest organizations, 11.00%, were involved in trade activities.

The sample structure by industry, in which the organization operates, was analyzed with respect to the type of organization's activity. The industry in which a company operates is determined by the method of production organization and is associated with a group of products linked by common technology, supply, or distribution channels (Jeszka, 2013). Among service firms, the majority of organizations indicated operation in the typical service industry (21 entities), followed by information technology (14 entities), medical (8 entities), and transportation (also 8 entities) industries. Among manufacturing firms, the majority reported involvement in typical production (10 entities), followed by the food industry (6 entities), and furniture manufacturing (3 entities). Among trade firms, most organizations declared activity in the typical trade industry (11 entities), followed by pharmaceutical trade (2 entities). Among entities with mixed activities, the majority indicated involvement in the trade and service sector (15 entities) and construction (3 organizations). The smallest number of representatives in the study were employees of organizations from industries such as metallurgy, gastronomy, energy, education, HR, advertising and marketing, training, carpentry, postal services, NCN processing, automotive, financial intermediation, real estate mediation, hospitality, and banking (each represented by one representative). In summary, representatives from 84 different industries participated in the study. This indicates that the research was conducted in diverse environments, allowing for a comprehensive analysis of HR practices and climate in various organizations and preventing situations where surveyed organizations operate in an industry dominated by a specific age group of employees (e.g., it can be assumed that in IT companies, young employees dominate).

Information regarding the length of existence in the Polish market of organizations, obtained from HR managers, is presented in Figure 6 and Table 14.

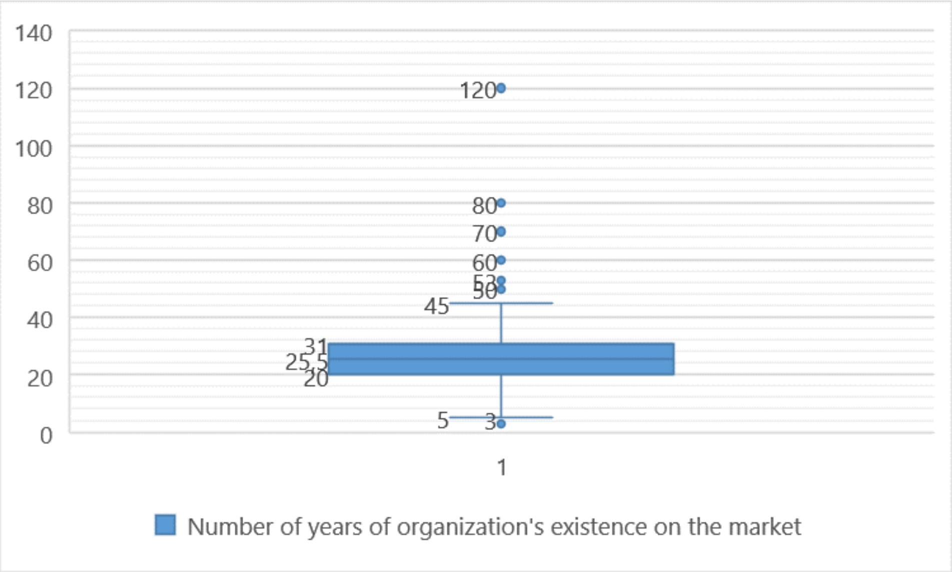


Figure 6. Positional statistics of surveyed firms in terms of existence period

Source: Compiled by the author.

Table 14. Descriptive statistics of the period of organization existence provided by HR managers

N	Mean	Std. Dev.	Variance	Min.	Q1	Median	Q3	Max.
200	27.42	15.81	249.81	3.00	20.00	25.50	31.00	120.00

Source: Compiled by the author.

The youngest company operating in the Polish market had been functioning for 3 years, while the longest-existing company had been established for as long as 120 years. The average duration of a company's existence was 27.42 years, with the average age of individual employees deviating from the mean value (standard deviation) by ±15.81 years. At least 50% of organizations had been operating in Poland for no more than a quarter-century (25.5 years). This diversity in terms of organizational tenure in Poland allowed for comprehensive research, for instance, into HR practices, which could be more advanced or refined in companies with longer operational histories. Conversely, organizations that have only been operating in the market for a few years lack such experience in implementing HR practices and policies supporting employee behavior.

Statistics regarding the length of tenure of surveyed employees in their current organization are presented in Figure 7 and Table 15.

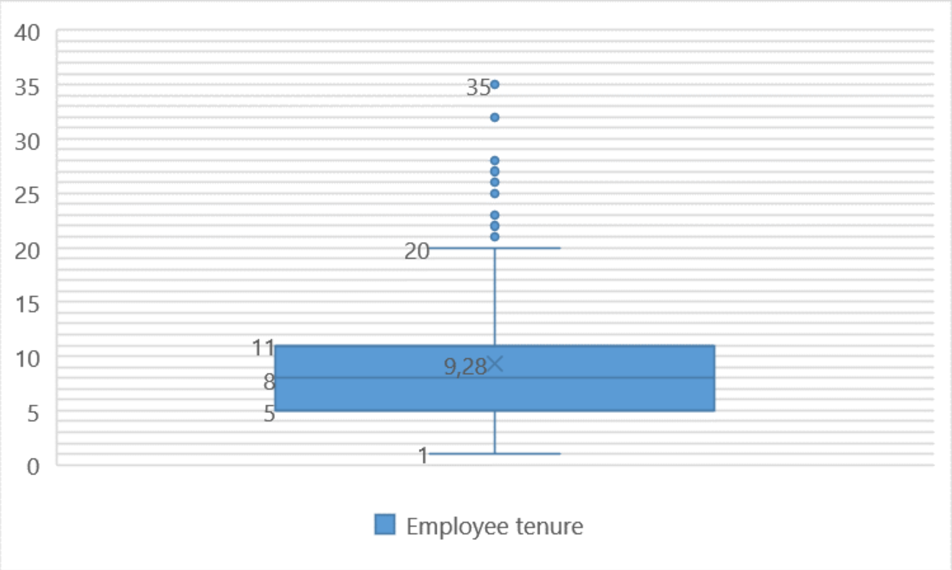


Figure 7. Positional statistics of surveyed employees in terms of length of tenure in current organization

Source: Compiled by the author.

Table 15. Descriptive statistics of the sample of employees in terms of length of tenure in current organization

N	Mean	Std. Dev.	Variance	Min.	Q1	Median	Q3	Max.
600	9.28	5.34	28.49	1	5	8	11	35

Source: Compiled by the author.

Employees were asked to provide the length of their tenure in their current position. The average tenure in the organization was 9.28 years. The shortest tenure in the organization was only one year, while the employee with the longest tenure had been with the organization for 35 years. At least 50% of employees had a tenure of no more than 8 years. These pieces of information provide insights into how long an employee has been associated with the organization, participates in shaping its climate, and benefits from implemented HR practices. Although an individual with only a year of tenure in the organization may not yet be fully acquainted with the workplace or may not perceive everything, they may have experiences from other workplaces, for example. On the other hand, someone who has been with the organization for 35 years likely knows the organization well and observes its changes and evolution, but may be more inclined towards routine and habituation, potentially overlooking certain HR actions or practices that have been in place for years. Such diversity among employees enriches research and ensures its comprehensiveness.

Moving on to the statistical analysis of the surveyed sample, the estimated average age of employees in the organization (as of December 31, 2020) is presented in Figure 8 and Table 16.

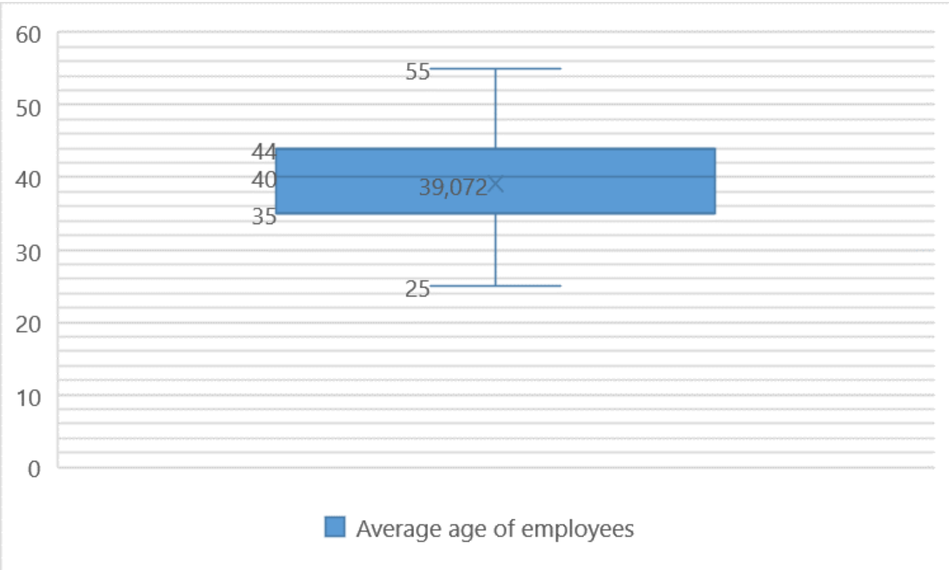


Figure 8. Positional statistics of surveyed employees for age criterion

Source: Compiled by the author.

Table 16. Descriptive statistics of the sample of employees by age

Number of employees	Mean age	Standard deviation of mean age	Variance of mean age	Minimum value of mean age	Q25	Median age of employees	Q75	Maximum value of mean age
600	39.07	6.10	37.22	25.00	35	40.00	44	55.00

Source: Compiled by the author.

Human resources directors were asked to provide the estimated average age of employees in the organization (as of December 31, 2020). This allowed for the simplest estimation of the age structure of the organization without the need to ask each employee for their age. Furthermore, considering the selection of organizations based on their size, it would have been very difficult to obtain information on the age of sometimes over a thousand employees. Information obtained from managers indicates that the average age of an employee is 39.07 years. On average, the age of individual employees deviated from the mean by ±6.10 years. The median for the average age of employees was 40 years. The smallest average age of an employee was 25 years, while the largest average age of an employee in the organization was 55 years.

The structure of surveyed employees by gender is presented in Figure 9.

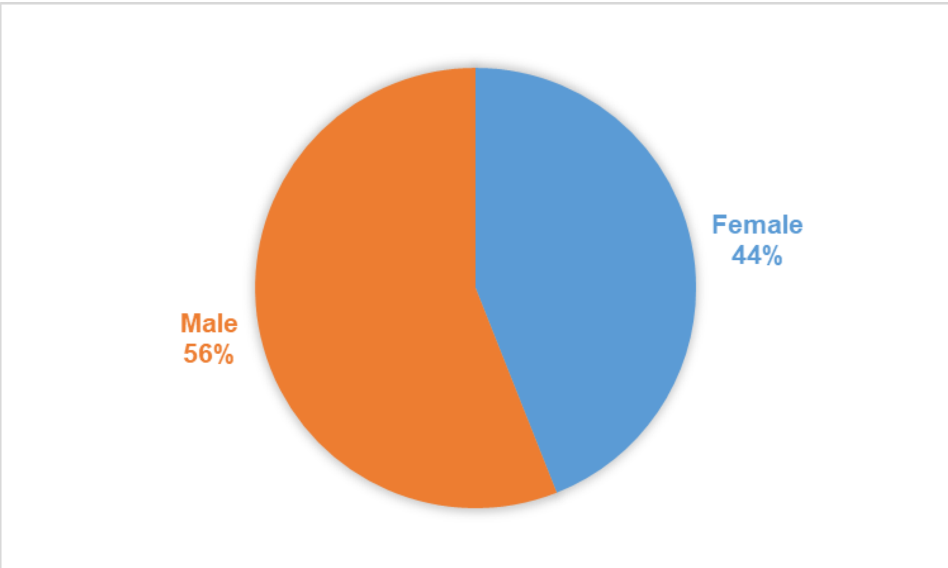


Figure 9. Structure of surveyed employees by gender

Source: Compiled by the author.

Among the respondents, men slightly outnumbered women, with 336 (56%) males and 264 (44%) females. HR managers were not asked to provide gender information.

The last but not the least crucial element was the examined diversity. Due to the difficulty of collecting chronological age information for all employees in the organization, managers were asked to estimate, expressed as percentages, the number of individuals in each age category (as of December 31, 2020). The data are presented in Figure 10 and Tables 17 and 18.

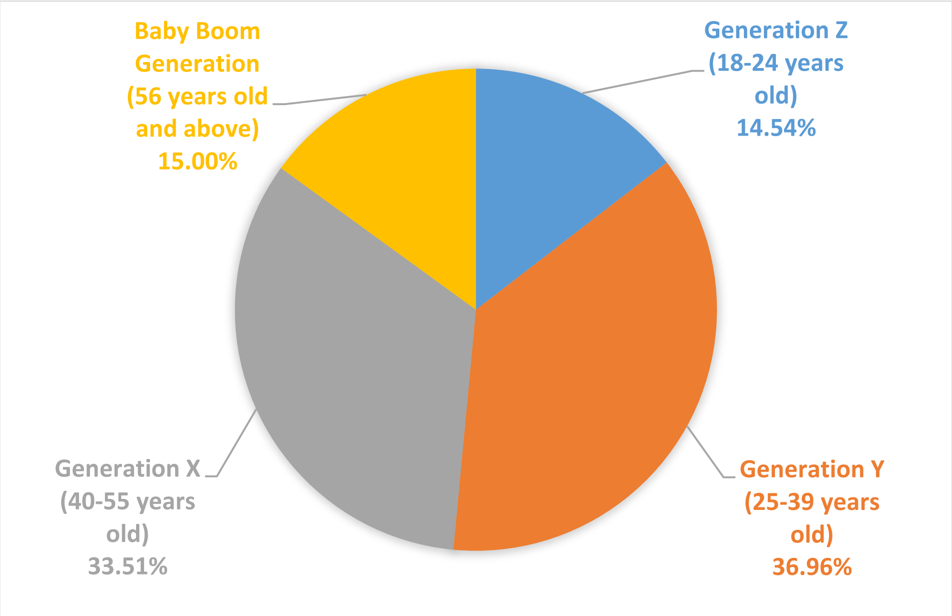


Figure 10. Structure of surveyed organizations in terms of age diversity of employees

Source: Compiled by the author.

From the data provided by organizational managers, it emerges that the most numerous group of individuals working in organizations belongs to Generation Y (aged 25–39), constituting 36.96% of all individuals, followed by Generation X (aged 40–55), comprising 33.51% of all individuals in the organization. The least represented groups in the organization were the extreme generations. Specifically, members of Generation Z (aged 18–24) accounted for 14.54%, and a similar percentage was observed for the representation of the oldest employees, described as Baby Boom Generation (aged above 56), comprising approximately 15.00% in the organization.

Table 17. Descriptive statistics of the sample of organizations in terms of age diversity of employees

Statistical measures	Generation Z (%)	Generation Y (%)	Generation X (%)	Baby Boom Generation (%)
Mean	14.54	36.96	33.51	15.00
Std. deviation	8.50	14.09	13.47	9.22
Variance	72.23	198.39	181.32	84.95
Min.	0.00	5.00	2.00	0.00
Q25	10.00	30.00	25.00	10.00
Median	10.00	35.00	35.00	12.00
Q75	20.00	45.00	40.00	20.00
Max.	40.00	80.00	80.00	50.00

Source: Compiled by the author.

The descriptive statistics indicate that there were organizations where representatives indicated the absence of the youngest and oldest generations. At least 50% of the organizations employed no more than 10% of individuals from Generation Z or Baby Boom Generation. Some organizations in the study exhibited a workforce structure dominated by 80% of individuals from Generation Y or Generation X.

Table 18. Descriptive statistics of the sample of organizations in terms of age diversity of employees with age analysis tools

Tool	Normal range	Mean value	Min.	Median	Max.
Teachman's index	0–1.39	1.19	0.60	1.22	1.38
Blau's index	0–0.75	0.65	0.33	0.67	0.75
Std. deviation	–	12.14	6.49	12.29	17.16

Source: Compiled by the author.

Raw data regarding diversity by age can be analyzed using several analytical methods. The Teachman index, the Blau index, and the standard deviation can be calculated. The Teachman index ranges from 0 to 1.39 for the studied sample. This means that for a value of 0, the surveyed organizations show no diversity in age among their employees at all – this may indicate that all employees exhibit the same or very similar chronological age. Conversely, for a value of 1.39, the organization demonstrates a very high age diversity among its employees. In the surveyed sample of organizations, the Teachman index averaged 1.19, indicating significant age diversity. Some organizations in the study had this index at a very low level (0.60), while others showed maximum age diversity (1.38) – meaning that each of the four age groups had an equal number of employees.

On the other hand, the Blau index ranged from 0 to 0.75 for the surveyed sample of organizations. A value of 0 signifies that the surveyed organizations show no age diversity among their employees at all, which may indicate that all employees have the same or very similar chronological age. Conversely, for a value of 0.75, the organization demonstrates maximum age diversity among its employees. In the surveyed sample of organizations, the Blau index averaged 0.65, indicating significant age diversity. Similarly, some organizations in the study exhibited very low levels of diversity (0.33), while others showed very high levels (0.75). Both the Blau index and the Teachman index confirm that organizations are significantly diversified by age. This is also evidenced by the average standard deviation value for the surveyed organizations, which was 12.14.

5.2. General characteristics of the research – results of reliability analysis, factor analysis, and correlation analysis

Firstly, the reliability and internal consistency of scales were assessed using Cronbach's Alpha coefficient, which is the most commonly used tool for measuring reliability. While validity concerns whether a tool measures what it is supposed to measure, reliability concerns whether it does so accurately and precisely. Various minimum values of this statistic are accepted, usually 0.60 or 0.70, although higher values are preferred. Reliability analysis is a component of the validation procedure for tests/questionnaires (Nunnally, 1978; Tavakol and Dennick, 2011). For coefficients with lower values, some questions were removed to achieve higher scale reliability. IBM SPSS and PASW Statistics 18 were used for further statistical analysis.

In pilot studies, all tools were verified for consistency using Cronbach's alpha coefficient. The scale measuring financial outcomes in pilot studies achieved the highest Cronbach's Alpha value of 0.972 among managers. Meanwhile, the workplace climate scale, addressed to both groups of respondents, achieved the highest Cronbach's Alpha values of 0.912 (employees) and 0.939 (managers). The scale assessing the organizational risk approach, completed only by managers, obtained the lowest Cronbach's Alpha value. However, due to the small sample of participating managers and the possibility of incorrectly verifying this coefficient, this scale was left unchanged, expecting different, positive results from the main studies. These data are presented in Table 19.

Table 19. Reliability statistics of research tools during pilot studies

Variable	Number of items	Cronbach's Alpha	
		managers (N = 15)	employees (N = 45)
Climate	6	0.939	0.912
HR practices	5	0.926	0.922
Transfer	7	0.834	0.839
Organizational innovation	6	0.908	–
Organizational risk approach	4	0.386	–
Organizational flexibility	8	0.650	–
Financial performance	5	0.972	–

Source: Own compilation based on research results using IBM SPSS.

Following the main studies, the research tools were again verified for consistency. The analysis showed that all scales had Cronbach's Alpha coefficient values above 0.6. The highest Cronbach's Alpha value occurred in the scale measuring the level of organizational innovation, reaching 0.931. These data are presented in Table 20.

Table 20. Reliability statistics of research tools during main studies

Variable	Description	Managers (N = 200)	Employees (N = 600)
Climate	Number of items	6	6
	Cronbach's Alpha	0.905	0.865
HR practices	Number of items	5	5
	Cronbach's Alpha	0.845	0.883
Knowledge transfer	Number of items	7	7
	Cronbach's Alpha	0.881	0.886
Organizational innovation	Number of items	6	–
	Cronbach's Alpha	0.931	–
Organizational flexibility	Number of items	8	–
	Cronbach's Alpha	0.863	–
Financial performance	Number of items	5	–
	Cronbach's Alpha	0.909	–

Source: Own compilation based on research results using IBM SPSS.

Once again, as in the pilot studies, the most problematic scale concerned the organizational risk approach – the Cronbach's Alpha value was 0.525. However, after removing the item identified in the study, a coefficient value of 0.625 was obtained, and this tool with a limited number of questions was retained for further analysis. The statement that was removed reads as follows: "Individuals who take risks and experience failure are not punished in the company". These data are presented in Table 21. In summary, all Cronbach's Alpha reliability coefficients reached satisfactory levels, demonstrating the consistency and reliability of the measurement scale.

Table 21. Reliability statistics of the research tool for measuring organizational risk approach

Variable	Description	Managers (N = 200)	Employees (N = 600)
Organizational risk approach	Number of items	4	–
	Cronbach's Alpha	0.525	–
	Number of items after removing Item 2	3	–
	Cronbach's Alpha after removing Item 2	0.625	–

Source: Own compilation based on research results using IBM SPSS.

Measurement of the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's sphericity tests were also conducted. These are measures of adequacy for selecting input variables for factor analysis (Król and Wieczorkowska, 2004; Bedyńska, 2007; Rozmus, 2018). The KMO measure is an indicator of sample adequacy; ideally, it should be as high as possible, preferably close to 0.9. A value above 0.5 indicates the suitability of conducting factor analysis. In practice, the KMO measure provides the most important information on which the decision to perform factor analysis is based. Mathematically, KMO is the ratio of the correlation size of variables to the size of their partial correlations (Król and Wieczorkowska, 2004; Bedyńska, 2007; Rozmus, 2018).

Meanwhile, Bartlett's sphericity test verifies the hypothesis of a unit correlation matrix. If it is significant, it means that the factor model is appropriate for the analyzed variables because they are statistically significantly correlated with each other. Before conducting factor analysis, it is necessary to check whether the variables included in the dataset are sufficiently correlated. If they are weakly correlated, it is unlikely that they will form strong and easily interpretable factors. A non-significant result indicates weak correlations between variables and suggests that factor analysis should not be performed. A significant Bartlett's test result indicates that there are correlations between variables and factor analysis can be performed (Król and Wieczorkowska, 2004; Bedyńska, 2007; Rozmus, 2018).

Both the KMO test value (which showed a value above 0.5 for each tool) and the Bartlett's test value (which consistently showed statistically significant results) indicate the justification for conducting factor analysis due to the presence of correlations between the measurement variables (Król and Wieczorkowska, 2004; Bedyńska, 2007; Rozmus, 2018). These data are presented in Table 22.

Table 22. Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test coefficients of research tools

Variable	Description		Managers (N = 200)	Employees (N = 600)
Climate	KMO measure of sample adequacy		0.865	0.833
	Bartlett's sphericity test	approx. chi-square:	775.957	821.950
		df	15	15
		p-value	0.000	0.000
HR practices	KMO measure of sample adequacy		0.814	0.753
	Bartlett's sphericity test	approx. chi-square:	473.107	672.368
		df	10	10
		p-value	0.000	0.000
Knowledge transfer	KMO measure of sample adequacy		0.849	0.779
	Bartlett's sphericity test	approx. chi-square:	805.254	1142.181
		df	21	21
		p-value	0.000	0.000
Organizational innovation	KMO measure of sample adequacy		0.855	–
	Bartlett's sphericity test	approx. chi-square:	999.722	–
		df	15	–
		p-value	0.000	–
Organizational risk approach	KMO measure of sample adequacy		0.530	–
	Bartlett's sphericity test	approx. chi-square:	120.360	–
		df	6	–
		p-value	0.000	–
	after removing item 2			
	KMO measure of sample adequacy		0.500	–
	Bartlett's sphericity test	approx. chi-square:	10.769	–
		df	1	–
		p-value	0.001	–
Organizational flexibility	KMO measure of sample adequacy		0.850	–
	Bartlett's sphericity test	approx. chi-square:	646.892	–
		df	28	–
		p-value	0.000	–
Financial performance	KMO measure of sample adequacy		0.866	–
	Bartlett's sphericity test	approx. chi-square:	646.238	–
		df	10	–
		p-value	0.000	–

Source: Own compilation based on research results using IBM SPSS.

Confirmatory analysis involves testing hypotheses about a predetermined factor structure and estimating the parameters of the developed model. Factor analysis allows for the reduction of the number of variables, replacing them with factors – meta-features – that will be subject to further analysis. The identified principal factors reflect the correlation structure among the considered characteristics. Factor analysis can be approached using two key methods: Principal

Component Analysis (PCA) and Classical Factor Analysis (Gatnar 1998). The former method considers principal components as linear combinations of the original features:

principal component = linear combination of original features,

while the latter examines the latent causal structure underlying the relationships between features:

variable = linear combination of factors + error.

Both approaches, although not identical, yield similar results and are often regarded as variations of the same research procedure. PCA transforms observable input variables into new, unobserved, and uncorrelated variables known as principal components. Each principal component is a linear function of the input variables and is ordered such that the variances of successive principal components decrease. A few initial principal components contain the majority of the information about the studied phenomenon provided by the input variables, allowing for a reduction in the number of principal components with minimal loss of input information (Czopek, 2013). Classical factor analysis, on the other hand, investigates the internal dependency structure of multivariate observations. Each input variable is presented as a linear combination of a certain number of unobserved factors common to the entire set of input variables and one unique unobserved factor specific to that variable. Common and unique factors are uncorrelated. The outcome of factor analysis is the identification of a set of common factors and their relationships with observable variables, explaining the structure of connections between observable variables (Czopek, 2013).

The general algorithm for factor analysis can be summarized in the following steps: determining the linear correlation matrix between original features, estimating factor loadings, rotating the factors, and interpreting them. This procedure results in several principal factors. In PCA, the number of principal factors equals the number of considered features, while in classical factor analysis, it is smaller. It is not necessary to include all identified factors in further analyses since only a few initial ones explain a significant portion of the common variance (Gatnar, 1998). The most commonly used criteria for selecting the number of factors are:

- eigenvalues (Kaiser's criterion) − the "eigenvalue greater than one" method is most frequently used; it is based on the principle that each principal component should explain at least as much as one original variable; this method should be applied when the number of variables exceeds 20; when the number of variables is smaller, there is a tendency to extract too few factors;

- scree plot (Cattell's criterion) − a plot of the number of factors against their eigenvalues; the "elbow point" where the curve bends indicates the number of factors suitable for further analysis, aiming to capture the point where increasing the number of factors adds little additional explained variance;
- jolliffe's criterion − in PCA, factors with eigenvalues greater than 0.7 should be retained; this adjustment accounts for sampling error, where principal components with eigenvalues >1 in the population might have eigenvalues <1 in the sample;
- cumulative percentage of explained variance − factors are selected so that they collectively explain, for example, 75%, 80%, or 90% of the variance, with no subsequent factor explaining more than 5% of the variance.

Sometimes, a variable might be strongly correlated with more than one factor, complicating their clear identification. In such cases, factor rotation is necessary. The operationalization of variables utilized factor analysis with VARIMAX rotation (Ferguson and Takane, 1997). The results of the factor analysis are presented below (Tables 23-29).

In the factor analysis conducted for the variable: "supportive climate for age diversity", for both employees and managers, only one factor exceeds an eigenvalue of 1, indicating that a single dimension describes this variable, as initially indicated by the research tool. Notably, the cumulative percentage of explained variance shows that the identified dimension accounts for 68.20% of the variance in managers' assessments and 66.73% in employees' assessments, with a satisfactory threshold being 50%. Details are provided in Table 23. Examining the factor loadings matrix for factor analysis (Table 30), all loadings exceed the threshold level of 0.7. Significant factor loadings typically exceed 0.3. Ideally, each variable should have a high loading for only one factor; if not, the original variable should be considered in the interpretation of all factors where its loading is significant. Thus, in this case, all statements can be attributed to a single dimension/factor. Additionally, all loadings are positive, indicating a common direction, and no statements in the questionnaire are reversed. All statements are consistent, and the tool for measuring climate is comprehensive and well-constructed.

Table 23. Total explained variance for factor analysis – climate supporting age diversity

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
Managers – climate supporting age diversity							
1	**1**	**4.092**	**68.202**	**68.202**	**4.092**	**68.202**	**68.202**
	2	0.683	11.391	79.592	–	–	–
	3	0.480	7.995	87.587	–	–	–
	4	0.317	5.289	92.876	–	–	–
	5	0.240	4.003	96.879	–	–	–
	6	0.187	3.121	100.000	–	–	–
Employees – climate supporting age diversity							
2	**1**	**4.004**	**66.730**	**66.730**	**4.004**	**66.730**	**66.730**
	2	0.674	11.239	77.968	–	–	–
	3	0.622	10.361	88.329	–	–	–
	4	0.388	6.459	94.788	–	–	–
	5	0.190	3.175	97.963	–	–	–
	6	0.122	2.037	100.000	–	–	–

Source: Own compilation based on research results using IBM SPSS.

A similar interpretation of the conducted factor analysis can be applied to the tool for measuring HR practices that support age diversity. There is a single dimension with an eigenvalue greater than 1. This dimension can explain 63.71% of the differences between organizations in the application of HR practices according to managers, and 68.84% according to employees (Table 24). According to the component matrix, all factor loadings of individual statements exceed 0.7 or hover around this value, and their nature is positive (Table 30). In summary, it can be stated that there is one dimension describing HR practices, and all statements are consistent.

Table 24. Total explained variance for factor analysis – HR practices supporting age diversity

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
1		*2*	*3*	*4*	*5*	*6*	*7*
Managers – HR practices supporting age diversity							
1	**1**	**3.170**	**63.407**	**63.407**	**3.170**	**63.407**	**63.407**
	2	0.781	15.618	79.026	–	–	–
	3	0.503	10.060	89.086	–	–	–
	4	0.319	6.386	95.472	–	–	–
	5	0.226	4.528	100.000	–	–	–

Table 24 cont.

1		2	3	4	5	6	7
Employees – HR practices supporting age diversity							
2	**1**	**3.442**	**68.844**	**68.844**	**3.442**	**68.844**	**68.844**
	2	0.841	16.829	85.673	–	–	–
	3	0.353	7.054	92.727	–	–	–
	4	0.215	4.299	97.025	–	–	–
	5	0.149	2.975	100.000	–	–	–

Source: Own compilation based on research results using IBM SPSS.

In the case of the tool for investigating knowledge transfer, the interpretation is somewhat different. Eigenvalues exceeding 1 suggest the presence of two dimensions describing this variable (Table 25). However, the information in Table 30 indicates the existence of two entirely distinct dimensions: one for managers and another for employees. Additionally, some dimensions can be interpreted inversely due to the presence of negative factor loadings for certain statements. It is worth noting that the factor loadings in the second dimension are low, below 0.7. Further discrepancies arise from the dimensional division applied by the tool's authors. The authors introduced four dimensions describing knowledge transfer (Martín-Pérez et al., 2012):

- active sharing of opinions and ideas (statements 1 and 2);
- active sharing of knowledge and experiences (statement 3);
- maintaining frequent contact with other employees (statements 4 and 5);
- active sharing of documents and reports (statements 6 and 7);

However, it is important to note that in the component matrix, all factor loadings above 0.7 cluster in one dimension (Table 30), which may justify adopting a simplified interpretation, explaining transfer through a single dimension. Therefore, the assumption is made that all statements are elements of one dimension collectively describing knowledge transfer.

Table 25. Total explained variance for factor analysis – knowledge transfer

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
1		2	3	4	5	6	7
Manager – knowledge transfer							
1	**1**	**4.182**	**59.744**	**59.744**	**4.182**	**59.744**	**59.744**
	2	**1.046**	**14.936**	**74.680**	**1.046**	**14.936**	**74.680**
	3	0.497	7.097	81.776	–	–	–
	4	0.476	6.807	88.583	–	–	–
	5	0.398	5.679	94.262	–	–	–
	6	0.224	3.196	97.459	–	–	–
	7	0.178	2.541	100.000	–	–	–

Table 25 cont.

1		2	3	4	5	6	7
Employee − knowledge transfer							
2	**1**	**4.353**	**62.184**	**62.184**	**4.353**	**62.184**	**62.184**
	2	**1.052**	**15.028**	**77.211**	**1.052**	**15.028**	**77.211**
	3	0.890	12.711	89.922	−	−	−
	4	0.274	3.911	93.833	−	−	−
	5	0.188	2.686	96.519	−	−	−
	6	0.151	2.160	98.680	−	−	−
	7	0.092	1.320	100.000	−	−	−

Source: Own compilation based on research results using IBM SPSS.

Factor analysis in the context of non-financial outcomes begins with the innovativeness of firms. A single dimension exceeds an eigenvalue of 1. This dimension alone explains 74.67% of the variance among organizations regarding their innovativeness. This indicates that all statements can be considered as one factor, a dimension describing organizational innovativeness (Table 26). The component matrix reveals that all statements have factor loadings above 0.8, and these values are positive (Table 30), indicating that the tool is coherent.

Table 26. Total explained variance for factor analysis – organizational innovativeness

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
Manager − organizational innovativeness							
1	**1**	**4.480**	**74.673**	**74.673**	**4.480**	**74.673**	**74.673**
	2	0.561	9.354	84.026	−	−	−
	3	0.341	5.676	89.702	−	−	−
	4	0.270	4.500	94.202	−	−	−
	5	0.235	3.924	98.127	−	−	−
	6	0.112	1.873	100.000	−	−	−

Source: Own compilation based on research results using IBM SPSS.

A very similar interpretation applies to the next organizational outcome, namely organizational flexibility, which refers to the organization's approach to change. A single dimension exceeds an eigenvalue of 1, indicating that one dimension describes organizational flexibility. This dimension accounts for 51.45% of the variance among organizations in terms of their ability to adapt to changing market conditions (Table 27). All factor loadings exceed 0.8, and they are all positive (Table 30).

Table 27. Total explained variance for factor analysis – organizational flexibility

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
Manager − organizational flexibility							
1	**1**	**4.116**	**51.450**	**51.450**	**4.116**	**51.450**	**51.450**
	2	0.905	11.318	62.769	–	–	–
	3	0.846	10.571	73.339	–	–	–
	4	0.621	7.761	81.101	–	–	–
	5	0.490	6.126	87.227	–	–	–
	6	0.408	5.096	92.322	–	–	–
	7	0.336	4.195	96.517	–	–	–
	8	0.279	3.483	100.000	–	–	–

Source: Own compilation based on research results using IBM SPSS.

The factor analysis conducted for the tool measuring the organization's approach to risk was problematic, yet it corroborated the findings from the reliability analysis. The initial factor analysis on the original tool, which included four statements, indicated that there were two dimensions describing this variable. The division was as follows: one statement pertained to the first dimension, while three statements pertained to the second dimension. However, based on the reliability analysis, which included Cronbach's Alpha coefficient, the statement "Individuals who take risks and fail are not penalized in the company" was removed. Upon re-running the factor analysis, with some simplification, it can be observed that all remaining statements belong to a single dimension, have relatively high factor loadings, and these loadings are positive (Tables 28 and 30). Thus, the tool for measuring the approach to risk in the organization is considered coherent and is retained for further analysis in a form reduced to three statements.

Table 28. Total explained variance for factor analysis − organizational approach to risk

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
Manager − organizational approach to risk							
1	1	1.794	44.855	44.855	1.794	44.855	44.855
	2	1.107	27.664	72.519	1.107	27.664	72.519
	3	0.719	17.983	90.503	–	–	–
	4	0.380	9.497	100.000	–	–	–
After removing statement 2							
2	**1**	**1.772**	**59.073**	**59.073**	**1.772**	**59.073**	**59.073**
	2	0.828	27.611	86.683	–	–	–
	3	0.400	13.317	100.000	–	–	–

Source: Own compilation based on research results using IBM SPSS.

The final variable subjected to factor analysis is the financial performance of the organization. Similar to the analysis of organizational innovation and flexibility, the factor analysis for financial performance was successful. One dimension exceeded an eigenvalue of 1, indicating that a single dimension encompasses all the statements related to financial performance included in the research tool. This single dimension explains 73.36% of the variance between organizations in terms of financial performance (Table 29). The factor loadings are all above 0.8 and are positive, signifying that the tool is consistent and appropriate for measuring this variable (Table 30).

Table 29. Total explained variance for factor analysis – financial performance

Component		Initial eigenvalues			Sums of squared loadings after extraction		
		total	% of variance	cumulative %	total	% of variance	cumulative %
Manager – financial performance							
1	**1**	**3.668**	**73.362**	**73.362**	**3.668**	**73.362**	**73.362**
	2	0.488	9.751	83.114	–	–	–
	3	0.338	6.759	89.873	–	–	–
	4	0.302	6.040	95.913	–	–	–
	5	0.204	4.087	100.000	–	–	–

Source: Own compilation based on research results using IBM SPSS.

Table 30. Factor loading matrix for the factor analysis of individual variables in the model

Workplace climate supporting diversity of employees by age	Factor 1	Factor 1
	manager	employee
1. My organization facilitates the adaptation and acclimatization of individuals from different age groups	0.889	0.925
2. In my organization, employees develop and advance regardless of their age	0.727	0.808
3. Managers in my organization demonstrate through their actions that they are committed to hiring and retaining employees from different age groups	0.873	0.688
4. I believe that my direct supervisor / manager effectively manages people from different age groups	0.856	0.838
Human resource management (HR) practices supporting age diversity among employees	Factor 1	Factor 1
	manager	employee
1. My organization offers age-neutral recruitment practices	0.838	0.878
2. My organization ensures equal access to training and further education for employees of all age groups	0.866	0.798
3. My organization provides equal opportunities for advancement, movement within the organizational structure, and taking further career steps regardless of employees' age	0.872	0.855
4. My organization offers managers training in managing employees from different age groups and responding to their needs	0.628	0.760
5. My organization supports promoting an organizational culture friendly to individuals of diverse ages	0.751	0.851

Table 30 cont.

Knowledge transfer	Factor 1		Factor 2	
	manager	employee	manager	employee
1. In my organization, employees share ideas and opinions with each other	**0.761**	**0.804**	–	0.378
2. In my organization, the opinions of other employees are considered before making important decisions	**0.647**	**0.629**	0.541	0.525
3. The organizational environment promotes cooperation and positively influences mutual respect, and among employees, there is friendship and trust	**0.813**	**0.865**	0.324	–
4. There are relationships among employees that contribute to a better understanding of organizational goals, work methods, etc.	**0.833**	**0.890**	–	–
5. There are frequent contacts among employees (via email, phone, etc.)	**0.786**	**0.781**	–	–
6. In my organization, training manuals, reports, and necessary information are used to improve work performance	**0.758**	**0.747**	−0.542	0.569
7. In my organization, employees share reports, documents, and other types of information with each other	**0.798**	**0.775**	−0.453	−0.499
Organization's innovativeness			Factor 1	Factor 1
			manager	employee
1. The number of new products introduced by the company that were first in the market			0.865	–
2. The number of new products and/or services introduced by the company to the market			0.870	–
3. The speed of development of new products and/or services by the company			0.878	–
4. The number of changes implemented in processes (e.g., new methods of goods and services production)			0.856	–
5. A pioneering approach to introducing new processes			0.867	–
6. Thoughtful responses to new processes introduced by other companies in the same industry			0.848	–
Flexibility of the organization			Factor 1	Factor 1
			manager	employee
1. Entry of new competitors into the market			0.865	–
2. Changes in regulatory laws			0.870	–
3. Changes in customer needs and preferences			0.878	–
4. Modifications in supplier strategies			0.856	–
5. Emergence of unexpected market opportunities			0.867	–
6. Emergence of unexpected market threats			0.848	–
7. Political events affecting the industry in which the organization operates			0.867	–
8. Changes in stakeholder expectations (e.g., unions, local communities)			0.848	–
Risk approach in the organization			Factor	
			1 manager	2 manager
1. Employees are expected to take risks			**0.615**	0.442
2. Individuals who take risks and fail are not penalized			–	0.865
3. The most innovative individuals advance quickly in the organization			**0.838**	−0.317
4. New ideas are constantly sought and tested			**0.814**	0.442

Table 30 cont.

Risk approach in the organization (after removing item #2)	Factor	
	1 manager	2 manager
1. Employees are expected to take risks	**0.581**	0.442
2. The most innovative individuals advance quickly in the organization	**0.867**	0.865
3. New ideas are constantly sought and tested	**0.827**	−0.317
Financial performance	Factor	
	1 manager	2 employee
1. Average annual employment growth over the past three years compared to major competitors	0.802	–
2. Average annual net sales growth over the past three years compared to major competitors	0.866	–
3. Market share measured by sales volume over the past three years compared to major competitors	0.868	–
4. Market share measured by sales value over the past three years compared to major competitors	0.883	–
5. Net profit over the past three years compared to major competitors	0.861	–

Factor extraction method − principal components. Rotation method − Varimax.

Source: Own compilation based on research results using IBM SPSS.

Another area of statistical analysis was correlation. The linear correlation coefficient ρ, often referred to as Pearson's correlation coefficient, is a measure of the relationship between two random variables X and Y. It is defined as the ratio of the covariance of these variables to the square root of the product of their variances. The correlation coefficient ρ takes values from the closed interval [−1, 1]. Positive values occur when an increase (decrease) in one variable is associated with an increase (decrease) in the other, while negative values occur when an increase (decrease) in one variable is associated with a decrease (increase) in the other. The correlation coefficient is equal to 1 or −1 when the relationship is perfect, meaning all points (xi, yi) lie on a straight line. A correlation value of 0 indicates no relationship. If the correlation coefficient value is non-zero, it is advisable to determine its confidence interval, that is, the interval within which it is expected to lie with a desired probability (90%, 95%, 99%) (Dutilleul et al., 2000). Table 31 presents descriptive statistics regarding the constructs in the research model.

Table 31. Descriptive statistics regarding constructs in the research model

Variables	Mean	Standard deviation	N
1	*2*	*3*	*4*
Climate employee	4.562	1.038	600
Climate manager	4.964	1.238	200
HR practices employee	4.586	0.928	600
HR practices manager	4.874	1.234	200
Knowledge transfer employee	4.461	0.935	600

Table 31 cont.

1	*2*	*3*	*4*
Knowledge transfer manager	4.781	1.103	200
Organizational innovation	4.612	1.058	200
Organizational risk approach	4.064	1.022	200
Organizational flexibility	4.503	0.847	200
Financial performance	4.348	0.952	200
Non-financial performance	4.557	0.809	200
Organizational performance	4.381	0.703	200

Source: Own compilation based on research results using IBM SPSS.

The descriptive statistics concerning the constructs in the research model indicate that the responses provided by both employees and managers are consistent. The responses range between 4 and 5, corresponding to “no opinion” and “somewhat agree”. However, a detailed comparison of the responses from employees and managers regarding specific dimensions revealed minor discrepancies, with responses in the managerial surveys being inflated. This suggests that managers may not have full knowledge of the human resource management processes within the organization and may overrate their assessment of these processes compared to reality. Similarly, employees’ responses may not accurately reflect organizational realities. It is likely that employees do not feel responsible for human resource management actions, which may allow them to be more objective in their evaluations of these actions. Nevertheless, the discrepancies are minor and warrant further analysis.

Correlation analysis was conducted to determine whether and how the constructs are related according to respondents’ perceptions. These analyses are presented in Table 32.

The results of correlation analyses between workplace climate, HR practices, and knowledge transfer, as reported by managers and employees, indicate a moderate to strong statistically significant relationship between the variables (specifically: a strong relationship between climate and practices: 0.766 and 0.700; a moderate relationship with knowledge transfer: 0.581, while maintaining an empirical p-value level below 0.01). This confirms a strong positive association between the responses provided by employees and those provided by managers within the organization.

Furthermore, the relationship between climate and practices also appears to be strong and statistically significant. The Pearson coefficient is 0.743, with an empirical p-value level below 0.01. Similarly, for responses provided by managers, the correlation coefficient value is 0.852, indicating a strong statistical relationship between the variables.

Table 32. Correlation coefficients between constructs in the research model

Correlation coefficients among constructs in the research model														
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***	***14***	***15***
1. Climate E	Correlation Coefficient	1	0.766**	0.743**	0.702**	0.435**	0.541**	0.367**	0.060	0.456**	0.307**	0.479**	0.401**	0.239**
	p-value		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.400	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**
2. Climate M	C.C.	0.766**	1	0.639**	0.852**	0.337**	0.557**	0.354**	0.074	0.342**	0.379**	0.410**	0.391**	0.262**
	p-value	**0.000**		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.300	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
3. HR practices E	C.C.	0.743**	0.639**	1	0.700**	0.651**	0.573**	0.352**	0.134	0.408**	0.308**	0.445**	0.408**	0.089
	p-value	**0.000**	**0.000**		**0.000**	**0.000**	**0.000**	**0.000**	**0.059**	**0.000**	**0.000**	**0.000**	**0.000**	0.208
4. HR practices M	C.C.	0.702**	0.852**	0.700**	1	0.440**	0.644**	0.373**	0.079	0.228**	0.397**	0.364**	0.372**	0.148*
	p-value	**0.000**	**0.000**	**0.000**		**0.000**	**0.000**	**0.000**	0.269	**0.001**	**0.000**	**0.000**	**0.000**	**0.036**
5. Knowledge transfer E	C.C.	0.435**	0.337**	0.651**	0.440**	1	0.581**	0.162*	0.137	0.256**	0.176*	0.241**	0.247**	−0.081
	p-value	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**0.022**	**0.053**	**0.000**	**0.013**	**0.001**	**0.000**	0.256
6. Knowledge transfer M	C.C.	0.541**	0.557**	0.573**	0.644**	0.581**	1	0.303**	0.256**	0.346**	0.370**	0.380**	0.436**	0.029
	p-value	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.687
7. Organizational innovation	C.C.	0.367**	0.354**	0,352**	0.373**	0.162*	0.303**	1	0.390**	0.434**	0.465**	0.882**	0.806**	−0.008
	p-value	**0.000**	**0.000**	**0.000**	**0.000**	**0.022**	**0.000**		**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	0.912
8. Organizational risk approach	C.C.	0.060	0.074	0.134	0.079	0.137	0.256**	0.390**	1	0.246**	0.327**	0.384**	0.695**	0.020
	p-value	0.400	0.300	**0.059**	0.269	**0.053**	**0.000**	**0.000**		**0.000**	**0.000**	**0.000**	**0.000**	0.774
9. Organizational flexibility	C.C.	0.456**	0.342**	0.408**	0.228**	0.256**	0.346**	0.434**	0.246**	1	0.312**	0.808**	0.660**	0.088
	p-value	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**0.000**	**0.000**	0.214
10. Financial performance	C.C.	0.307**	0.379**	0.308**	0.397**	0.176*	0.370**	0.465**	0.327**	0.312**	1	0.468**	0.726**	−0.040
	p-value	**0.000**	**0.000**	**0.000**	**0.000**	**0.013**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	**0.000**	0.571
11. Non-financial performance	C.C.	0.479**	0.410**	0.445**	0.364**	0.241**	0.380**	0.882**	0.384**	0.808**	0.468**	1	0.873**	0.041
	p-value	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		**0.000**	0.568

Table 32 cont.

1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
12. Organizational performance	C.C.	0.401**	0.391**	0.408**	0.372**	0.247**	0.436**	0.806**	0.695**	0.660**	0.726**	0.873**	1	0.017
	p-value	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**		0.810
13. Employee age diversity	C.C.	0.239**	0.262**	0.089	0.148*	−0.081	0.029	−0.008	0.020	0.088	−0.040	0.041	0.017	1
	p-value	**0.001**	**0.000**	0.208	**0.036**	0.256	0.687	0.912	0.774	0.214	0.571	0.568	0.810	

* The correlation is significant at the 0.05 level (two-tailed).
** The correlation is significant at the 0.01 level (two-tailed).

p = empirical p-value level   E = employees' opinion, N = 600   M = managers' opinion, N = 200

Source: Own compilation based on research results using IBM SPSS.

In contrast, regarding the relationship between climate, practices, and knowledge transfer across the entire organization, a moderately strong statistically significant relationship was identified, with correlation coefficient values ranging between 0.337 and 0.651, while maintaining an empirical *p*-value level below 0.01. These relationships underwent further analysis during the study, considering control variables such as type of activity, organizational age, and size.

Additionally, the association between age diversity, measured by the Teachman index, and climate, HR practices, and knowledge transfer, is statistically insignificant or relatively weak. Further analysis of these relationships is warranted, taking into account control variables that influence the statistical *p*-value level of the relationships. Furthermore, a moderate statistically significant relationship, requiring further analysis, also exists between antecedents of diversity and various types of organizational outcomes, with coefficient values ranging between 0.079 and 0.445, while maintaining an empirical *p*-value level below 0.01.

All presented correlation analysis results serve as a basis for further exploration of the relationships between variables. Subsequent sections of the study delve deeper into individual dependencies, with the research approach gradually enriching the model with additional dependencies between variables. This entails first examining the relationship concerning the antecedents of age diversity, followed by analyzing the relationship between employee age diversity and organizational outcomes. Next, the model incorporates mediating variables (knowledge transfer, HR practices fostering age diversity, and climate supporting age diversity).

5.3. Research findings – hypothesis verification

The statistical analysis of the conducted research results, which will be presented in this subsection, aims to verify hypotheses and address the research question. Various statistical analysis methods tailored to the nature of the studied relationships were utilized in the statistical analysis of the acquired empirical data. In addition to the previously employed methods in operationalizing the studied variables, such as reliability analysis, correlation analysis, and factor analysis, regression analysis was used to test the influence of control variables and the presence of mediation in the studied relationships.

To confirm the impact of age diversity on organizational outcomes, establish the influence of control variables, and test hypotheses H4, H8, H10, namely the mediation of variables, linear regression analysis was conducted separately for each variable presented in the model as the dependent variable. A fundamental element of the mediation hypothesis is the indication of the presence of a third variable. The reason for including a third variable in the model is an attempt to explain the mechanism underlying the relationship between two variables. The third variable occurs as a mediator, assuming a causal influence of the predictor on this variable, which in turn influences the explained variable. This means that in mediation, the relationship between the independent variable and the dependent variable is assumed to be an indirect effect, which exists due to the influence of the third variable (mediator) (Brzostek and Michna, 2016).

The mediation analysis in the research process was conducted according to two approaches. According to the first, classical approach presented by R. M. Baron and D. A. Kenny (1986), the mediator (M) is treated as a variable that significantly explains the relationship between the independent variable (X) and the outcome variable (Y). Following this approach, the following steps are examined (Baron and Kenny, 1986):

- regression of Y on X,
- regression of M on X,
- regression of Y on X and M.

The above regression equations can be expressed as follows (Bedyńska and Książek, 2012):

- Y = a0 + a1X +uYx. (1)
- M = b0 + b1X + uM. (2)
- Y = c0 +c1X + c2M + uYxm. (3)

To determine the presence of mediation, specific conditions must be met, which are as follows:

1) the relationship between X and Y in equation 1 (a1) should be significant;
2) the relationship between X and M in equation 2 (b1) should be significant;
3) the relationship between M and Y in equation 3 (c2) should be significant;
4) the relationship between X and Y in equation 3 (c1) should be nonsignificant or significantly less significant than the relationship between X and Y in equation 1 (a1); assuming that all three conditions are met, complete mediation is inferred if c1 is nonsignificant, while partial mediation is inferred if c1 remains significant but also significantly less significant than a1 (Judd and Kenny, 1981).

To assess whether the mediation effect is statistically significant, one of three tests can be applied: Sobel, Aroian, and Goodman tests, differing in the form of the tested statistic (Yay, 2017). The Sobel test (1982), Aroian test (1947), and Goodman test (1960) determine whether the reduction of the independent variable's influence on the outcome variable, after considering the mediator in the model, is a substantial reduction, and therefore whether the mediation effect is statistically significant (Nwankwo and Igweze, 2016).

The Sobel test indicates whether the product of the Beta coefficients of paths A and B in the mediation model is significantly different from 0. This test is applied to analyses when the sample size exceeds 50 studies. The Aroian test is intended for large samples and, compared to the Sobel test, includes a correction, consisting of correlating the components of the indirect effect, or the relationship between the independent variable and the mediator is significant (Brzostek and Michna, 2016). The Goodman test is applied for small research samples − below 50; therefore, it was not used in the study. For the purposes of this study, the Sobel and Aroian tests were used. These statistics assume a normal distribution under the assumption of the null hypothesis H0. In practice, if this probability is lower than the assumed *p*-value level α, e.g., α = 0.05, the null hypothesis is rejected in favor of the alternative hypothesis, meaning that the indirect effect (via the mediator) is statistically significant, thus indicating the presence of a mediation effect (James and Brett, 1984).

Regression analysis begins with examining the influence of antecedents on age diversity (Table 33). The explanatory variable is HR practices, and the predicted variable is age diversity. Regression analysis indicates that the relationship between HR practices conducive to age diversity and age diversity is statistically significant, indicating that H1 is confirmed in the study (Standardized Beta: 0.142 for managers; 0.142 for employees). Additionally, the direction of the relationship is positive, meaning that with the increase in the intensity and frequency of implemented HR practices, age diversity among employees also increases (Table 33). The analysis shows that the more an organization implements HR practices that support age diversity, the more diverse its workforce becomes in terms of age. In simple terms, if companies put more effort into promoting policies that include employees of all ages, the result will be a more age-diverse and inclusive workplace. This finding highlights the importance of actively managing age diversity through effective HR practices.

Table 33. Model of the relationship between HR practices favoring age diversity and employee age diversity (H1)

Model 1 (H1)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	HR practices M	0.017	0.008	0.142	2.061	0.041
E	HR practices E	0.012	0.006	0.142	1.966	0.051

Dependent variable: age diversity (M − managers, E − employees).

Source: Own compilation based on research results using IBM SPSS.

In the case of the second model (Table 34), indicating the relationship between HR practices favoring age diversity (exogenous variable) and workplace climate supporting age diversity (endogenous variable), according to H2, there is a statistically significant relationship between the variables in both cases, for both employees and managers (Standardized Beta: 0.847 for managers; 0.738 for employees). This signifies that the analyzed relationship is statistically significant, and the model fits the data well. Additionally, the direction of the relationship is positive, indicating that with an increase in the intensity and frequency of implemented HR practices, the workplace climate is strengthened (Table 34).

The analysis shows that when a company puts in place good HR practices to support age diversity, it helps create a positive work environment where employees of all ages feel valued. Both managers and employees notice this effect, and it suggests that fostering age diversity can lead to better long-term results for the organization.

Table 34. Model of the relationship between HR practices favoring age diversity and workplace climate supporting age diversity (H2)

Model 2 (H2)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	HR practices M	0.849	0.037	0.847	22.897	0.000
E	HR practices E	0.825	0.054	0.738	15.389	0.000

Dependent variable: climate M (managers) and climate E (employees).

Source: Own compilation based on research results using IBM SPSS.

The model indicating the relationship between workplace climate supporting age diversity (external variable) and employee age diversity (internal variable) (Table 35), described using H3, fits the data well (Standardized Beta: 0.274 for managers; 0.250 for employees). The *p*-value level in the analyzed model is below 0.05, indicating a statistically significant relationship between the workplace climate supporting age diversity and the studied diversity. Additionally, the indicated Beta coefficient value provides information that the direction of the relationship is positive, meaning that strengthening the climate supporting age diversity indeed enhances diversity among employees in the organization (Table 35).

The analysis shows that when a workplace encourages age diversity and creates a positive environment for employees of all ages, it actually leads to more age diversity within the company. Both managers and employees recognize this effect, and the data confirms that a supportive atmosphere directly strengthens age diversity in the workforce. The stronger the company's commitment to this kind of work environment, the more diverse its employees become.

Table 35. Model of the relationship between workplace climate supporting age diversity and employee age diversity (H3)

Model 3 (H3)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Climate M	0.032	0.008	0.274	4.062	0.000
E	Climate E	0.035	0.010	0.250	3.675	0.000

Dependent variable: age diversity.

Source: Own compilation based on research results using IBM SPSS.

Transitioning to the analysis of the model incorporating mediation (Table 36), it is noteworthy that hypothesis H4 was verified according to the approach described by R.M. Baron and D.A. Kenny. To test whether the mediation effect was statistically significant, the Sobel and Aroian tests were applied (Table 37). According to the approach outlined by R.M. Baron and D.A. Kenny, all conditions for mediation were met. The analysis indicates that both the *p*-value level of the Sobel and Aroian tests confirm the hypothesis that the workplace climate supporting age diversity mediates the relationship between HR practices promoting age diversity and age diversity among employees. The reported Beta values (0.560 for managers; 0.368 for employees) indicate that the relationship is positive. This means that as the climate supporting age diversity strengthens, there is a corresponding increase in the visibility of HR practices as perceived by employees, which are implemented by managers. The higher Beta value for managers suggests that they not only recognize but also play a more active role in shaping and promoting these diversity-supportive HR practices (Tables 36–37).

The study found that a positive work environment that supports age diversity helps make HR practices related to age diversity more noticeable and effective. When the workplace climate gets better at supporting age diversity, employees see the HR practices as more visible and helpful. Managers are especially important in this process, as they play a key role in putting these practices into action. Overall, this means that improving the workplace atmosphere for age diversity leads to more effective HR practices and shows how crucial managers are in creating a diverse and inclusive work environment.

Table 36. Mediation verification between HR practices fostering age diversity and age diversity among employees (H4)

Model 4 (H4): Equation 1		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	HR practices M	0.017	0.008	0.142	2.061	0.041
E	HR practices E	0.018	0.011	0.113	1.622	0.106

Dependent variable: age diversity.

Model 4 (H4): Equation 2		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	HR practices M	0.849	0.037	0.847	22.897	0.000
E	HR practices E	0.825	0.054	0.738	15.389	0.000

Dependent variable: climate M (managers) and climate E (employees).

Model 4 (H4): Equation 3		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Climate M	0.032	0.008	0.274	4.062	0.000
E	Climate E	0.035	0.010	0.250	3.675	0.000

Dependent variable: age diversity.

Model 4 (H4): Equation 4		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Climate M	0.066	0.015	0.560	4.383	0.000
	HR practices M	−0.039	0.015	−0.332	−2.619	0.010
E	Climate E	0.052	0.014	0.368	3.647	0.000
	HR practices E	−0.025	0.016	−0.158	−1.577	0.116

Dependent variable: age diversity.

Source: Own compilation based on research results using IBM SPSS.

Table 37. Mediation model between HR practices fostering age diversity and age diversity among employees – Sobel and Aroian tests (H4)

H4	Manager		Employee	
	value	*p*-value	value	*p*-value
Sobel Test	3.99955085	0.00006346	3.57448882	0.00035091
Aroian Test	3.99585797	0.00006446	3.5673705	0.00036058

Source: Own compilation based on research results using IBM SPSS.

In the case of the fifth model (Table 38), indicating the relationship between age diversity (predictor) and organizational outcomes (dependent variable), according to H5 (broken down into individual variables from H5a to H5b3), statistically significant relationships in the tested regression were largely absent. This implies that the analyzed regression is not statistically significant, and the model is not well-fitted to the data. This lack of confirmation for hypotheses from H5a to H5b2 is evident. An exception is hypothesis H5b3, which was confirmed because the *p*-value level is 0.073, indicating a statistically significant relationship between age diversity among employees and organizational outcome, namely organizational flexibility. Additionally, the Beta coefficient of 0.128 indicates a positive direction of the relationship, suggesting that with an increased number of age-diverse employees, organizational flexibility also increases, reflecting its adaptability to changes in both internal and external environments. However, age diversity does not influence organizational outcomes such as financial performance (Standardized Beta: −0,042; *p*-value: 0,571), organizational risk approach (Standardized Beta: 0,018; *p*-value: 0,803), or organizational innovation (Standardized Beta: −0,008; *p*-value: 0,916) (Table 38).

In the study of how age diversity affects a company's results, most of the examined factors like financial performance, risk approach, and innovation did not show a strong connection with age diversity. This means that simply having a diverse age range in the workforce doesn't necessarily lead to changes in these areas. However, one important finding is that age diversity does seem to improve organizational flexibility. This means that companies with a more age-diverse workforce are better at adapting to changes, whether they are internal shifts or external challenges. Looking ahead, increased organizational flexibility might lead to positive effects in other areas over time. For example, a more adaptable organization might eventually see improvements in financial performance, risk management, and innovation as it becomes better at responding to new opportunities and challenges. Thus, while age diversity currently shows a clear impact on flexibility, its benefits could extend to other key outcomes in the future.

Table 38. Model of the relationship between age diversity and organizational performance (H5)

Model 5 (H5)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	0.134	0.354	0.028	0.378	0.706

Dependent variable: organizational performance.

Model 5a (H5a)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	−0.273	0.481	−0.042	−0.568	0.571

Dependent variable: financial performance.

Table 38 cont.

Model 5b (H5b)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	0.341	0.404	0.062	0.845	0.399

Dependent variable: non-financial performance.

Model 5b1 (H5b1)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	−0.057	0.535	−0.008	−0.106	0.916

Dependent variable: organizational innovation.

Model 5b2 (H5b2)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	0.126	0.505	0.018	0.250	0.803

Dependent variable: organizational risk approach.

Model 5b3 (H5b3)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	0.744	0.413	0.128	1.803	0.073

Dependent variable: organizational flexibility.

Source: Own compilation based on research results using IBM SPSS.

In the case of the sixth model (Table 39), indicating the relationship between age diversity (independent variable) and knowledge transfer among employees in the organization (dependent variable), according to H6, there is no statistically significant relationship between the analyzed variables (Standardized Beta: 0.079 for managers; −0.048 for employees). This means that the analyzed relationship is not statistically significant (*p*-value: 0,273 for managers; 0,506 for employees), and the model is not well fitted to the data. This indicates a lack of confirmation for the proposed hypothesis H6 (Table 39).

This means that having employees of various ages doesn't appear to improve how knowledge is shared within the organization. This suggests that while age diversity might have some benefits, it doesn't automatically lead to better knowledge sharing among employees. For future improvements, organizations may need to focus on other factors or strategies to enhance knowledge transfer, rather than relying solely on the diversity of ages within the team.

Table 39. Model of the relationship between age diversity and knowledge transfer among employees (H6)

Model 6 (H6)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Age diversity	0.595	0.541	0.079	1.100	0.273
E	Age diversity	−0.309	0.464	−0.048	−0.667	0.506

Dependent variable: knowledge transfer M (managers) and knowledge transfer E (employees).

Source: Own compilation based on research results using IBM SPSS.

A different relationship is observed in the seventh model (Tables 40 and 41), which indicates the relationship between HR practices supporting age diversity and a work climate fostering age diversity (exogenous variables), and knowledge transfer (endogenous variable). Hypotheses H7a and H7b have been confirmed. Therefore, the model fits the data well. The regression is statistically significant both in the case of the relationship between HR practices supporting age diversity and knowledge transfer among employees (Standardized Beta: 0.641 for managers; 0.637 for employees), and between the work climate supporting age diversity and knowledge transfer (Standardized Beta: 0.544 for managers; 0.421 for employees). In each case, the *p*-value level is below 0.05. Moreover, the Beta parameter value indicates a positive direction of the relationship, meaning that with the increased intensity of HR practices in the organization or with the improvement of the work climate, there is a greater intensity of knowledge transfer among employees in the organization (Tables 40 and 41).

The study found that both the HR practices and the workplace climate significantly affect how well knowledge is shared among employees. Specifically, both the HR practices that encourage age diversity and a supportive workplace climate were shown to improve knowledge transfer. This means that when organizations actively support age diversity through their HR practices and create a positive work environment, employees are more likely to share knowledge effectively. In simpler terms, if companies focus on promoting age diversity and creating a supportive climate, they can enhance how knowledge flows between their employees. This can lead to better collaboration and more effective use of knowledge within the organization.

Table 40. Model of the relationship between HR practices supporting age diversity and knowledge transfer (H7a)

Model 7a (H7a)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	HR practices M	0.573	0.047	0.641	12.145	0.000
E	HR practices E	0.641	0.055	0.637	11.747	0.000

Dependent variable: knowledge transfer M (managers) and knowledge transfer E (employees).

Source: Own compilation based on research results using IBM SPSS.

Table 41. Model of the relationship between the work climate supporting age diversity and knowledge transfer (H7b)

Model 7b (H7b)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value B
		B	Standard error	Beta		
M	Climate M	0.485	0.052	0.544	9.250	0.000
E	Climate E	0.379	0.058	0.421	6.537	0.000

Dependent variable: knowledge transfer M (managers) and knowledge transfer E (employees).

Source: Own compilation based on research results using IBM SPSS.

Transitioning to the analysis of the mediation model, it is worth noting that hypotheses H8a and H8b were verified according to the approach described by R.M. Baron and D.A. Kenny. To test whether the mediation effect was statistically significant, the Sobel and Aroian tests were applied. This model assumes the existence of age diversity as a mediator between HR practices supporting age diversity (H8a) and a work climate fostering age diversity (H8b), and knowledge transfer. According to the approach described by R.M. Baron and D.A. Kenny, only the first two conditions of mediation were met, indicating that HR practices influence knowledge transfer, and that HR practices influence age diversity (H8a), as well as that the work climate influences knowledge transfer, and that the work climate influences age diversity (H8b). This was already confirmed in hypotheses H1 and H7a (relationships regarding HR practices) and H3 and H7b (relationships regarding the work climate). However, it follows from equation number 3 that there is no statistically significant relationship between age diversity and knowledge transfer. The absence of mediation is confirmed by the results of the Sobel and Aroian tests. The *p*-value level of the Sobel and Aroian tests indicates that neither HR managers nor employees perceive age diversity as a mediator in the relationship between HR practices supporting age diversity (H8a) and the work climate fostering age diversity (H8b) and knowledge transfer. In summary, based on the lack of confirmation for hypothesis H6, which suggests that age diversity is positively associated with knowledge transfer, hypotheses H8a and H8b can be rejected. Therefore, if age diversity does not show an association with knowledge transfer, it cannot mediate the relationship between HR practices or the work climate and knowledge transfer, due to the calculations previously presented as part of the first, third, and seventh models (H1 − Table 33, H3 − Table 35, H7 − Tables 40 and 41).

In analyzing how age diversity might act as a middleman between HR practices that support age diversity, a supportive workplace climate, and the transfer of knowledge between employees, the study used several statistical tests. The results show that while HR practices and a supportive climate both positively influence knowledge transfer, age diversity itself does not seem to play a significant role in this process. Specifically, although the study confirmed that HR practices and a positive work climate affect knowledge transfer, age diversity does not seem to mediate or influence this relationship. In simpler terms, even though having diverse age groups in the workplace can impact knowledge sharing, age diversity alone doesn't significantly affect how well knowledge is transferred between employees. Thus, the idea that age diversity could act as a bridge between supportive HR practices or a positive work environment and effective knowledge transfer is not supported by the data.

The eighth model (Tables 42−47) pertains to the relationship between knowledge transfer (independent variable) and organizational outcomes (dependent variable). The model assumes that there is a statistically significant relationship between employees' knowledge transfer and various dimensions of organizational outcomes. Regression results indicated that the *p*-value level is always below 0.1, and in a significant portion of cases even below 0.05, thus confirming all hypotheses from H9a to H9b3. This indicates that the model fits the variables well. Furthermore, the Beta coefficient suggests the existence of a positive relationship, namely, whenever there is greater intensity during the knowledge transfer process among employees, there is an improvement in organizational outcomes, including both financial and non-financial outcomes (Tables 42−47).

There is a strong link between how well employees share knowledge and the success of the organization. This means that when employees communicate and exchange knowledge more effectively, the organization tends to perform better in various ways. The results indicate that increased knowledge sharing leads to better financial results and other positive outcomes for the organization. In simple terms, the better employees share what they know, the more the organization benefits, both financially and in other important areas.

Table 42. Model of the relationship between knowledge transfer and organizational performance (H9)

Model 8 (H9)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.282	0.042	0.443	6.700	0.000
E	Knowledge transfer E	0.180	0.053	0.239	3.381	0.001

Dependent variable: organizational performance.

Source: Own compilation based on research results using IBM SPSS.

Table 43. Model of the relationship between knowledge transfer and financial organizational performance (H9a)

Model 8a (H9a)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.340	0.059	0.394	5.796	0.000
E	Knowledge transfer E	0.186	0.073	0.183	2.544	0.012

Dependent variable: financial performance.

Source: Own compilation based on research results using IBM SPSS.

Table 44. Model of the relationship between knowledge transfer and non-financial organizational performance (H9b)

Model 8b (H9b)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.269	0.050	0.367	5.403	0.000
E	Knowledge transfer E	0.192	0.061	0.222	3.157	0.002

Dependent variable: non-financial performance.

Source: Own compilation based on research results using IBM SPSS.

Table 45. Model of the relationship between knowledge transfer and organizational innovation (H9b1)

Model 8b1 (H9b1)		Unstandardized coefficients		Standardized coefficients	t-value	p-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.299	0.067	0.312	4.446	0.000
E	Knowledge transfer E	0.183	0.082	0.162	2.247	0.026

Dependent variable: organizational innovation.

Source: Own compilation based on research results using IBM SPSS.

Table 46. Model of the relationship between knowledge transfer and organizational risk approach (H9b2)

Model 8b2 (H9b2)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.252	0.064	0.273	3.935	0.000
E	Knowledge transfer E	0.151	0.077	0.138	1.949	0.053

Dependent variable: risk approach in the organization.

Source: Own compilation based on research results using IBM SPSS.

Table 47. Model of the relationship between knowledge transfer and organizational flexibility (H9b3)

Model 8b3 (H9b3)		Unstandardized coefficients		Standardized coefficients	*t*-value	*p*-value
		B	Standard error	Beta		
M	Knowledge transfer M	0.238	0.052	0.309	4.551	0.000
E	Knowledge transfer E	0.200	0.063	0.221	3.194	0.002

Dependent variable: organizational flexibility.

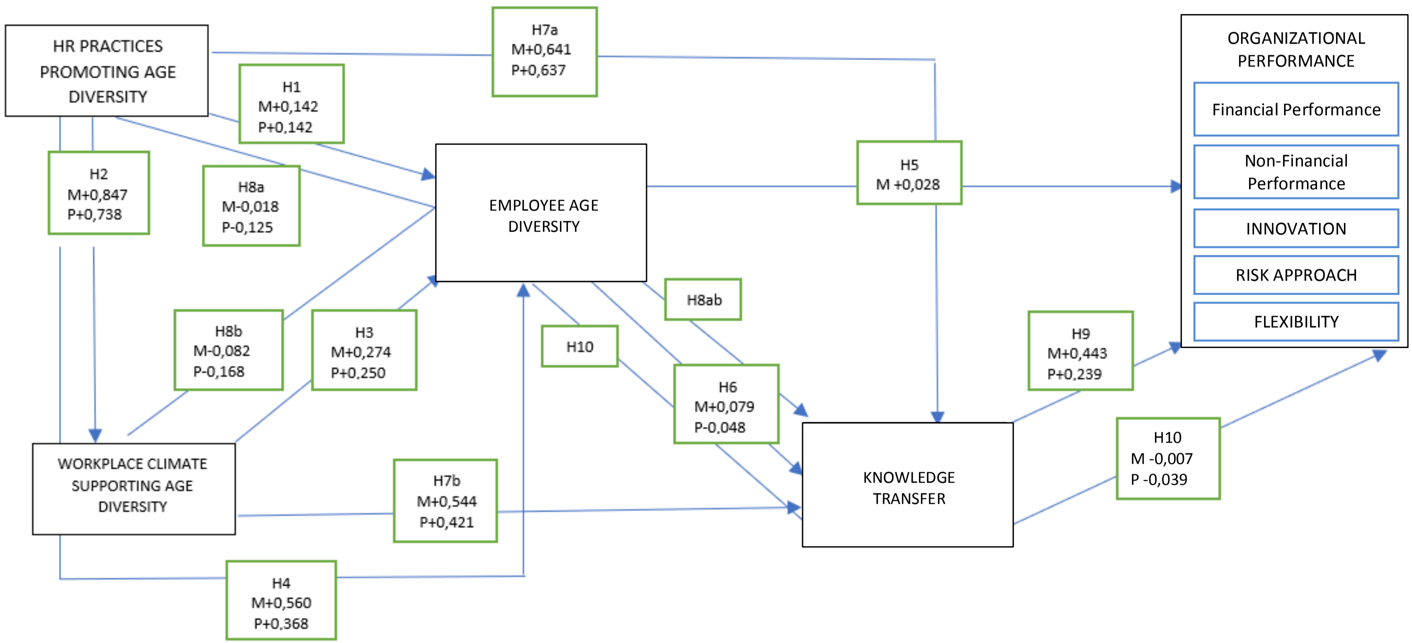
Source: Own compilation based on research results using IBM SPSS.

Transitioning to the analysis of the final model involving mediation, it is worth mentioning that hypotheses from H10a to H10b3 were verified according to the approach described by R.M. Baron and D.A. Kenny. To test whether the mediation effect was statistically significant, the Sobel and Aroian tests were applied. This model assumed the existence of knowledge transfer among employees in the organization as a mediator between age diversity among employees and organizational outcomes. Following the approach described by R.M. Baron and D.A. Kenny, it can be observed that no impact of the conditions for mediation were met. The absence of mediation is confirmed by the results of the Sobel and Aroian tests. The *p*-value level of the Sobel and Aroian tests indicates that neither HR managers nor employees perceive knowledge transfer among employees in the organization as a significant mediator in the relationship between age diversity among employees and financial and non-financial organizational outcomes such as organizational innovativeness, organizational flexibility, and organizational risk approach. Moreover, considering the rejection of hypothesis H5 (indicating that age diversity is positively related to organizational outcomes) and the rejection of hypothesis H6 (indicating that diversity is positively related to knowledge transfer) during the analysis of these hypotheses, it cannot be concluded that knowledge transfer mediates the relationship between diversity and organizational outcomes. In other words, if age diversity among employees shows no association with knowledge transfer or organizational outcomes, then knowledge transfer cannot mediate the relationship between diversity and organizational outcomes. In summary, the complex hypothesis H10 should be considered as falsified. This means that there is no statistically significant relationship between age diversity among employees and the organizational outcomes verified during the study.

The final model showed that knowledge transfer does not mediate the relationship between age diversity and organizational performance. In other words, having employees of various ages does not impact how knowledge is shared or the organization's success through knowledge transfer. Organizations should focus on improving their knowledge management systems independently of employee age. Other factors like organizational structure, technology, and workplace culture might be more crucial for effective knowledge transfer.

5.4. Model of the relationship between employee age diversity and its antecedents, organizational outcomes, and knowledge transfer

Before presenting a brief summary of the research results, it should be emphasized that the measurement scales used to operationalize the studied constructs demonstrated high psychometric properties and were statistically significant. The main thesis of the study, translated into research hypotheses, was tested on a sample of 800 respondents from medium and large organizations across four sectors. Out of 29 detailed hypotheses, 14 were confirmed, and 15 were falsified (Figure 11).



M – managers, E– employees.

Figure 11. Verification of research hypotheses

Source: Compiled by the author.

Based on the conducted empirical research, the following conclusions can be synthetically presented:

- HR practices favoring age diversity among employees and a workplace climate supporting age diversity are strongly linked, indicating that employees and managers may not perceive distinct differences between the variables; this implies that the implementation of practices directly relates to the existence of a supportive climate within the organization, which, in turn, may initiate the implementation of employee management instruments;
- HR practices favoring age diversity among employees and a workplace climate supporting age diversity influence the shape and magnitude of age diversity within the organization: the more supportive actions are implemented, the stronger and larger the diversity becomes;
- a workplace climate supporting age diversity mediates the relationship between HR practices favoring age diversity among employees and age diversity within the workforce; this suggests that the effectiveness of HR practices influencing diversity is enhanced when appropriate attitudes toward diversity are fostered among employees and managers;
- the presence of age diversity within the organization affects organizational flexibility, i.e., its adaptability to internal and external changes;
- there is no direct impact of age diversity in the studied organizations on organizational outcomes such as financial results, organizational risk approach, or organizational innovativeness; however, the relationship between age diversity and organizational flexibility may lead to improvements in other organizational outcomes in the longer term (Ouakouak and Ammar, 2015); it is possible that the climate supporting age diversity and HR practices are not sufficiently implemented in the organization to reap the benefits of age diversity;
- there is no direct impact of age diversity on knowledge transfer within the organization;
- there is a statistically significant relationship between both HR practices favoring age diversity among employees and workplace climate supporting age diversity and knowledge transfer among employees;
- neither HR managers nor employees perceive age diversity as a mediator in the relationship between HR practices favoring age diversity and workplace climate supporting age diversity and knowledge transfer;
- neither HR managers nor employees perceive the knowledge transfer process among employees in the organization as a significant mediator in the relationship between age diversity and financial and non-financial organizational outcomes such as organizational innovativeness, organizational flexibility, and organizational risk approach.

Chapter 6

INTEGRATING EMPIRICAL EVIDENCE: STRATEGIC INSIGHTS ON AGE DIVERSITY IN ORGANIZATIONS

Chapter 6 serves as the culmination of the empirical analysis conducted throughout this monograph, synthesizing the findings and drawing critical conclusions about the relationships between age diversity, HR practices, workplace climate, and organizational outcomes. The importance of this chapter lies in its ability to distill the empirical evidence into actionable insights, offering a comprehensive understanding of how age diversity interacts with various organizational factors to influence performance and flexibility. This chapter not only confirms or refutes the hypotheses set forth earlier but also provides a nuanced discussion on the implications of these findings for both theory and practice.

Additionally, the chapter offers practical guidelines for managers and HR professionals on how to strengthen age diversity and maximize its positive effects on organizational outcomes. These recommendations are based on the empirical findings and are aimed at helping organizations navigate the challenges of demographic changes, such as an aging workforce and the increasing age diversity among employees. The chapter also discusses the limitations of the research and suggests avenues for future studies, particularly emphasizing the need for a more nuanced understanding of the interplay between diversity, HR practices, and organizational performance.

6.1. Implications for management theory

The research highlights the importance of examining the interplay between HR practices, workplace climate, and age diversity, contributing to a more nuanced understanding of how these elements affect organizational outcomes. It underscores the need for integrating age diversity into management theories, particularly in relation to organizational flexibility and performance.

The deliberations presented in this monograph are grounded in the body of human resource management theory. According to the author's knowledge, it represents the first attempt to examine the antecedents of age diversity among employees and HR practices conducive to age diversity. Previous studies cited in the literature treated age diversity as an independent variable. Variables such as HR practices or diversity-supportive climates were considered moderators or mediators in the relationships between age diversity and other variables. The research results presented in this work differ significantly from this approach as they allowed for the identification of HR practices and diversity-supportive climates as determinants of diversity (Bengoa, 2013).

The studies not only demonstrated the *p*-value of HR practices and workplace climates in shaping age diversity among employees but also the increased intensity of knowledge exchange processes among employees. The co-occurrence of HR practices and a supportive workplace climate with knowledge transfer was also observed. Furthermore, the findings confirmed previous research results emphasizing the importance of knowledge transfer among employees in achieving high financial and non-financial organizational performance (van Wijk et al., 2008).

Previous studies have indicated both positive and negative impacts of diversity on organizational outcomes. These current studies enrich the discussion in this regard. Although only the hypothesis of a positive relationship between age diversity and organizational flexibility was confirmed, considering the limited previous interest of researchers in the impact of diversity on non-financial outcomes, this conclusion contributes to a better understanding of the effects of age diversity. Furthermore, the work allowed for the identification of variables underlying the positive effects of age diversity among employees. Previous studies have mainly focused on the negative consequences of diversity, identifying mediating or moderating variables that may reduce these effects. The research presented in this work focuses on the potential benefits of employee diversity and the search for variables that positively influence diversity, such as knowledge transfer, workplace climate, and appropriate HR practices (De Meulenaere and Kunze, 2021).

In conducting the research, measurement and interpretation of age diversity results were undertaken, which poses significant challenges for researchers. To calculate the Blau and Teachman diversity indices (Seong and Hong, 2018), managers were asked to provide the percentage distribution of different generations among all employees in the organization. The method of measuring age diversity through estimated information, indicating the percentage of employees in each age category, has not been verified in other publications. However, in the studies presented in this work, obtaining age information about individual employees in any other way would have been practically impossible due to the size of the analyzed organizations. Estimated information about the percentage of employees in each age category allows for the approximate and reliable calculation of the Blau index and verification of the existence of age diversity among employees.

6.2. Implications for management practice

The primary utilitarian goal was to provide management with specialized knowledge on supporting age diversity among employees and to create recommendations for managers and HR specialists based on the research results. The research findings may enrich the set of tools that help effectively manage diverse employees. In summary, HR practices, which have primarily been descriptive in nature, have become tools that can be implemented in any organization (Boehm et al., 2014). Practical implications arising from the *p*-value of knowledge transfer for organizations are worth noting. Companies aiming to change the scope of knowledge transfer must focus particularly on developing strong and trustworthy relationships, especially across organizational boundaries. Such relationships foster close collaboration and may also support ambiguous knowledge transfer between units (van Wijk et al., 2008).

As for practical implications, the discoveries indicated in the scientific study can be translated into useful advice for organizations interested in maintaining and improving employees' ability to work in times of demographic changes, especially increased age diversity. HR managers are increasingly aware of the significant responsibility they bear in meeting the challenges of demographic changes (e.g., lack of young specialists, aging workforce, growing age diversity among employees) to ensure the long-term functionality of their companies. The results of scientific research can support them in these endeavors.

It is essential for managers to realize that the workforce is changing and they should monitor changes within their teams and throughout the entire organization. Companies should be aware of the age structure of their employees and not only identify the status quo but also design their workforce composition for the future (Boehm and Dwertmann, 2015).

To effectively manage age diversity, organizations should implement both proactive and reactive strategies. Proactive approaches may include educational programs aimed at raising awareness about age diversity and dispelling age-related stereotypes. Furthermore, organizations should foster an environment that embraces age diversity by cultivating an organizational climate where norms promoting tolerance and acceptance are actively reinforced and rewarded (Boehm and Dwertmann, 2015; Alam and Shin, 2021).

HR practitioners should be aware that age-inclusive HR practices are a promising tool in managing age-diverse employees. As the study has shown, potential elements of such age-inclusive HR packages include age-neutral recruitment policies, equal access to training for all age groups, age-neutral career and promotion systems, initiatives aimed at educating managers about leading age diversity in the workplace, and promoting age-inclusive corporate culture. Although these measures should not be seen as an exhaustive list, they provide practitioners with a good starting point for effectively managing employees from all age groups (Boehm et al., 2013). Furthermore, as analyses indicate, the implementation of such age-inclusive HR systems seems to be beneficial for all organizations, not just those with a high average age or a large age diversity among employees (Rudolph and Zacher, 2021). The results obtained confirm the suggestion that organizations should differentiate "generic" HR practices offered to employees in different age groups, or at least be aware that they may have different effects (Kooij et al., 2013). This means that HR practices should be tailored to the age of individual employees (Kooij et al., 2010). This requires frequent and effective communication between management, supervisors, and employees about the nature and potential benefits of HR practices, as well as support in accessing, interpreting, and utilizing information about these practices.

Furthermore, HR managers as well as the managerial staff throughout the entire company should be aware of the crucial role of a positive climate that embraces age diversity in retaining employees in the organization. Therefore, it seems essential to support a high level of age-diverse climate. In addition to investing in HR practices that influence age diversity climate, companies can also think about exerting additional influence on it. Hence, active assistance to employees in interpreting what they see, pointing out policies, practices, and procedures that contribute to creating and maintaining a diverse workforce should be encouraged. In this way, employees should be able to promote an even higher level of age-diverse climate, which in turn should positively and enduringly impact the organization's financial performance (Boehm et al., 2013). Efforts to improve the climate should also contribute to increasing employees' ability to work, which, as demonstrated, is associated with several important employee outcomes, such as reduced absenteeism or later retirement (Rudolph and Zacher, 2021).

It is worth noting the practical implications arising from the *p*-value of knowledge transfer for organizations. Organizations interested in harnessing the full potential of two-way knowledge flow between older and younger employees should be cautious about assigning age-related roles in the knowledge transfer process (van Wijk et al., 2008). Firstly, the notion that older employees are always expected to be teachers and that they will contribute knowledge to the organization but will not be recipients of knowledge, as it is the domain of younger people, may have a detrimental impact on the perceived developmental opportunities of older employees. Secondly, organizations can offer awareness-raising training sessions where employees reflect on age norms that guide their knowledge-sharing behaviors at work. Such awareness may promote openness to interactions that seemingly do not align with age norms, such as younger colleagues sharing knowledge with older employees. As a result of reflecting on their own age norms, older employees may be more inclined to seek knowledge from others, and younger employees may be more willing to share their valuable knowledge with colleagues despite their limited experience (Larkin and Burgess, 2013). Thirdly, organizations can offer training that influences individuals' ability and motivation to engage in knowledge transfer. Training that explains the positive effects of knowledge transfer for the individual (e.g., recognition) and the organization (e.g., efficiency) can positively impact motivation. Training that advises on how to recognize one's valuable knowledge and effectively transmit that knowledge to others can positively impact skills. Fourthly, the finding that credibility in the communication process can play a significant role should be reflected in organizational practices that facilitate positive interactions among employees in different age groups. For example, organizations can emphasize, through internal communication channels (e.g., newsletters, company magazines), that employees from different age groups are not competing for resources, as such narratives have been shown to positively influence the perception of individuals from the other age group (Kaše et al., 2009). Furthermore, organizations can provide opportunities for intergenerational contact through age-diverse project teams, open workspace, and social events. Such positive intergroup contact among employees from different age groups could, in turn, create opportunities for strengthening mutual trust, thereby positively influencing the knowledge transfer process (Burmeister et al., 2018b).

Furthermore, organizations should invest in age-inclusive HR practices to: increase the dissemination and quality of knowledge transfer (Boehm et al., 2014). For example, managers can accurately assess the age distribution of training and development program participants to identify potential underrepresentation of older or younger individuals. Subsequently, managers should ensure that training and development programs encompass all age groups. Additionally, they must ensure that at least some of their training and development activities are appealing to both older and younger employees (Zwick, 2015). Secondly, all involved parties should invest in a relationship climate that respects age diversity and considers the contributions of employees from different age groups (Burmeister et al., 2018b). Managers should undergo leadership training to equip them with the skills necessary to manage age-diverse employees (Wegge et al., 2012). Organizations and supervisors can increase the permanent employment of employees by paying greater attention to individual employees' career situations, creating jobs that are supportive, meaningful, and potentially satisfying. Supervisors can try to individually discuss with employees their needs and how to change their work to increase their internal motivation. Furthermore, organizational practices and procedures that support and facilitate the permanent employment of employees should be developed. Moreover, it seems essential for attitudes, procedures, and practices to be free from age-related stereotypes, as such stereotypes can be workplace stressors and can jeopardize employees' health and engagement. Lack of support for employees can negatively impact employees' motivation to develop (van Dam et al., 2017).

The business justification for supporting diversity presented in this study may initiate a debate on the introduction of regulations concerning age diversity management. Such legislation may not only support large age diversity among organizations operating in Poland but may also require organizations to actively manage this diversity. Effective age diversity management may also lead to positive outcomes achieved by employees themselves. Legislation on age diversity and the positive outcomes achieved by employees and the entire organization may encourage other organizations to implement practices beyond compliance, equality towards employees, adopting a diversity management perspective regarding age diversity (Ali and French, 2019). In line with such an initiative, top-level management in companies must support diversity as a strategic goal, adopt a policy that ensures fair treatment and integration of the entire workforce, allocate resources to maintain a diversity-supportive work climate, and hold management accountable for diversity-related outcomes. Failure to fully invest in comprehensive age diversity management may result in the failure of diversity initiatives, overt and covert bias in personnel actions, and decision-making that may be detrimental to employees (Holmes IV et al., 2021).

In summary, the results encourage managers to further develop age diversity in their organizations by appreciating the differences between young and mature employees and reinforcing the synergy effect by signaling positive processes and values such as trust, loyalty, and engagement to ensure the benefits of managing age diversity.

6.3. Limitations of the empirical research

The author acknowledges that the conducted research procedure is not free from classical limitations concerning research design, sampling, and operationalization of variables.

Regarding the research design, attention should be drawn to conducting a literature review using a systematic review methodology (Czakon, 2011). Although the process of gathering publications involved international databases, appropriate inclusion criteria were applied, which can be considered a methodological limitation. However, to enhance the validity of the review, the basic literature base was supplemented with publications available in Polish scientific databases, as well as other digital sources of scientific and industry publications not indexed in journals, known as "grey literature".

An additional limitation of the research procedure could be the use of a subjective measurement scale in quantitative research. Furthermore, organizational outcomes can also be measured based on subjective information collected from managers or other key individuals in the organization, asking them to assess the overall performance of the company, such as market share, profitability, innovative activities, and the effectiveness of HR practices (Singh et al., 2015). It has been argued that objective measures are more reliable than subjective ones because managers, when providing subjective data, may be reluctant to acknowledge certain errors or shortcomings and instead may attempt to overrate their organization's performance, meaning that a margin of error associated with lack of honesty or lack of complete knowledge on the subject should be taken into account in the case of subjective results (Singh et al., 2015; De Meulenaere et al., 2024). Nevertheless, despite these concerns regarding subjective measures, they remain a popular method for evaluating organizational performance among researchers – especially in the field of management (Camps and Luna-Arocas, 2012).

Another limitation pertains to the generalizability of the findings. The study was conducted with a sample of Polish companies, which may restrict the applicability of the results to firms in other countries with different cultural norms regarding age in the workplace. Replicating the study with more diverse samples could validate the findings across various organizational and cultural contexts (De Meulenaere et al., 2024).

Furthermore, the research focused solely on age diversity and did not consider other demographic diversity contexts within organizations. Employees may belong to multiple minority groups (e.g., related to disability, culture, religion, gender, nationality), and previous research suggests that such individuals might be particularly vulnerable to negative workplace experiences, such as discrimination, which could adversely affect their job performance. Future studies should explore combinations of different categories, including disability, age, gender, and culture (Rabl and Triana, 2014; Boehm and Dwertmann, 2015; Ali and French, 2019). Additionally, future research should examine a broader range of diversity management practices, focusing on various forms of demographic diversity (D'Netto and Sohal, 1999; Li et al., 2019).

The last area of identifying limitations is the operationalization of variables. Given that the literature mentions various tools for measuring variables presented in the model (e.g., Noorani, 2014; Kulik et al., 2016; King and Bryant, 2017; van Dam et al., 2017; De Meulenaere et al., 2022), specific tools were chosen. In the author's opinion, operationalizing variables using integrated findings from desk-based exploratory research (academic and grey literature analysis, analysis of case studies from business practice), and conducting pilot studies as a prelude to the main research contributed to ensuring an appropriate level of operationalization validity.

6.4. Future research directions

There are numerous avenues for future research that are important for advancing our understanding of age diversity in organizational settings.

In the conducted research, the relationship between age diversity and firm outcomes was examined under the assumption that diversity influences outcomes. To rigorously investigate causal relationships and gain a more comprehensive understanding of these dynamics, future empirical studies should explore the reverse relationship. This can be achieved by employing long-term data through longitudinal studies. Initially, such research could assess the impact of diversity or HR practices on outcomes, followed by an investigation into how these outcomes, in turn, affect diversity and HR practices over time (van Dam et al., 2017; De Meulenaere et al., 2024).

Another proposal for future research focuses on the level of analysis. Since the research presented in this paper was conducted at the organizational level, future studies can complement the results of this work by adopting a multilevel perspective and examining the effects of HR practices related to knowledge transfer at the individual level among employees of different ages (Burmeister et al., 2018a), or the issue of diversity perception by employees (Phillips et al., 2018).

Furthermore, the operationalization of age as chronological age constitutes a limitation of this research. Age refers to multidimensional changes in physical, psychological, and social functioning. Subjective, social, and economic aspects of age may be other important explanatory variables, indicated in research models, beyond chronological age. However, age is conceptualized in this study as chronological age because it represents the dominant approach in the scientific literature and in managerial decision-making regarding employees, and it is objective and verifiable in various cultural contexts. Nevertheless, analyzing the chronological age of employees involves a kind of balancing the gains and losses of each age group. However, not all older workers will incur losses associated with age, as with increasing chronological age, they gain more work and life experience, have greater distance from the surrounding world, and possess more skills. Therefore, other operationalizations of age, such as functional age, biological age, life stages, and organizational tenure, may also influence the understanding of the relationship between diversity and HR practices (Kooij et al., 2014).

Future research should prioritize the adoption of the mean standard deviation (MSD) as a measure of age diversity in workplace studies. The prevalent use of standard deviation (SD) may obscure the true effects of age diversity due to its sensitivity to large age differences, particularly in representing age separation within work units. By utilizing MSD, researchers can achieve greater conceptual clarity and empirical accuracy in examining the complex dynamics of age diversity. This shift is essential for advancing our understanding of how age-related factors influence organizational outcomes (De Meulenaere et al., 2023).

One potential improvement could be the use of multiple tools measuring the same variable to thoroughly verify and compare the reliability of these tools, ultimately selecting the most appropriate one. The study employed a questionnaire for data collection. Researchers might consider applying “triangulation” (the use of three different methods) to enhance the credibility of the findings. For instance, focus groups and interviews might uncover different issues related to diversity (D’Netto and Sohal, 1999).

The study utilized a seven-point Likert scale; however, future research might explore the use of a scale with fewer points or a more differentiated scale depending on the research tool used. For example, a popular five-point scale could be employed (Smyczek and Matysiewicz, 2015; Ingram et al., 2016).

Future research should also address the interpretation of age. Typically, researchers view age as a uniform interpretation of values, beliefs, or experiences within a particular age group. The reality may be more complex, with employees of similar ages being more diverse than presumed. Thus, investigating individual-level constructs such as personal beliefs, values, or attitudes that may moderate the effects of age diversity in teams could be a fruitful area of study (Boehm and Kunze, 2015).

Thus, to examine the impact of age-related factors on other variables, future research should also include other operationalizations of age (Kooij et al., 2014). Moreover, based on this, it can be argued that further empirical research is needed to examine the mechanisms underlying age-related effects or changes, such as how employees' needs change with age and what motivates different age groups (Kooij et al., 2010).

Future studies should also include employees engaged with the company through various forms of employment, such as contracts, volunteer work, or seasonal employment, to determine if all employees, regardless of their employment type, have equal access to HR practices and contribute similarly to workplace climate.

Another limitation of the research, along with a proposal for future research, focuses on the respondents. The measure of organizational outcomes was obtained from key informants (i.e., HR managers, often after consultation with the finance department or the organization's management) and was rather a perceptual measure than fully objective. Although board members may be considered good sources of information on outcomes, and the method of measurement is often well-established, researchers should strive to collect additional, objective financial data to assess firm outcomes, such as stock prices. Information can also be obtained from competitors regarding non-financial outcomes and attempt to compare it with the information obtained from the given company (De Jong et al., 2017).

In the literature, not only diversity climate, understood as fair treatment of employees, is distinguished, but also inclusion climate, which emphasizes the effective integration of diverse skills and perspectives of all employees. In practice, managers solely focused on creating a positive diversity climate (as opposed to a positive diversity and inclusion climate) may effectively reduce biases in their organizations but may not generate any new capabilities or synergies among employees (Nishii, 2013; Holmes IV et al., 2021). Therefore, it is worthwhile for future research to expand into the context of inclusion climate.

Future research could focus on the climate supporting age diversity. There is a clear need for further studies on the antecedents of this climate. Although literature identifies various contextual factors at individual, intergroup, and organizational levels affecting the perception of diversity climate, empirical research validating these assumptions is scarce (Holmes IV et al., 2021).

While this study focused on the antecedents of age diversity, future research might explore other dimensions of how changes in HR and organizational practices affect the climate supporting age diversity. Investigating the strength of these effects and the time required for changes in practices to be reflected in employees' perceptions of climate could provide valuable insights (Bieling and Dorozalla, 2014).

In the context of HR practices promoting age diversity, research often centers on specific HR practices. Future studies should examine all five levels of the HR system (principles, policies, programs, practices, and climate). It would be essential to engage appropriate respondents crucial for gathering information at each level (Li et al., 2019).

Other variables that could be proposed in future research models include, for example: task type (routine and creative) as a moderating variable between age diversity and organizational outcomes (Backes-Gellner and Veen, 2013); trust as a moderating variable between workplace climate and age diversity (Williams, 2016); trust as a moderating variable between age diversity and knowledge transfer (Williams, 2016); trust as a moderating variable between age diversity and organizational outcomes (Lau et al., 2014). Premises for exploring variables such as justice in the context of age diversity also emerge in the literature. Justice can be considered a moderating variable between HR practices or workplace climate and age diversity (Moon, 2018) or as a moderating variable between age diversity and organizational outcomes (Shaker Ardakani et al., 2016). Discrimination also arises as a proposed moderator variable between age diversity and organizational outcomes in future research (Kunze et al., 2011). Additionally, one could add such a component as affective commitment as a moderating variable between age diversity and organizational outcomes to the current model.

Additionally, exploring potential effects of interactions between complex diversity (e.g., age diversity within a team) and relational diversity (e.g., age differences between an individual and their team) could yield detailed insights into individual, team, and organizational outcomes (Boehm and Kunze, 2015).

Another direction for future research involves organizational context. Beyond age diversity, researchers should consider informational and value diversity. For example, age differences in a team of finance experts discussing mergers may not offer informational benefits, whereas such benefits may arise in a team of young and older marketing experts discussing new product features. Therefore, researchers should carefully analyze how organizational context might influence the studied relationships (Boehm and Kunze, 2015).

Moreover, a broader perspective should not overlook the impact of HR practices on not only organizational outcomes but also corporate social responsibility (CSR). The importance of research on demographic diversity and its connection to CSR is growing. Researchers argue that diversity practices impact CSR more than demographic diversity alone (Ali and French, 2019).

Another aspect is the emerging perspective of various fields or disciplines. Research on age diversity spans multiple disciplines, with gerontology being one relevant field. Unfortunately, the integration of these studies within management and applied psychology literature is limited. The author hopes that a multidisciplinary approach could enhance understanding of age diversity in both the workplace and social life (Boehm and Dwertmann, 2015; Li et al., 2019).

Future studies could also investigate age diversity in multiple countries with different cultural contexts (Burmeister et al., 2018b). Comparing Poland with countries such as the UK, China, or the United States could provide insights into Poland's effectiveness in managing diversity relative to the global market. Testing hypotheses in samples from different countries could assess the generalizability of findings regarding Polish employees to those from other nationalities (Rabl and Triana, 2014; Zacher and Gielnik, 2014).

The study highlights the significant link between HR practices and a supportive climate for age diversity but finds no immediate impact on financial outcomes or innovation. This underscores the need for further research, particularly in the Polish and European contexts, to better understand the long-term effects of age diversity and refine diversity practices. Such studies are crucial for developing effective strategies and policies to fully leverage age diversity within organizations in these regions.

CONCLUSIONS

The deliberations undertaken in this monograph aimed to explore the relationship between age diversity among employees and organizational outcomes (particularly non-financial ones), taking into account knowledge transfer and the impact of antecedents of HR practices conducive to age diversity and a supportive workplace climate for age diversity on the analyzed diversity. Addressing the chosen research topic in the area of age diversity among employees was a response to an identified research gap, and the results of the conducted research provided a new perspective for building human resource management strategies in organizations and offered practical guidance for managers and HR professionals.

The theoretical-cognitive objectives of this study were achieved through:

- systematizing knowledge in the areas of age diversity among employees, supportive workplace climates for age diversity, knowledge transfer, and HR practices conducive to age diversity;
- determining the influence of age diversity among employees on organizational outcomes, considering the potential mediation of individual variables;
- identifying antecedents of age diversity among employees;
- developing a conceptual model of the relationship between age diversity among employees and organizational outcomes, HR practices conducive to age diversity, knowledge transfer, and supportive workplace climates for age diversity.

The cognitive-explanatory objectives of this study were achieved through:

- examining the level of age diversity among employees and the application of HR practices conducive to age diversity, supportive workplace climates for age diversity, and knowledge transfer processes in the studied organizations;
- empirically investigating the influence of a supportive workplace climate for age diversity on age diversity;
- empirically examining the impact of HR practices conducive to age diversity on age diversity;
- empirically investigating the influence of HR practices conducive to age diversity on the supportive workplace climate for age diversity;

- empirically examining the mediating role of a supportive workplace climate for age diversity in the relationship between HR practices conducive to age diversity and age diversity among employees;
- empirically investigating the influence of age diversity among employees on organizational outcomes: financial and non-financial;
- empirically examining the impact of knowledge transfer on organizational outcomes;
- empirically investigating the mediating role of knowledge transfer in the relationship between age diversity among employees and organizational outcomes;
- empirically examining the mediating role of age diversity among employees in the relationship between HR practices conducive to age diversity and supportive workplace climates for age diversity and knowledge transfer.

The primary utilitarian goal was to provide management with specialized knowledge in the area of supporting age diversity among employees and to create recommendations for managers and HR specialists based on the research findings. The results of the study allowed for enriching the toolkit that will help effectively manage diverse employees. The methodological aim was to confirm the applicability of measurement tools for the variables under investigation, which was successfully achieved.

The individual stages of the research procedure were completed, including:

- conducting a literature review on age diversity among employees, with particular emphasis on recent developments regarding supportive workplace climates for age diversity and HR practices conducive to age diversity;
- operationalizing the variables of the research model, especially adapting existing tools for measuring HR practices conducive to age diversity;
- conducting pilot studies to verify research tools;
- carrying out empirical research on the relationship between age diversity among employees and organizational outcomes (especially non-financial ones), considering knowledge transfer and the influence of antecedents of HR practices conducive to age diversity and supportive workplace climates for age diversity on the analyzed diversity;
- analyzing the collected empirical data and verifying the research model; statistical interpretation of empirical research results was performed;
- providing a substantive interpretation of the empirical research results and formulating conclusions and implications based on them; describing the relationships between the individual variables of the model;
- formulating implications for business practice and indicating possible directions for future research in the area of supporting age diversity among employees that contribute to improving organizational outcomes.

The main thesis of the study, translated into research hypotheses, was subjected to testing on a sample of a total of 800 respondents. Out of twenty-nine hypotheses, sixteen were confirmed, and thirteen were falsified.

In summary, one may lean towards the considerations previously made by other researchers that age diversity has a very diverse impact on organizational outcomes, being a double-edged sword that can contribute to improvements in some situations, while in others, it may lead to deteriorating organizational outcomes. Observations were also confirmed that HR practices positively influence the workplace climate, and together both antecedents influence age diversity. Furthermore, it was confirmed that knowledge transfer generally has a positive impact on organizational outcomes, although it is not a variable that strongly mediates the relationship between age diversity and organizational outcomes. The results of the conducted research encourage managers to further develop age diversity in their organizations by appreciating differences between young and mature employees and enhancing the synergy effect by signaling positive processes and values such as trust, loyalty, and engagement to ensure the benefits of managing age diversity.

APPENDICES

Appendix A. Questionnaire used in the study presented in this monograph directed at managers

Questionnaire for HR manager / HR responsible person in the business organization

The study concerns the practices implemented in the company as well as the attitudes and behaviors of employees.

Part I. Introductory questions

1. **Approximately, what percentage of the organization's employees are individuals in the following age categories in percentages (as of December 31, 2020):**
   - ☐ 18–24 years ……………………….
   - ☐ 25–39 years ……………………….
   - ☐ 40–55 years ……………………….
   - ☐ over 56 years ……………………….
2. **Estimated total number of employees in the organization in Poland (as of December 31, 2020):**
   …………………………………
3. **Estimated average age of employees in the organization (as of December 31, 2020):**
   …………………………………
4. **Number of years the organization has been operating in the market:**
   - ☐ less than 10 years
   - ☐ 10–20 years
   - ☐ 20–30 years
   - ☐ 30–40 years
   - ☐ over 40 years
5. **Type of organization's activity:**
   - ☐ production
   - ☐ services
   - ☐ trade
   - ☐ mixed

6. **Sector − industry in which the organization operates:**

....

Part II. Workplace climate supporting diversity of employees by age

7. **Please indicate to what extent you agree with the following statements regarding the organization you work for by marking a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".**

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	My organization facilitates the adaptation and acclimatization of individuals from different age groups	1	2	3	4	5	6	7
2.	In my organization, employees develop and advance regardless of their age	1	2	3	4	5	6	7
3.	Managers in my organization demonstrate through their actions that they are committed to hiring and retaining employees from different age groups	1	2	3	4	5	6	7
4.	I believe that my direct supervisor / manager effectively manages people from different age groups	1	2	3	4	5	6	7

Part III. Human resource management (HR) practices supporting age diversity among employees

8. **Please indicate the extent to which the organization you work for implements the following practices by selecting a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".**

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	My organization offers age-neutral recruitment practices	1	2	3	4	5	6	7
2.	My organization ensures equal access to training and further education for employees of all age groups	1	2	3	4	5	6	7
3.	My organization provides equal opportunities for advancement, movement within the organizational structure, and taking further career steps regardless of employees' age	1	2	3	4	5	6	7
4.	My organization offers managers training in managing employees from different age groups and responding to their needs	1	2	3	4	5	6	7
5.	My organization supports promoting an organizational culture friendly to individuals of diverse ages	1	2	3	4	5	6	7

Part IV. Knowledge transfer

9. Please indicate the extent to which you agree with the following statements regarding the organization you work for by selecting a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	In my organization, employees share ideas and opinions with each other	1	2	3	4	5	6	7
2.	In my organization, the opinions of other employees are considered before making important decisions	1	2	3	4	5	6	7
3.	The organizational environment promotes cooperation and positively influences mutual respect, and among employees, there is friendship and trust	1	2	3	4	5	6	7
4.	There are relationships among employees that contribute to a better understanding of organizational goals, work methods, etc.	1	2	3	4	5	6	7
5.	There are frequent contacts among employees (via email, phone, etc.)	1	2	3	4	5	6	7
6.	In my organization, training manuals, reports, and necessary information are used to improve work performance	1	2	3	4	5	6	7
7.	In my organization, employees share reports, documents, and other types of information with each other	1	2	3	4	5	6	7

Part V. Organizational performance

Organization's innovativeness

10. Please select from the following statements the one that best describes the organization you work for in terms of competition, by indicating a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
	Product innovations							
1.	The number of new products introduced by the company that were first in the market	1	2	3	4	5	6	7
2.	The number of new products and/or services introduced by the company to the market	1	2	3	4	5	6	7
3.	The speed of development of new products and/or services by the company	1	2	3	4	5	6	7
	Process innovations							
4.	The number of changes implemented in processes (e.g., new methods of goods and services production)	1	2	3	4	5	6	7
5.	A pioneering approach to introducing new processes	1	2	3	4	5	6	7
6.	Thoughtful responses to new processes introduced by other companies in the same industry	1	2	3	4	5	6	7

Risk approach in the organization

11. Please indicate the extent to which you agree with the following statements regarding the organization you work for, by selecting a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	Employees are expected to take risks	1	2	3	4	5	6	7
2.	Individuals who take risks and fail are not penalized	1	2	3	4	5	6	7
3.	The most innovative individuals advance quickly in the organization	1	2	3	4	5	6	7
4.	New ideas are constantly sought and tested	1	2	3	4	5	6	7

Flexibility of the organization

12. Please assess how difficult it is for the organization you work for to change its strategy to adapt to the following conditions, by selecting a number from 1 to 7 for each statement, where 1 means "much harder than competitors" and 7 means "much easier than competitors".

No.	Description	Much harder than competitors	Harder than competitors	Somewhat harder than competitors	No opinion	Somewhat easier than competitors	Easier than competitors	Much easier than competitors
1.	Entry of new competitors into the market	1	2	3	4	5	6	7
2.	Changes in regulatory laws	1	2	3	4	5	6	7
3.	Changes in customer needs and preferences	1	2	3	4	5	6	7
4.	Modifications in supplier strategies	1	2	3	4	5	6	7
5.	Emergence of unexpected market opportunities	1	2	3	4	5	6	7
6.	Emergence of unexpected market threats	1	2	3	4	5	6	7
7.	Political events affecting the industry in which the organization operates	1	2	3	4	5	6	7
8.	Changes in stakeholder expectations (e.g., unions, local communities)	1	2	3	4	5	6	7

Financial performance

13. **Please assess the performance of the company you work for compared to its competitors by selecting a number from 1 to 7 for each statement, where 1 means "much harder than competitors" and 7 means "much easier than competitors".**

No.	Description	Much harder than competitors	Harder than competitors	Somewhat harder than competitors	No opinion	Somewhat easier than competitors	Easier than competitors	Much easier than competitors
1.	Average annual employment growth over the past three years compared to major competitors	1	2	3	4	5	6	7
2.	Average annual net sales growth over the past three years compared to major competitors	1	2	3	4	5	6	7
3.	Market share measured by sales volume over the past three years compared to major competitors	1	2	3	4	5	6	7
4.	Market share measured by sales value over the past three years compared to major competitors	1	2	3	4	5	6	7
5.	Net profit over the past three years compared to major competitors	1	2	3	4	5	6	7

Appendix B. Questionnaire used in the study presented in this monograph directed at employees

Employee survey

The study focuses on practices adopted in the company and attitudes and behaviors of employees

Part I. Introductory Questions

1. **Gender:**
   - ☐ female
   - ☐ male

2. **Length of employment in the current organization:**

   ....

3. **Number of employees employed in the organization in Poland:**
   - ☐ 50-249 people
   - ☐ over 250 people

4. **Type of organization's activity:**
   - ☐ production
   - ☐ services
   - ☐ trade
   - ☐ mixed

5. **Sector – industry in which the organization operates:**

   ....

Part II. Workplace climate supporting diversity of employees by age

6. **Please indicate to what extent you agree with the following statements regarding the organization you work for by marking a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".**

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	My organization facilitates the adaptation and acclimatization of individuals from different age groups	1	2	3	4	5	6	7
2.	In my organization, employees develop and advance regardless of their age	1	2	3	4	5	6	7
3.	Managers in my organization demonstrate through their actions that they are committed to hiring and retaining employees from different age groups	1	2	3	4	5	6	7
4.	I believe that my direct supervisor / manager effectively manages people from different age groups	1	2	3	4	5	6	7

Part III. Human resource management (HR) practices supporting age diversity among employees

7. **Please indicate the extent to which the organization you work for implements the following practices by selecting a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".**

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	My organization offers age-neutral recruitment practices	1	2	3	4	5	6	7
2.	My organization ensures equal access to training and further education for employees of all age groups	1	2	3	4	5	6	7

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
3.	My organization provides equal opportunities for advancement, movement within the organizational structure, and taking further career steps regardless of employees' age	1	2	3	4	5	6	7
4.	My organization offers managers training in managing employees from different age groups and responding to their needs	1	2	3	4	5	6	7
5.	My organization supports promoting an organizational culture friendly to individuals of diverse ages	1	2	3	4	5	6	7

Part IV. Knowledge transfer

8. Please indicate the extent to which you agree with the following statements regarding the organization you work for by selecting a number from 1 to 7 for each statement, where 1 means "strongly disagree" and 7 means "strongly agree".

No.	Description	Strongly disagree	Disagree	Somewhat disagree	No opinion	Somewhat agree	Agree	Strongly agree
1.	In my organization, employees share ideas and opinions with each other	1	2	3	4	5	6	7
2.	In my organization, the opinions of other employees are considered before making important decisions	1	2	3	4	5	6	7
3.	The organizational environment promotes cooperation and positively influences mutual respect, and among employees, there is friendship and trust	1	2	3	4	5	6	7
4.	There are relationships among employees that contribute to a better understanding of organizational goals, work methods, etc.	1	2	3	4	5	6	7
5.	There are frequent contacts among employees (via email, phone, etc.)	1	2	3	4	5	6	7
6.	In my organization, training manuals, reports, and necessary information are used to improve work performance	1	2	3	4	5	6	7
7.	In my organization, employees share reports, documents, and other types of information with each other	1	2	3	4	5	6	7

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This scientific monograph is structured into five chapters, preceded by an introduction and followed by a conclusion. The first chapter presents the theoretical foundations of age diversity, starting with employee diversity in general and its significance in human resource management and corporate social responsibility. It classifies employee diversity, explores theoretical frameworks on age diversity, and introduces generational and age-group perspectives. The second chapter identifies the antecedents of age diversity, focusing on age-inclusive HR practices and a supportive workplace climate, and discusses their interrelations. The third chapter examines the effects of age diversity on organizational financial and non-financial outcomes, emphasizing the mediating role of knowledge transfer. The fourth chapter outlines the research methodology, including methods, sample selection, variables, and data analysis. The last chapter provides and interprets empirical findings. The conclusion addresses the study's research problem, evaluates the achievement of objectives, identifies limitations, suggests practical implications for business, and recommends directions for further research.

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