

## Article

# Sustainable Human Resource Management and Generational Diversity: The Importance of the Age Management Pillars

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**Abstract:** The issue of population aging is currently highly topical. In the context of population aging, age management comes to the fore. It addresses the management of human resources with regard to the age and potential of employees. The main aim of the article is to present the results of research focused on the importance of age management pillars from the perspective of employees from different generational groups in industrial enterprises in Slovakia. Based on established research questions and the research hypothesis, we can state that the perceived importance of age management pillars differs depending on the affiliation to the generational group. The research hypothesis was confirmed, and we conclude that there is a dependence between generational groups of employees from industrial enterprises in Slovakia and the importance of the age management pillars (the number of designations in a pairwise comparison). As a data collection tool, a research questionnaire was created. Collected data were evaluated based on a pairwise comparison of the perceived importance of age management pillars for employees. The research sample consisted of  $N = 384$  respondents (employees of large industrial enterprises in Slovakia). When considering the research results, the use allows approaching the management of different generations of employees directly within the framework of sustainable human resource management. The research problem is also supported by resources and theoretical background.

**Keywords:** age management; generational diversity; industrial enterprises employees; sustainable human resource management



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## 1. Introduction

Diversity of employees is not a new issue among industrial enterprises [1]. Diversity means differences that are more visible such as gender, age and ethnicity, or differences that are less visible, for example, job experiences or educational attainment [2–6]. Many authors have addressed the issue of diversity, and their research has shown that diversity can have a positive effect (e.g., better communication, respect, creative thinking, better cooperation), but other research has shown a negative effect of employee diversity in the company (conflicts, disrespect, deepening stereotypes) [7–16].

One of the ways to manage the differences arising from the employees themselves is to implement and use the principles of sustainable human resource management. Sustainability in the context of human resource management is understood in two ways. One is employee management to support the implementation of a sustainable strategy and sustainable development. This understanding is emphasizing the role of human resource management in developing (economically, socially and ecologically) sustainable organizations [17]. The second way is sustainable work and performing human resource management sustainably, which we understand as sustainable human resource management. Sustainable human resource management leads to performing human resource management and utilization of human resource management tools in a way that ensures a sustainable performance of an organization [18]. The main focus of sustainable human

resource management concerns the relationship between people management policies and practices [19,20]. Among the policies and practices that can be included are: same opportunities for employees, lifelong learning, career management, democracy in the workplace, employees' participation, the right to equality and non-discrimination treatment [19,21,22]. Additionally, sustainable human resource management focuses on the importance of people, and human resources are considered as the strategic value for every enterprise [23,24]. Characteristics of sustainable human resources management were defined as follows: long-term orientation, employee care, environmental care, profitability, employee participation and social dialog, development of employees, partnership, flexibility, compliance with labor regulations, employee collaboration, fairness and equality [25]. Equality can be known from various points of view, but it is most often associated with age equality and gender equality [26]. Sustainable human resource management enables the management of organizations to use the potential of employees of all ages through the application of age management. By respecting their age, which brings different levels of skills, knowledge, experience or different life periods, age management makes it easier to use the strengths and potential of each generation. As stated by Čambál et al., for the development of organizations and their employees, it will be important to help the managers to understand that each generation has specific skills that contribute to increasing the performance of the organization (or to increasing the performance of employees of other generations) [27]. Age management takes into account not only the age but also the needs of employees with respect to their age and allows managers to manage employee performance, compared to traditional human resource management, in the long term, which means sustainably with no or minimal negative impact on the health or well-being of the employees. Besides all, as stated by Chromjaková, the approach to human resource management can make the difference between success and failure [28]. What is more, the need to implement changes in the field of human resource management is not only a challenge but also a condition for the future competitiveness of the organization [29].

The functioning of human resource management is essential for the success of a company. It is important that the human resource management systems are developed and perform in such a way that the organization is able to face strategic challenges and manage social and human resources in organizations sustainably. One of the major challenges for management in organizations in Central Europe is population trends and the growing age diversity of the workforce. The change in the age structure of employees in Slovakia may also be affected in the future by the fact that 2018 was the first year when the proportion of seniors (65 years+) was higher than the proportion of children (up to 14 years). The Slovak Republic recorded 102 seniors per 100 children [30]. Due to the current demographic situation (in the 20 years of the twenty-first century), on the one hand, we are facing an aging workforce, and the shortage of young labor on the other hand [31]; the concept of age management plays an important role. Age management is currently becoming a tool that provides a solution to the current negative trend of the demographic curve. It is a management that emphasizes the age, abilities and potential of employees. It also takes into account age factors that affect employees in the process of daily activities (planning and organizing work, work environment). Age management uses a variety of methods that focus on the effective use of human capital [32–37]. Age management is often defined as management that emphasizes the age of employees and aims at an overall approach to addressing the demographic situation and demographic change in the workplace. However, this concept must not be understood only in the context of the aging trend of society: basically, it is a concept that applies to all age groups and generational groups of employees [38–44].

Among the first, the eight dimensions of age management were defined, which included: job recruitment; learning, training and lifelong learning; career development; flexible working time practices; health protection and promotion and workplace design; redeployment; employment exit and the transition to retirement; comprehensive approaches [45]. Eight pillars were also defined, which make up the concept of age man-

agement and also form the framework of the whole concept [46]. The pillars complement each other, and each contains a tool to achieve its fulfillment [47–51].

- Pillar 1—Knowledge of age issue: managers in the enterprise are aware of issues associated with the future as well as the future workforce, such as the aging of employees, early retirement and lack of young labor (the age of employees does not decide the process of selecting employees).
- Pillar 2—Accommodating attitude towards aging—managers have a positive attitude towards aging employees as well as towards their knowledge and experience, which they can use for mutual benefit (intergenerational cooperation is also an important part).
- Pillar 3—Management that understands individuality and differences—managers are aware of their responsibility in the process of individual approach to employees from all age categories and different generations.
- Pillar 4—Quality and functional measures of age management—equality of all employees in all areas is becoming increasingly important in the enterprise (the need for lifelong learning, regardless of the age of employees, is also an important area). The age strategy thus becomes part of the personal plans of employees and the enterprise's policy.
- Pillar 5—Ensuring good work ability and motivation—the result of the growth of work ability (ensuring a quality working environment) and motivation is the cooperation of employees and their will to work in the enterprise until retirement.
- Pillar 6—High level of competencies—managers are aware of the importance of the concept and encourage employees to the concept of shared knowledge, and they also ensure the transfer of experiences from older employees to younger ones.
- Pillar 7—Quality work organization—the organization of work, as well as working hours, corresponds to the needs of employees of different ages (work management at the initiative of employees).
- Pillar 8—Satisfied life—recognition, well-being and quality of life have significantly improved, and employees are retiring with dignity (care for employees' occupational health is an important part).

As is clear from the above findings, it is currently very necessary to address the issue of sustainable human resource management and the resulting age management, which is focused on different age categories of employees and different generations of employees. Currently, there are four different generational groups in the work environment, which represents significant generational diversity. Each generational group of employees prioritizes different values, manifests different attitudes, work behaviors or motivational preferences at work [52]. Each generational group is different, and therefore, it is necessary to recognize their most important characteristics. The oldest generation group in the work environment is the Baby Boomer generation, born between 1940 and 1960 [53]. Success and personal career development is very important for this generation [54]. A typical feature is a high work commitment; they are self-confident [55] and focused mainly on success and career [56]. Lifelong learning is very important for them [57]. Members of this generational group expect that others will naturally respect their experience, which they bring to the teamwork and also to the performance of work duties [58]. These employees have a very good work ethic; they live for a job in which they respect the hierarchy and authority [59]. The employment rate compared to other generations of this generational group has a significantly growing trend in Slovakia [60]. The increasing share of older workers in the labor market is due to the aging population and the extension of the retirement age. Additionally, Baby Boomers are a very strong generation with a large number of representatives. The next generation is Generation X, born between 1961 and 1980 [61]. This generation places great emphasis on work–life balance [62]. They were the first generation to encounter modern technology and computer work [63]. Generation X is creative, enthusiastic and likes to work in a team [64]. The second youngest generation is Generation Y, born between 1981 and 1995 [65]. This generation is ambitious and has a good

command of foreign languages, and is performance-oriented [66]. They love technology; they often use it at work and beyond [67]. Generation Y members expect quick feedback from their superiors and reward for what they have achieved. They expect their superiors to listen to their ideas. These employees are very computer-savvy, able to communicate quickly and obtain important information [68]. The most preferred style of communication is through electronic communication, text messaging and social media [69]. The results of research of knowledge continuity showed that using information technologies will become increasingly important, including in the field of human resources management [70]. What is interesting for generation Z members is that they have no problem arguing if something is bothering them [68]. Similar to Generation X, personal life is also important for Generation Y [71]. The youngest generation group that we can currently meet on the labor market is Generation Z, born between 1996 and 2009 [72]. The youngest generation cannot imagine life without new and modern technologies [73]. They are characterized by frequent changes in workplaces and are independent [74]. They like multi-tasking and have good communication skills [75]. Self-realization, achievement and identity are important for Generation Z, but work is also highly represented in their values [76]. Due to their age, this generation is still gaining ground in the labor market. Some representatives of this generation have already started their working careers, but the younger years are still being prepared at school.

Given the age diversity of the workforce, it is important that managers deal with employees of all ages. As research supports, the atmosphere in which they work and the team they are part of is important to everyone, whether they are older or younger. Therefore, it is an important task for superiors to provide employees with working conditions that will be motivating for all generations [77].

Based on the above theoretical knowledge, we created a model of age management focused on individual generational groups and the interconnection of its individual pillars; it is shown in Figure 1.

From Figure 1, the application of the age management concept in sustainable human resource management can be seen. The goal of age management is the sustainable management of human resources, which is focused on age diversity and thus on employees of different generations. The skeleton of age management is composed of eight pillars (aspects). As four generational groups are currently in the workplace, it is very important to approach this issue sensitively and with regard to different needs that arise from generational diversity.

The main aim of the research was to identify the importance of age management pillars from the perspective of employees from different generational groups in industrial enterprises in Slovakia.

Research questions (RQ): the authors identified two research questions based on theoretical knowledge and the need to identify which pillars of age management were identified by employees of different generations as the most important and which pillars of age management were identified as the least important.

**RQ1:** What pillars of age management did the employees of each generation group in large industrial enterprises in Slovakia identify as the most important?

**RQ2:** What pillars of age management did the employees of each generation group in large industrial enterprises in Slovakia identify as the least important?

Research hypothesis (RH): based on the set main aim of the research and the research questions, the authors have specified a research hypothesis

**RH:** There is a dependency between generational groups of employees in industrial enterprises in Slovakia and the importance of age management pillars (number of designations in pairwise comparison).

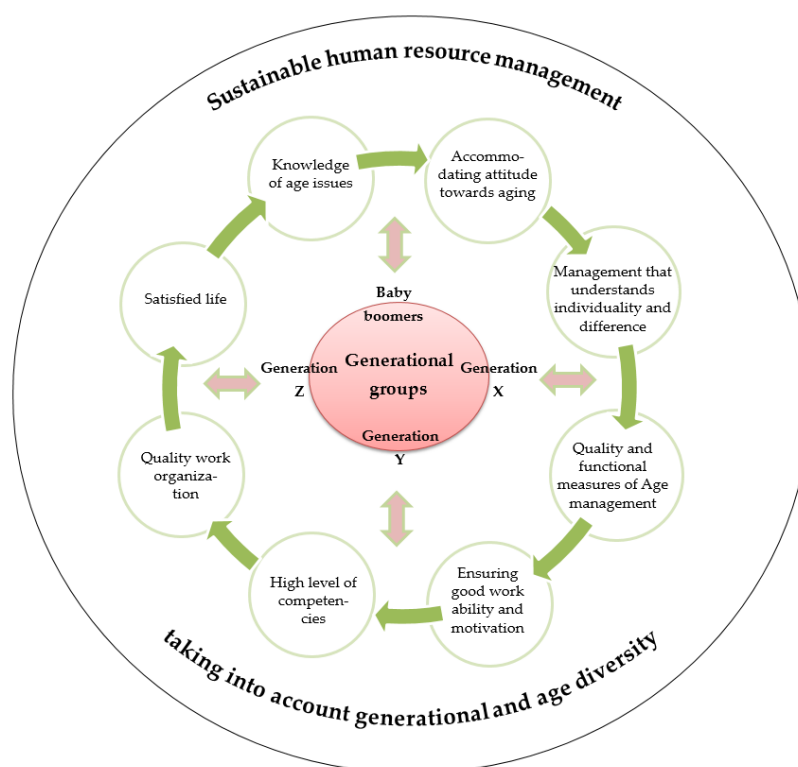


Figure 1. Model of interconnection of individual aspects (source: own elaboration, 2021).

## 2. Materials and Methods

Figure 2 contains the sequence of steps as we proceeded in the research and creation of the article.

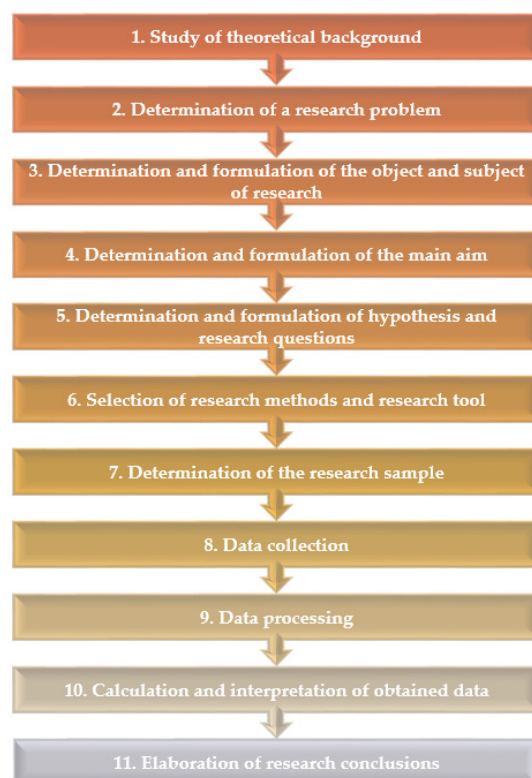


Figure 2. Research steps (source: own elaboration, 2020).



In order to carry out the research, the theoretical background from the relevant domestic and foreign literature was studied. The first step was to collect and sort the appropriate information, then their study and processing. An important part of this step was the selection of appropriate sources of information. These are mainly domestic and foreign literature, studies and research, articles from scientific conferences and journals published in scientific databases. Subsequently, we set and formulated the main aim. The next step was to determine and formulate the object and subject of research, the research problem and an important part was the determination and formulation of hypotheses and research questions. The research tool was a questionnaire designed for employees of large industrial enterprises in Slovakia. The aim was to identify the importance of the age management pillars from the perspective of employees from different generations. The next step was to determine the sample and collect the data. The collected data were processed using available software tools. The hypothesis was tested using chi-square. The obtained data were later necessary to interpret and process the conclusions that result from the research.

The population size consists of employees from large industrial enterprises. Based on the data [78], we divided large companies into categories according to the number of employees (250–499; 500–999; 1000–1999; 2000–2999; 3000–3999; 4000–4999; 5000–9999; 10,000–19,999). The number of enterprises that formed the population size is shown in Table 1.

**Table 1.** Number of industrial enterprises by number of employees (source: own elaboration, 2020).

Sectors/Number of Enterprises by Number of Employees	250–499	500–999	1000–1999	2000–2999	3000–3999	4000–4999	5000–9999	10,000–19,999	Estimated Number of Employees
Automotive industry	29	21	13	4	3	0	0	1	81,625
Transport and logistics	49	12	4	2	0	0	2	2	83,375
Electrical engineering	24	18	6	3	0	0	0	0	39,000
Energy and mining	7	6	6	2	2	0	0	0	28,125
Chemistry and plastics	25	11	2	2	1	0	0	0	29,125
Information technologies	14	8	0	0	1	0	0	0	14,750
Metal production and metallurgy	20	8	2	0	1	0	1	0	27,500
Agriculture and forestry	2	1	0	0	1	0	0	0	5000
Food industry	17	7	2	0	0	0	0	0	14,625
Design and engineering	2	4	0	0	0	0	0	0	3750
Construction	18	8	1	0	0	0	0	0	14,250
Machine industry	30	9	5	1	0	1	1	0	40,000
Production—other	5	4	1	0	0	0	0	0	6375
Development and testing	5	1	0	0	0	0	0	0	2625
Sum	247	118	42	14	9	1	4	3	390,125

Based on Table 1, which contains the number of enterprises by the number of employees, we calculated the estimated number of employees. We proceeded by choosing a mean value from each interval of the number of employees and multiplying the mean value by the number of enterprises. Based on the calculated estimated number of employees, the population size is 390125. Subsequently, it is necessary to proceed with the sample size [79].

$$n = \frac{p * (1 - p)}{\frac{E^2}{Z^2} + \frac{p*(1-p)}{N}} = \frac{0.5 \times (1 - 0.5)}{\frac{0.05^2}{1.96^2} + \frac{0.5 \times (1 - 0.5)}{390,125}} = 379.76 = 380 \quad (1)$$

where  $n$  = sample size;  $p$  = the proportion of occurrence of the examined trait in the population size ( $p = 0.5$ ); maximum estimation error ( $E = 5\%$ );  $Z$  = quantile of the distribution function of the normalized normal distribution ( $E = 5\%$ ; then  $(1 - p) = 95\%$ );  $N$  = population size ( $N = 390,125$ ).

Subsequently, we proceeded to verify the calculation of the sample using the table, according to which at population size 1,000,000 belongs a sample size of 384 [80].

In order to achieve relevant results from the questionnaire survey, it was necessary to obtain 380 completed questionnaires based on the calculation, and on the basis of tabular verification, it was necessary to obtain 384 questionnaires from employees of large industrial enterprises. A questionnaire was used as a collection tool, which was distributed to large industrial companies in Slovakia. A total of 500 questionnaires were distributed. In total, 391 questionnaires were returned and correctly filled in, which represents a 78% return.

### 2.1. Description of the Research Sample

The research sample consisted of employees in various job positions in large industrial enterprises in Slovakia. The questionnaire was distributed randomly. Table 2 lists the distribution of respondents by generational group and industry.

**Table 2.** Respondents by generational group and industry (source: own elaboration, 2020).

Sectors/Number of Enterprises by Number of Employees	Baby Boomers	Generation X	Generation Y	Generation Z	Absolute Frequency	Relative Frequency (%)	Cumulated Frequency
Automotive industry	11	54	48	10	123	31.46	123
Transport and logistics	0	8	5	1	14	3.58	137
Electrical engineering	4	8	7	3	22	5.63	159
Energy and mining	0	0	2	1	3	0.77	162
Chemistry and plastics	2	6	5	1	14	3.58	176
Information technologies	0	3	6	0	9	2.30	185
Metal production and metallurgy	2	11	7	1	21	5.37	206
Agriculture and forestry	0	2	1	1	4	1.02	210
Food industry	0	4	9	0	13	3.32	223
Construction	0	17	6	1	24	6.14	247
Machine industry	10	50	55	5	120	30.69	367
Production—other	4	8	5	1	18	4.60	385
Development and testing	0	4	0	2	6	1.53	391
Sum	33	175	156	27	391	100	-

As can be seen from the data in Table 2, the largest proportion of respondents is from the automotive industry, electrical engineering, construction and machine industry. Additionally, we can state that the employees from Generation X had the largest representation in the questionnaire survey (44.76%). This is followed by Generation Y, whose respondents make up 39.90% of the research sample; 8.44% of respondents are employees from the oldest generation group, Baby Boomers. The youngest generation group makes up 6.91% of all respondents, so we can say that Generation Z is the least-represented group of the questionnaire survey.

In Slovakia, 6.44% of current employees are from the Baby Boomers generation, 50.56% from Generation X, 37.40% from Generation Y and 5.60% from Generation Y [81]. Additionally, on the basis of these data, we can confirm that the sample of respondents is very similar to the current composition of the workforce in terms of individual generational groups.

In terms of the gender of respondents, 48.85% of men and 51.15% of women participated in the questionnaire survey. According to the educational structure, 31.46% of respondents have completed high school with graduation, 3.32% high school without

graduation, 17.39% have completed a university bachelor's degree, 42.97% a university master's degree and 4.86% a university doctorate degree.

The questionnaire was distributed to large industrial enterprises in Slovakia at random, regardless of specific generational groups or job positions; this fact is also reflected in Table 3.

**Table 3.** Job classification of questionnaire survey respondents (source: own elaboration, 2020).

Job Position	Absolute Frequency	Relative Frequency (%)	Cumulated Frequency
Production employees	77	19.69	77
Administrative employees	202	51.66	279
Management position	112	28.64	391
Sum	391	100	-

The questionnaire survey involved 51.66% of administrative employees (positions such as specialists, technical and economic staff, buyers, etc.). This is followed by employees in management positions (managers), who make up 28.64%. The smallest group was production employees (operators, maintenance employees, warehouse operators) who make up 19.69% of the entire sample of respondents. The fact that the questionnaire survey was attended by employees of all types of positions can be considered as positive, because we have obtained data and insights into the issue from employees at various levels of management and job positions.

## 2.2. Pairwise Comparison of the Importance of Age Management Pillars

Method of paired comparisons, or Fuller's method, allows to assemble the weight of individual criteria. The principle of the Fuller method is based on the mutual comparison of two criteria, where the more important criterion is always selected from the pair. Two criteria are compared with each other by the total number of the criteria. The criteria are then ranked in order of importance, based on the weight of the criterion (the higher the weight of the criterion, the more significant the criterion) [82].

The designation  $n_i$  is a symbol for the number of marked  $i$ , and thus expresses how many times the criterion given in the line was more significant than the other criteria. Sum  $n_i$  denotes  $N$ . As pairwise comparison was not performed by only one person, and in order to ensure the correct methodological procedure, we multiplied the total number of comparisons  $N$  by the appropriate number of respondents. Subsequently, the weights ( $v_i$ ) are calculated based on the relationship [82]:

$$v_i = \frac{n_i}{N} \quad (2)$$

The criteria are then ranked according to importance, based on the weight of the criterion (the higher the weight of the criterion, the more significant the criterion).

In our case, pairwise comparison was performed for areas of age management and is evaluated according to individual generation groups in order to identify differences in the perception of individual areas depending on the affiliation to the generation group. Respondents (employees from large industrial enterprises in Slovakia) therefore compared all areas of age management in pairs and marked the number of the area in the table, which in their opinion is more important. The number in the row indicates how many times the area in the row was marked as more important compared to the area in the column. Each area captured its content and was the most typical for one of the age management pillars. Based on the weight of individual criteria, we were able to rank the importance of the age management pillar for individual generation groups. In the following table, we can see the evaluation of the pairwise comparison for the generational group Baby Boomers.

Various methods were used to evaluate the collected data. Analysis, synthesis, induction, deduction, comparison and concretization were used in all parts of the article. The



collected data were processed using available software tools. To evaluate the hypothesis, we used chi-square.

### 3. Results

Based on the data in Table 4, we can see the weights of the importance of the age management areas. The first column contains the consecutive number and name of the age management pillars. The first line contains only the consecutive number of the pillar. Subsequently, the numbers in the rows represent the value of how many times the pillar in the row was marked as more important compared to the pillar in the column.

**Table 4.** Pairwise comparison—Baby Boomers (source: own elaboration, 2020).

	1.	2.	3.	4.	5.	6.	7.	8.	$n_i$	$v_i$
1. The age of employees does not decide the process of selecting employees		16	10	10	9	8	11	16	80	0.087
2. Intergenerational cooperation	17		15	10	11	11	15	15	94	0.102
3. Manager has an individual approach to employees	23	18		11	15	8	18	16	109	0.118
4. Lifelong learning	23	23	22		14	16	17	20	135	0.146
5. Quality working environment	24	22	18	19		12	13	14	122	0.132
6. Transfer of experience from older employees to younger ones	25	22	25	17	21		14	15	139	0.150
7. Work management at the initiative of employees	22	18	15	16	20	19		13	123	0.133
8. Care for employees' occupational health	17	18	17	13	19	18	20		122	0.132
Sum									924	1

The number of respondents who performed pairwise comparisons from the Baby Boomers generation was 33. Based on the data in Table 4, we can see the weights of the importance of the age management areas. The most important area for the Baby Boomers generation is the area of “Transfer of experience from older employees to younger ones”, which corresponds to the sixth age management pillar (High level of competencies). Subsequently, the second most important can be considered the area of “Lifelong learning”, which is a typical area for the fourth pillar, called “Quality and functional measures of age management”. The three areas with the lowest values of significance are the same for all four generational groups. The third lowest value of significance was achieved by the area “Manager has an individual approach to employees”, which characterizes the pillar “Management that understands individuality and difference”. This is followed by the area of “Intergenerational cooperation”, the “Accommodating attitude towards aging” pillar. The lowest value of significance was reached by the area “The age of employees does not decide the process of selecting employees”, which is a typical area for the first age management pillar, called “Knowledge of age issues”. In Table 5, we can see the pairwise comparison for generational group X.

**Table 5.** Pairwise comparison—Generation X (source: own elaboration, 2020).

	1.	2.	3.	4.	5.	6.	7.	8.	$n_i$	$v_i$
1. The age of employees does not decide the process of selecting employees		72	60	55	45	62	72	43	409	0.083
2. Intergenerational cooperation	103		67	56	50	67	81	54	478	0.098
3. Manager has an individual approach to employees	115	108	61	61	61	42	62	46	495	0.101
4. Lifelong learning	120	119	114		47	70	58	40	568	0.116
5. Quality working environment	130	125	114	128		78	86	66	727	0.148
6. Transfer of experience from older employees to younger ones	113	108	133	105	97		57	51	664	0.136
7. Work management at the initiative of employees	103	94	113	117	89	118		36	670	0.137
8. Care for employees' occupational health	132	121	129	135	109	124	139		889	0.181
Sum									4900	1

The total number of respondents from Generation X was 175. Based on the calculation of the weights of the compared criteria (areas) listed in Table 5, we can conclude that for Generation X is the most important area “Care for employees’ occupational health” characterizing the last age management pillar “Satisfied life”. Consequently, the second most important area can be considered “Quality working environment”, typical of the fifth pillar called “Ensuring good work ability and motivation”. The third most important area can be described as “Work management at the initiative of employees”, which describes the seventh age management pillar, “Quality work organization”. The areas with the three lowest weights of importance are the same as for the Baby Boomers generational group. Table 6 contains a pairwise comparison according to the preferences of generational group Y.

**Table 6.** Pairwise comparison—Generation Y (source: own elaboration, 2020).

	1.	2.	3.	4.	5.	6.	7.	8.	$n_i$	$v_i$
1. The age of employees does not decide the process of selecting employees		53	46	37	31	38	54	40	299	0.068
2. Intergenerational cooperation	103		66	67	35	53	67	43	434	0.099
3. Manager has an individual approach to employees	110	90		60	47	48	67	57	479	0.110
4. Lifelong learning	119	89	96		48	57	74	53	536	0.123
5. Quality working environment	125	121	109	109		96	107	79	745	0.171
6. Transfer of experience from older employees to younger ones	118	103	108	99	60		88	64	640	0.147
7. Work management at the initiative of employees	102	89	89	82	49	68		53	532	0.122
8. Care for employees' occupational health	116	113	99	103	77	92	103		703	0.161
Sum									4368	1

The number of respondents who participated in the questionnaire survey from Generation Y was 156. According to the answers, which are processed in Table 6, it is clear that the most important area for Generation Y is “Quality working environment”, which content captures the fifth age management pillar, “Ensuring good work ability and motivation”. The second most important area is “Care for employees’ occupational health” under the “Satisfied life” pillar. The third most important area is the “Transfer of experience from older employees to younger ones”, which includes the sixth age management pillar, “High level of competencies”. The last pairwise comparison was performed by the youngest generational group Z, shown in Table 7.

**Table 7.** Pairwise comparison—Generation Z (source: own elaboration, 2020).

	1.	2.	3.	4.	5.	6.	7.	8.	$n_i$	$v_i$
1. The age of employees does not decide the process of selecting employees		9	4	5	1	4	5	3	31	0.041
2. Intergenerational cooperation	18		8	5	3	6	9	5	54	0.071
3. Manager has an individual approach to employees	23	19		10	5	10	12	6	85	0.112
4. Lifelong learning	22	22	17		7	12	7	4	91	0.120
5. Quality working environment	26	24	22	20		16	17	12	137	0.181
6. Transfer of experience from older employees to younger ones	23	21	17	15	11		10	4	101	0.134
7. Work management at the initiative of employees	22	18	15	20	10	17		5	107	0.142
8. Care for employees' occupational health	24	22	21	23	15	23	22		150	0.198
Sum									756	1

The number of respondents from Generation Z was 27. The youngest respondent stated the year of birth in 2000. Based on the data and the calculation of the weight of individual criteria in Table 7, we found that the order of importance of individual areas for Generation Z is identical with Generation X. However, if we compare the results of the individual areas between the two mentioned generational groups, we find that for the youngest generation, age-related equality in job selection is less important than for Generation X. They also consider intergenerational cooperation to be less important. A good working environment is, on the contrary, more important for the youngest generation, as well as occupational health care.

Based on the collected data, we approached the evaluation of established research questions and research hypotheses.

**RQ1:** What pillars of age management did the employees of each generation group in large industrial enterprises in Slovakia identify as the most important? For better clarity, the order of the age management pillars' importance for individual generational groups is shown in Table 8. The numbers in the rows for each generation group represent the consecutive number of the age management pillar.

**Table 8.** Perceived importance of the age management pillars (source: own elaboration, 2020).

Generation Group/Pillars by Importance	1. Most Important	2.	3.	4.	5.	6.	7.	8. Least Important
Baby Boomers	6	4	7	5	8	3	2	1
Generation X	8	5	7	6	4	3	2	1
Generation Y	5	8	6	4	7	3	2	1
Generation Z	8	5	7	6	4	3	2	1

Based on Table 8 and the importance of the age management pillars for individual generational groups, we can state that Generation X and Z have similar preferences. On the other hand, when comparing the results for the older generation, we can see that the preferences change and as the most important pillars can be considered "Satisfied life", "Ensuring good work ability and motivation" and "High level of competencies".

Most important, four age management pillars reached the highest number of designations in pairwise comparison. For the Baby Boomers generation, the order is as follows: 1. 6—High level of competencies; 2. 4—Quality and functional measures of age management; 3. 7—Quality work organization; 4. 5—Ensuring good work ability and motivation. Generation X identified the following as the most important: 1. 8—Satisfied life; 2. 5—Ensuring good work ability and motivation; 3. 7—Quality work organization; 4. 6—High level of competencies. Based on the pairwise comparison of Generation Y, the importance is as follows: 1. 5—Ensuring good work ability and motivation; 2. 8—Satisfied life; 3. 6—High

level of competencies; 4. 4—Quality and functional measures of age management. Based on the answers from the youngest generational group on the labor market, generational group Z, the order is identical to generational group X: 1. 8—Satisfied life; 2. 5—Ensuring good work ability and motivation; 3. 7—Quality work organization; 4. 6—High level of competencies.

**RQ2:** What pillars of age management did the employees of each generational group in large industrial enterprises in Slovakia identify as the least important? The least important age management pillars can be identified as the four pillars that reached the lowest number of designations in pairwise comparison. All generational groups identified the three least important pillars of age management as: 8. 1—Knowledge of age issues; 7. 2—Accommodating attitude towards aging; 6. 3—Management that understands individuality and difference. For Generation X and Generation Z, Pillar 4—Quality and functional measures of age management is the fifth in importance. For the Baby Boomers Generation: 5. 8—Satisfied life; Generation Y identified: 5. 7—Quality work organization.

**RH:** There is a dependency between generational groups of employees in industrial enterprises in Slovakia and the importance of age management pillars (number of designations in pairwise comparison).

The hypothesis was tested using chi-square and an independence test. We chose the chi-square test because it compares the actual distribution of data with the theoretically chosen distribution. Subsequently, we chose the test of independence, the task of which was to determine whether the phenomena are dependent on each other or, conversely, the phenomena are not dependent on each other. With these tests, we verified the dependence between two features—a generation group of employees from industrial enterprises in Slovakia and the importance of the age management pillars (the number of designations in a pairwise comparison). The first variable (generational group) is an independent variable and could acquire four variants (Baby Boomers, Generation X, Generation Y, Generation Z). The second character is a dependent variable, which represents the age management pillars and could acquire eight variants.

Based on the data of the observed abundances and the expected abundances, we calculated the chi-square (Table 9).

**Table 9.** Chi-square calculation (source: own elaboration, 2020).

	Pillar 1	Pillar 2	Pillar 3	Pillar 4	Pillar 5	Pillar 6	Pillar 7	Pillar 8	Sum
Baby Boomers	1.712	0.230	1.102	4.611	3.974	0.579	0.038	7.930	20.175
Generation X	4.914	0.027	1.474	1.249	2.942	1.059	1.319	3.590	16.575
Generation Y	2.359	0.291	0.362	0.054	4.280	0.933	2.708	2.227	13.214
Generation Z	11.547	5.035	0.234	0.008	2.553	0.296	0.666	3.519	23.858
Sum	20.531	5.582	3.173	5.922	13.749	2.868	4.731	17.266	73.822

Based on the calculated values in Table 9, the chi-square value ( $\chi^2$ ) is 73.822. We chose a significance level of 5%. According to the statistical tables, we found a critical value, which is  $\chi^2_{\alpha} = 32.7$ . If the relation  $\chi^2 > \chi^2_{\alpha}$ , the observed characters can be considered as dependent. Otherwise, the monitored characters are independent. In our case, the above relationship is true, and therefore we conclude that there is a dependence between generational groups of employees from industrial enterprises in Slovakia and the importance of the age management pillars (the number of designations in a pairwise comparison).

#### 4. Discussion

Diversity in terms of age can be a double-edged sword in the workplace with both positive and negative effects. Business managers should take into account the opportunities and risks that arise from age diversity. They also need to learn how to use the potential of age diversity and take action to manage age diversity optimally [83]. Based on previous

researches, there have been identified measures that employers use to prolong the working life of older employees. The most common were incentive payments (higher salary, benefits), longer holidays or extended holidays, reduced physical activity at work, shorter working hours (with equal salary), health and safety (medical examinations, counseling, ensuring healthy work, environment) [84–86]. If we compare the research results [87] with our research, we can come to similar statements. Accordingly, older employees feel the need for professional development more often than younger employees and also support the concept of shared knowledge. According to our research, it is a priority for the oldest generational group, Baby Boomers, to transfer experiences from older employees to younger ones, and they have also included lifelong learning as important. For younger generations, our research has confirmed the importance of a quality work environment. We can support this statement with research [88] that has also shown that a quality work environment is important for younger generations, who perceive it as a factor that supports their stabilization in the enterprise. Occupational health care and the related well-being and satisfied life were the subjects of research [89], where the analyses performed showed a positive relationship between a quality health climate and general health, mental health and work ability. Additional analyses showed that the team's positive health climate dampened the negative relationship between the employee's age and work ability. We can support these findings with our results, namely, that employees of different generations consider health care to be very important, and therefore, we can say that this is an area that needs to be constantly developed, improved and emphasized. Managers and employees are often unaware of the problem of the negative trend of the demographic curve, which has resulted in an aging population (and associated early retirement) and a lack of young labor [36,48]. Other authors also responded to this problem, prioritizing and considering age management in the context of an aging population. Researches and analyses are carried out from the organizational level and focus on internal and external factors to be taken into account in the implementation of age management, age management strategies and also describe measures to support employees, increasing their work ability, maintaining employability and benefits resulting from the implementation of the concept [90–92]. Identifying with such organizational goals and values also makes it easier for employees to put their efforts into performance for the benefit of the organization [93]. Further areas of scientific research should focus on the successful management of an aging workforce through a deeper examination of changing needs and values at the individual level [94]. Age management is often associated only with aging employees, but it is very important to keep in mind that the concept of age management includes all employees, and therefore the youngest ones, the employees who care for children of older employees and employees of retirement age [95]. The issue of age management is a basic strategic tool in the sustainable management of human resources, which helps to develop employees, ensure their cooperation and synergy, and at the same time, leads to resilience and sustainability at all management levels in the enterprise [96], while it is also very important to perceive the importance of age management, as it is a prerequisite for achieving long-term sustainability [35]. Although theoretical knowledge researches in the field of age management often emphasize older employees, age management deals with all age categories of employees, and therefore it is necessary to achieve cooperation through all generations in the enterprise/labor market. For this reason, we focused our research on all generational groups of employees and thus analyzed their needs and preferences on an individual level.

## 5. Conclusions

Although age management and human resource management, in general, are among the “soft” components of management, they can greatly affect the prosperity of an enterprise. Employees are a key resource for an enterprise, so it is important that the enterprise constantly monitors their needs and ensures their satisfaction and work ability. However, if the enterprise's management ensures prosperity and manages human resources with regard to the age and potential of employees, it should include age management in the



strategic goals in the personnel area and take it seriously. By adhering to applying the age management pillars and areas, enterprises will achieve the cooperation of individual generational groups that currently meet in the workplace.

Often, existing enterprises limits are an obstacle to applying both working concepts and approaches. The management of the enterprise must face limited resources: financial, material, information, human and time. The specific conditions of the enterprise may differ based on various internal and external factors. Therefore, although age management pillars are the support of the overall concept, it is appropriate to consider the specifics of a particular enterprise in applying. This will allow attention to be paid to those areas where the benefits and effects of their use will be most beneficial.

It is important that the enterprise's management knows the concept, develops it comprehensively and sets out the principles and measures that should result from the analysis of the current situation. The enterprise should be able to analyze its current situation and the needs of employees and also know the limiting factors that can limit in implementation. Therefore, it is appropriate to consider all the circumstances and select measures that meet the needs and preferences of employees from different generations in order to achieve their cooperation. Our research has clearly shown that Generation X and Generation Y have almost the same preferences. On the other hand, we can see that when comparing other generational groups, preferences change, and the most important pillars can be considered "Satisfied life", "Ensuring good work ability and motivation" and "High level of competencies". Among the most interesting results is that the oldest generation group in the labor market, the Baby Boomers Generation, considers the opportunity to transfer experience from older employees to younger employees as the most important. Lifelong learning was identified as the second most important area. We consider this finding to be positive, as we can interpret that even older employees have the desire and will to learn and constantly advance. It was surprising to find that occupational health care ended up in fifth place. Based on the pairwise comparison and the sum of designations from Generation X and the youngest generation group on the labor market, Generation Z, the arrangement of the pillars (areas) of age management is the same. They perceive occupational health as the most important area. On the other hand, compared to the Baby Boomers Generation, lifelong learning is not considered as important; it has been identified as the fifth most important. Generation Y also does not consider education to be the most important area; it was identified as the fourth most important. Compared to other generational groups, which identified the area of work management at the initiative of employees as the third most important, generation Y considers this area to be the fifth most important. The research confirmed the hypothesis, and we state that there is a dependence between generational groups of employees of industrial enterprises in Slovakia and the importance of the age management pillars.

Diversity management is becoming a current issue for industrial enterprise management. Although the management of gender diversity is gradually gaining the focus of managers, there is still a lack of sufficient information on the possibilities of dealing with the current problems of population aging, the lack of young employees or age diversity in the workplace.

One of the limitations of research stems from belonging to a generational group and the definition of the year of birth of a generational group. The definition of years of birth may differ depending on the country in which people were born and raised, as well as on the historical context of a particular country and on living standards and living conditions.

As history shows, each generation has moments that shape the generation members who have experienced these situations [59]. The research confirms that the pandemic situation will also be a moment that will now affect several generations of employees, their motivational preferences [97] and, as can be expected, their values and attitudes.

The potential benefit of this paper is that it provides the basis for understanding the perception of employees in Slovakia of priorities of individual pillars of age management. This can be useful for managers, whether in policy or business, to take management action

for different generations of employees. The limitation of the research may be that when determining the priorities of employees, another factor could have influenced more than their age, e.g., their economic, social status or a society-wide situation. Despite these limits, we see the benefit of research meaningful for managers to perceive the broader context and take into account population development in strategic planning of the development of organizations or society.

Age management is a part of and results from the sustainable management of human resources and is also a tool to manage the current situation in the labor market associated with the negative development of the demographic curve. We consider the above findings to be very important and beneficial in the field of sustainable human resource management in manufacturing and non-manufacturing organizations for the implementation of age management in practice and ensuring the cooperation and satisfaction of different generations of employees.

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