

Article

Reflection of Digitalization on Business Values: The Results of Examining Values of People Management in a Digital Age

Jana Blštáková ¹, Zuzana Joniaková ¹, Nadežda Jankelová ¹,
Katarína Stachová ² and Zdenko Stacho ^{2,*}

¹ Department of Management, Faculty of Business Management, University of Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia; jana.blstakova@euba.sk (J.B.); zuzana.joniakova@euba.sk (Z.J.); nadezda.jankelova@euba.sk (N.J.)

² Institute of Civil Society, University of Ss. Cyril and Methodius in Trnava, Hajdóczyho 1, 917 01 Trnava, Slovakia; katarina.stachova@ucm.sk

* Correspondence: zdenko.stacho@ucm.sk; Tel.: +421-907-082-448

Received: 19 May 2020; Accepted: 22 June 2020; Published: 25 June 2020

Abstract: The European Union (European Parliament) understands industry 4.0 as a term for an environment of fast transformations of production systems and products. The basic characteristic of the change in the methods of creating added value in the conditions of the fourth industrial revolution is digitalization. Digitalization changes people management in two stages. The first stage is the adaptation of systems to the integration of physical inputs into digital systems, and the second stage is the redefinition of values for the internal and external customer. The purpose of this paper is to examine the content of the first digitalization stage and its impact on the transformation of values of corporate people management in the second stage of digitalization. The study published in this paper points out the level of digitalization applied towards the internal and external customer. The research results verify relations in the portfolio of corporate value and prove their present implementation of digitalization and its importance for the future sustainability of the business. The study confirmed the independence of the levels of corporate digitalization and companies' value portfolios. Furthermore, the study proved the universal nature of corporate value orientation, irrespective of the size, business focus or performance of the people management system. Meaningfulness, communication and cooperation dominate in terms of importance for business sustainability. The results of the study in Slovakia support the opinions of published foreign research, which emphasize the importance of introducing technological innovations aimed at employees to a much greater extent.

Keywords: digitalization; managing human resources; values; culture

1. Introduction

The development of industry is an integrated process between the man and the machine using its own complexity. Technological progress shrinks the physical world and forms the virtual world, the potential of which appears to be limitless. During the fourth industrial revolution, the world of work is the subject of scientific research, professional discussions, as well as a reason to express fears of changes to the nature of work, work demand and social insecurity. The genesis of the evolution of the examination of a person in an organization began by separating the person from the production line, continued by focusing on his personality and needs, continued to develop by perceiving his aspirations and values later on, and today it is an important experience from work. Companies have

to be attractive to the employees/applicants and they want to manage emotions, as customer/employee experience matters. Today, exceptionality becomes a source of attraction. The road to the customer leads through the employee. Attractive people management systems consistently analyze values, which depend on the employees/applicants, the experience they came to acquire from the employment, and the experience they expect. The feeling of exceptionality is evoked by interest and focus on the individual specifics and expectations of the employee/customer.

The aim of this paper is to present a reflection on the implementation of technological innovations aimed at the internal and external customer into the re-definition of values of people management in companies, which are the result of individual stages of HR reaction to digitalization in 4.0 management systems. The paper contributes to academic knowledge by revealing the relationship of technological innovations of digitalization with value transformation influencing people management in the industry 4.0 era. The research focuses on both employee and customer related technological innovations.

2. Literature Review: Digitalization Impacts, People Management Challenges, Values Redefinitions

2.1. Impacts of Digitalization on Labor in Production Systems

Changes in production systems in the industry 4.0 era are a consequence and also a cause of changes in customer behavior (external and internal customer) [1–6]. The reflection on changes in values in the content and form of work forms the modern world of work. It is a new world vision, where the actual world depends on the digital world using the following driving forces: cloud computing, Internet of things, big data, cybernetic physical systems, etc. [7–9]. This is a vision of the development of intelligent chains, from design to production, from services to recycling, in the access to digital communication in every process of work [10]. The benefits and risks that the digital revolution introduce are not clear yet, just like the demands it will place on the employees and their employers. However, the need to prepare and react to these challenges prompts the discussion on changes in the world of work, which the fourth industrial revolution will introduce in the world of work [11]. Demanding investments in technologies in the interest of improving effectiveness of value-creation processes will impact all stakeholders in organizations, as well as vendors, manufacturers, logistic services providers and workers [12]. One of the first fears expressed by the experts in the 4.0 sectors is the lack of qualified workers [13]. Today, the main subject of discussions on changes in the world is the question of the adopting skills and competences of the workers for performing modern job tasks [10,11,14–17]. Employment in sectors, the work of which is monotonous and routine, will face a challenge for survival, during the time of automation, digitalization and autonomous technologies, with their present job positions [18].

Another consequence of the development of smart technologies is the assumption that the human element will be completely replaced by more secure and effective systems with perfect communication as part of production, such as heavy lifting, precise positioning and visual quality control [19]. A person will interact more with robotic systems than communicate with coworkers [20,21]. Advanced automation will improve the ability of employees to cooperate with secure machines adapted to human physiology, which closely cooperates with them. This will affect and change the work behavior of traditional workers, which will become more complex, equipped with mobile devices, virtual reality and other technologies. It is difficult to say if the 4.0 sector will be a pleasant environment for qualified workers, but the need for greater specialization, flexibility and adaptability [22–24] and a potentially smaller range of knowledge and skills will be very different [1]; however, in general, the requirements from employees will increase in the form of responsibility in decision making [25].

2.2. Challenges for People Management in 4.0 Business Environment

The strategic choices of companies react to the changes in environment and they are also the reasons for further changes. The principles of the 4.0 world of work consist of challenges in the post-

globalization era. We can see their effects on three levels, specifically: the level of external environment, the individual level of companies as objects of management systems and the human level in the roles of employees and job applicants [26]. The post-globalization business environment is characterized by challenges, such as Internet revolution, where Internet-oriented technologies change the customer's perception of values, such as when completely new business models of organizations are created and many traditional ones are re-evaluated or doomed [27], when the employment relationship changes its form and, in addition to the employment contract it uses, a psychological contract which acts as a pillar and guarantees maximum utilization of the work potential of the employee. This occurs when the principles of company operation and the mechanisms of interaction between the people and the environment, and between one another, are being evaluated, when the demographic development changes and when skills and time dominate among the production factors due to their scarce nature.

At the organizational level, the mentioned effects are manifested in the form of pressure to constantly focus on competitiveness, re-evaluate the size and structures of the organization and implement elements of flexibility [28]. Organizations are becoming more adaptable if they react to trends of decentralization, re-engineering, downsizing, outsourcing or if they introduce flexible elements of organizational structures without the necessity to enforce power through formal hierarchies. The culture and values that organizations are built upon become tools for achieving their vision and mission. At the level of employees and job applicants, this means ensuring the compatibility of goals as the expected results of cooperation and values as a source of motivation for the performance of the employee and the company at the stage of recruiting and selecting employees. The concepts of employer branding and personal branding are being created [29], through which the company forms an employer's image, and the job applicant his personal brand. Completed education, previous job experience or certification remain only a few of the criteria for the selection of employees, while other important criteria include skills or the overall adaptability of the applicants, which include professional competences, applications and cognitive competences, as well as personality prerequisites [30]. Companies implement ethical principles into management systems [31], building on responsibility in every direction, as well as the dimension of the relation to the company and on self-management ability, which assumes the ability of deep reflection and facilitates empowerment. Modern employees expect the individualized design of the job position, the ability to work at any time and from anywhere and, as they are goal-oriented and focused on a career path in accordance with their personal idea of self-actualization, they want to learn adaptively, based on the principle of democratic development. The implementation of HR 4.0 encounters in organizations, not only creates issues with the selection of a correct set of new technological tools, but also with overcoming the existing organizational culture and management of expectations of several generations of employees [32].

2.3. Business Related Value Redefinition of People Management in the 4.0 Era

The manifestations of changes in fundamental values include changes in the role of a person in production systems, which leads to a change in competences and, subsequently, the required competence of the employees [33,34]. Modern employers expect technological (knowledge of the business, technological skills, process orientation, programming), methodological (analytical skills, entrepreneurship, creativity, focus on efficiency), social (communication skills, ability to work in a team, ability to lead) as well as personality (flexibility, tolerance, motivation) competences [35].

The management of human resources reacts to digitalization tendencies in two stages. Digitalization as the transformation of analogue and biometric data to digital, and the implementation of systems, such as platforms of digital interaction, networking, big data analytics, fast analytics, predictive analytics and security. The digital world, as an alternative of the physical world, offers a road to sustainability without physical consumption via the substitution by digital products and virtual environment. In the next stage of digitalization, companies re-evaluate the content of added value for the external employee, their business model as well as the internal customer, and redefine the relationship between the employee and employer. According to several

studies, information technologies in HR are used increasingly more often for administrative purposes, such as analytics, or support in decision making [36]. Analytics were defined as an “essential” skill for the human resources profession and a tool to create people-based value and a road to an expanded strategic effect on the role of human resources [37]. Angrave et al. [38] state that, if the human resources profession is unable to correctly react to the potential and pitfalls of analytics, it will most likely have many negative consequences for the HR profession and for the employees of the organization. A possible issue is also the fact that, even though HR might have good ideas on how to develop analytics, its relatively peripheral position within the organizational hierarchy can prevent it from being able to mobilize support or to advance or implement the results of the analysis [39].

Human resources specialists form corporate culture and declare values, which are the pillars of corporate strategy to support the implementation stage towards current employees, and also to create a clear picture about expected organizational behavior, as well as the possibility of the penetration of the applicant’s aspirations and programs for the organization’s career management. Modern values of people management systems, according to EFMD, supported by the findings of several studies [32,40], are meaningfulness, engagement, cooperation, autonomy [41,42], support, trust, commitment, communication, common values, recognition and emphasis on health [37]. The implementation of values in the methods and procedures of people management is transparent in the digital age. The Glassdoor Internet portal built its business on sharing the experiences of present employees. It contains reviews of companies in the position of an employer from point of view of the job applicant, from present and former employees. It focuses on different topics, from questions that can be expected during the job interview, through to the feedback of managers from different departments to compensation in different positions [32]. This means that the sources of competitive advantages of people management systems in organizations are becoming commonly available. This was, until recently, confidential information on internal corporate systems. At the same time, the employees are the most authentic, purposeful and effective method of distributing the content of corporate culture and completing strategic goals.

3. Materials and Methods

The following findings on the formation of the research framework of the implementation section result from the presented theoretical foundations:

- The majority of studies discuss the technical aspects, but significantly less attention is paid to the management approaches and culture, which are the main factors affecting the success of this concept [43].
- The theoretical foundations are missing a sufficient number of studies focused on the transformation of the business values in the external and in the internal environments of the companies, which is a consequence of the digitalization tendencies of the 4.0 era.
- To the best of our knowledge, there is no study in the registered databases, which presents the results of research focused on the impact of the redefinition of business values in Slovakia, caused by digitalization in the industry 4.0 era.

The research subject is the rate of the implementation of technological innovations aimed at the internal and external customer and the redefinition of values of people management in companies, which are the result of individual stages of HR’s reaction to digitalization in 4.0 management systems. The specifics of the research subject consist of the examination of parameters of the expected and present values of individual variables. The subject of the analysis was the harmony between the currently implemented business values and those important for the future. Furthermore, the subject of the analysis was the digitalization index, which reflects the level of technological innovations in the first digitalization stage from the perspective of present implementation and future expected levels of implementation. The digitalization index assesses individual technological innovations focused on the customer and the employee. The research questions were formulated like this:

1. What is the present and expected level of technological innovations of digitalization focused on the internal and the external customer?
2. What is the value of profiling companies operating in Slovakia; which values do the companies consider as crucial in terms of business sustainability in the 4.0 era?
3. Is digitalization related to the transformation of key values for people management in companies in the industrial 4.0 era?

3.1. Survey and Data Collection

The object of research was a set of companies operating in Slovakia. We have used the questionnaire survey method. Human resources specialists from the companies provided data for the study. In total, 132 companies provided complete data, relevant for statistical analysis; the return rate of the questionnaires was 84.6%. The research sample included companies without any limitations on the number of employees. To answer the research questions, we considered it relevant to question companies of all sizes, since small or micro companies often have a start-up nature and they react the most to opportunities that the digitalization age presents. The structure of the statistical set is in Table 1.

Table 1. The structure of statistical set.

Variable	Category	Frequency	Percent	Variable	Category	Frequency	Percent
Number of employees	Less than 10	26	19.7	Ownership	Private	114	86.4
	11–49	36	26.5		State	18	13.6
	50–249	32	24.2		Total	132	100
	Over 250	38	28.7				
	Total	132	100				
Business field	Production	32	24.2	Region structure	Bratislavský	35	26.6
					Trnavský	21	15.9
					Trenčiansky	19	14.4
					Nitriansky	12	9.1
					Žilinský	11	8.3
	Services	68	51.5		Banskobystrický	13	9.8
	Retail	20	15.2		Prešovský	9	6.8
	Other	12	9.1		Košický	12	9.1
	Total	132	100		Total	132	100

3.2. Measurements

Industry 4.0 is accompanied by a transformation of processes related to data, information and knowledge [44]. It includes a new level of data integration and data processing [45] and a significant increase in categories, volume and speed of data creation. The quantity of data [46] and their use [10] are considered relevant attributes of the 4.0 sector. The acquisition and analysis of a large volume of data happens using several integrated systems supported by the decisions of intelligent technologies [24,47]. Given the heterogeneous nature of their data and their constant exchange between the participating devices and parties, IT security and data protection [48] have become increasingly important questions. The level of digitalization was measured using the digitalization index. The index was formed as an indicator of the implementation of selected technological innovations, which are frequent reflections of digitalization in companies in 4.0 conditions. The summary digital index measurement has been composed based on research in the literature background. The digital index consists of the average of the variables, giving equal significance to each variable involved. The reliability of the components in the variable set of Summary Digitalization Index (Table 2) and Value Portfolio Model (Table 3) was tested by Cronbach's Alpha test (Table 4).

Table 2. Measurement Model—Components of the Digitalization Index.

	Customer Related Solutions		Employee Focused Measures	
Digitalization of Analogue Data				
Digitalization of Biometric Data				
Platforms of Digital Interaction, Networking	Rate of importance (RICS)	Rate of satisfaction (RSCS)	Rate of importance (RIES)	Rate of satisfaction (RSES)
Big Data Analytics				
Fast Analytics (e.g., feedback)				
Predictive Analytics (e.g., in marketing)				
GDPR (customer protection)				

Measuring was performed by determining two parameters for each variable, specifically satisfaction with the present status and perception of importance for the future of the business. We used the Likert scale to quantify the rate of digitalization with a value range of 1–6 to quantify the rate of importance (1—absolutely irrelevant, 2—irrelevant, 3—rather irrelevant, 4—rather important, 5—important, 6—absolutely important), as well as to quantify the rate of satisfaction with the implementation (1—very dissatisfied, 2—dissatisfied, 3—rather dissatisfied, 4—rather satisfied, 5—satisfied, 6—completely satisfied). The digitalization index was used to measure the level of the implementation of technological innovations aimed at the external and the internal customers (employees).

We formed the values, which were the research objects, based on key factors of 4.0 sustainability, identified by Beier et al. [11], based on the research results available in the relevant literature, the Web of Science databases and based on the values of the new relationship between the employee and the employer, according to the European Association for People Management.

Table 3. Measurement Model—Value Portfolio Model.

Meaningfulness of work (employees know the meaning of their work)		
Engagement		
Passion (enthusiasm and joy of work)	Importance rate of the value reflected in the practice of people management (RIV)	Satisfaction rate of the value reflected in the practice of people management (RSV)
Cooperation		
Recognition (public, private)		
Communication		
Support		
Autonomy		
Health emphasis		
Common values		
Trust		
Commitment (internal feeling of responsibility, ownership)]		

To examine the values of people management declared in the companies, we have examined the value importance parameter (RIV) for the future of the business and satisfaction with the rate of their implementation in people management (RSV). The Likert scale was used for quantification with a value range of 1–6 to quantify the rate of importance (1—absolutely irrelevant, 2—irrelevant, 3—rather irrelevant, 4—rather important, 5—important, 6—absolutely important), as well as to quantify the rate of satisfaction with the reflection of values in people management (1—very dissatisfied, 2—dissatisfied, 3—rather dissatisfied, 4—rather satisfied, 5—satisfied, 6—completely satisfied).

Table 4. Reliability test—Cronbach's Alpha.

Variable Set	Number	Cronbach's Alpha
RICS	N = 7	0.845
RSCS		0.817
RIES		0.850

RSES	N = 12	0.800
RIV		0.883
RSV		0.872

3.3. Data Analysis Methods

We used statistical methods of first-level sorting to analyze the data, such as relative and absolute count, mean, modus, median and standard deviations. We examined the dependencies of individual variables and their parameters using second-level sorting methods, such as Principal Component Analysis and analysis of variance (ANOVA).

4. Results

The first examined manifestation of the companies' reactions to changes in industry 4.0 conditions, which is a research object, was the implementation rate of technological innovations aimed at the internal and the external customer. We examined the present and expected level of technological innovations of digitalization, aimed at the internal and the external customer. We examined technological innovations, which the companies implement and use for their business on the level of the implementation of technological innovations, which are characteristic for the first digitalization stage. We also focused on examining if there is a difference in the companies' approaches to the digitalization of the processes within the company (aimed at their own employees) and outside of it (aimed at customers). The results (Table 5) indicate that the companies do not differentiate their approach to digitalization and its implementation based on this principle, and they use individual examined tools to a comparable extent towards the employees (RSES—4.1) and customers (RSCS—4.2). They consider tools enabling fast and predictive analytics as important for business sustainability; however, today these tools are not implemented to a sufficient extent (the difference between the required and actual rate of use is the highest among all tools). They also consider it important to digitize analogue data, use a platform for digital interactions and networking and work with big data. The companies feel much better prepared in these areas.

We examined the overall level of implementation of technological innovations of digitalization in people management using a summary index of digitalization. The index shows a higher value of measurements of the importance of technological innovations, which is the relationship to future (RICS—4.5, RIES—4.5), compared to present values (RSES—4.1, RSCS—4.2).

The second examined manifestation of the companies' reactions to changes in industry 4.0 conditions, which is a research object, was the transformation of the value orientation. The research object was the value profiling of companies operating in Slovakia in terms of business success in the 4.0 era. The analysis of the value profiling contained the testing of two parameters, specifically the importance of the reflection of value in people management tools (RIV) and the rate of current implementation of values in people management tools (RSV). We examined which values are important for the future of the business, which are currently implemented, and how they relate to each other. We used the analysis of the primary set components (PCA) to verify if the set of items can be divided into subsets of values with identical parameters. In this case we used the RIV parameter, which is the importance of values.

Table 5. Application of Digitalization in Customer Related Solutions and Employee Focused Measures.

EFFECTS	Customers		Employees		Customers	Employees	Customers		Employees					
	Required	Actual	Required	Actual	Difference P-S	Difference P-S	P median	P std dev.	S median	S std dev.	P median	P std dev.	S median	S std dev.
Digitalization of Analogue Data	4.6	4.2	4.5	4.2	0.4	0.3	5.0	1.3	4.0	1.1	5.0	1.3	4.0	1.1
Digitalization of Biometric Data	3.5	3.5	3.5	3.6	0.0	−0.1	3.0	1.5	4.0	1.4	4.0	1.5	4.0	1.4
Platforms of Digital Interaction, Networking	4.5	4.2	4.3	4.1	0.3	0.2	5.0	1.3	4.0	1.2	5.0	1.4	4.0	1.1
Big Data Analytics	4.5	4.1	4.4	4.0	0.4	0.3	5.0	1.4	4.0	1.1	5.0	1.5	4.0	1.1
Fast Analytics (e.g., feedback)	4.8	4.1	4.7	4.1	0.7	0.5	5.0	1.1	4.0	1.0	5.0	1.1	4.0	1.0
Predictive Analytics (e.g., in marketing)	4.6	3.9	4.4	3.8	0.7	0.6	5.0	1.2	4.0	1.1	5.0	1.2	4.0	1.1
GDPR (customer protection)	5.4	5.1	5.4	5.1	0.3	0.3	6.0	1.1	5.0	1.0	6.0	1.0	5.0	1.0

Source: Own processing.

We have used the KMO criterion and Bartlett's test (Table 6), which confirmed that the set of items is factorable. The examination of the importance of values as parameters of successful business can be meaningfully considered from the perspective of common features. However, a scree plot, as shown in Figure 1, shows that all of the items fall under one main component, so the importance of values does not significantly differ among the companies. This means that the values do not differ in how they are preferred by the companies and, thus, fall under a single common cluster.

Table 6. KMO and Bartlett's Test.

KMO and Bartlett's Test.		Values
Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		0.896
Bartlett's Test of Sphericity	Approx. Chi-Square	732.890
	df	66
	Sig.	0.000

Note: df (degrees of freedom); sig. (significance). Source: Own processing.

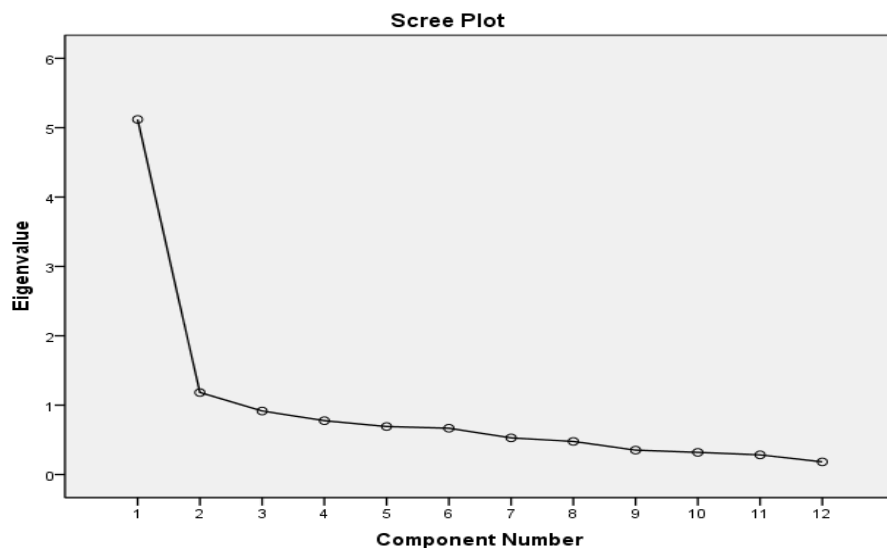


Figure 1. Scree plot.

Further research focused on the relation between the manifestations of digitalization through the implementation of technological innovations aimed at customers and employees and the transformation of values, which the companies consider important for their success in the industry 4.0 era. The theoretical foundations are missing a sufficient number of studies focused on the transformation of business values as a consequence of digitalization tendencies. We assume it is possible to identify success values and values of the future in the 4.0 era. We assume that digitalization is related to the transformation of key values for people management in companies in the industry 4.0 era.

We used the analysis of variance (ANOVA) to verify the summary rate of manifestations of digitalization in the form of technological innovations in relation to the value orientation of the companies. We used the main component—the important values—as a dependent variable in the ANOVA analysis. We also verified the relation of the value portfolio and the basic characteristics of the companies, such as size, business focus and fluctuation. We selected the fluctuation rate as the basic quality indicator of people management in the company, which was another parameter of the examined relations (Table 7).

Table 7. Tests of Effects Between Subjects.

Source	Type III Sum of Squares	df	Mean Square	F	p-Value—If p Is Less Than 0.005 There is a Relation
Corrected Model	10.791	7	1.542	1.553	0.154
Intercept	0.026	1	0.026	0.026	0.872
Focus	6.961	3	2.320	2.337	0.076
Dig_sum_customers	2.260	1	2.260	2.276	0.134
Dig_sum_employees	1.231	1	1.231	1.240	0.267
Employee_fluctuation	0.464	1	0.464	0.467	0.495
Size	1.826	1	1.826	1.839	0.177
Error	142.988	144	0.993		
Total	153.799	152			
Corrected Total	153.779	151			

Source: Own processing.

The results indicate that, in terms of values, there are no significant differences in enforcement between the companies (Table 8). The present value preferences of the companies operating in Slovakia seem to be universal, irrespective of their size and focus. Based on the acquired results, we can also state that the value preferences are not tied to the level of digitalization of the corporate processes and, therefore, this does not interfere with the value profiling of the company.

The most important values that companies perceive as crucial for their success and competitiveness in the upcoming industry 4.0 era include meaningfulness of work itself, cooperation and functional communication. The companies considered it important for the employees to know and to be aware of the purpose of their work and to be able to profit from cooperation, and they also considered it equally important to ensure a high level of awareness, access to information and highly functional communication within and outside of the company. At the same time, these two values, which act as a priority, have shown the greatest difference between their meaning and the present status of their implementation in the life of the company. This means that the companies feel the least prepared for the future in values, which they see as crucial.

Table 8. Corporate Values.

VALUES	Required	Actual	Difference P-S	P median	P std dev.	S median	S std dev.
Meaningfulness of Work (employees know the meaning of their work)	5.5	4.5	1.0	6.0	0.7	4.0	0.9
Engagement	4.9	4.0	0.9	5.0	0.9	4.0	0.9
Passion (enthusiasm and joy of work)	4.8	3.9	0.9	5.0	1.0	4.0	1.0
Cooperation	5.4	4.5	0.8	6.0	0.8	5.0	1.0
Recognition (public, private)	4.6	4.1	0.5	5.0	1.1	4.0	1.0
Communication	5.5	4.4	1.1	6.0	0.8	5.0	1.0
Support	4.9	4.3	0.6	5.0	0.9	4.0	0.9
Autonomy	4.5	3.9	0.5	5.0	1.0	4.0	1.0
Health Emphasis	4.9	4.5	0.5	5.0	1.2	5.0	1.1
Common Values	4.6	4.1	0.5	5.0	1.1	4.0	1.0
Trust	5.2	4.3	0.9	5.0	1.0	4.0	0.9
Commitment (feeling of responsibility, ownership)	5.2	4.2	0.9	5.0	1.0	4.0	1.1

Source: Own processing.

The companies show the lowest degree of corporate readiness in value equipping and also in the area of employee engagement, ownership, enthusiasm and joy of work. The rate of cooperation

and trust within the companies also seems to be problematic. However, it is these attributes that are the prerequisites of HR 4.0, when management, heavy on foresight competence, flexibility and the challenge of continuous change, can effectively develop a culture of engagement. These findings indicate reserves in the preparedness of the companies in Slovakia for the new industry 4.0 era, when, on the one hand, the companies clearly recognize the necessity to implement the presented values in people management, while, on the other hand, they are not satisfied with their present rate of the implementation of the major value categories.

5. Discussion

Digitalization enables the creation of a virtual space, which is not limited by space and time. We are gradually leaving analogous systems of the real world, with applicable physical laws, and moving to virtual worlds built on programs and algorithms, the patterns of which are in the hands of software architects. The onset of digitalization and Internet connection are sources of such major opportunities and threats to economies that the subject of scientific research of many management studies has become the business conditions of the fourth industrial revolution [49–54]. The characteristic features of the 4.0 world of work, which are the accompanying attributes of the fourth industrial revolution and the consequences of fundamental changes of production systems, are real-time operation, strict functionality and effectiveness [55–59], the integration of the real and the virtual world, complexity, dynamics and insecurity [60,61]. Recent studies define the next generation of balanced automated production systems as consisting of hardware, software and “humanware” [62]. Based on the abovementioned knowledge on changes in the world of work relevant for people management, it is possible to identify the main tendencies, which, in industry 4.0 conditions, will be a source of changes and new tasks in people management, which, according to Weyer, are digitalization, value redefinition and diversity [23].

5.1. Theoretical Implications

We are witnesses of an era when almost all business attention is focused on a person (customer/employee). The individual feeling of satisfaction is more important now than ever before. Therefore, we constantly re-evaluate and look for roads to sustainability through the perfection of production. There is very active debate on the social dimensions of digitalization and networking, and about the consequences in the form of an increase or decrease in jobs, whereas authors are quite clear on the automation of simple tasks and emphasize collaboration, training and monitoring [63]. Productivity, which is increasing, results in more time for more work or more time without work. The novelty of professions requiring novel skills might lead to social problems [19]. Both cases create space for the research of business sustainability values, since values as the sources of certainty balance the phenomenon of social problems caused by novelty. Research is dedicating efforts to the development of business models and systems, network integration and digital process solutions and equipment, therefore increasing research related to human factors and product-service offerings that will bring a valid contribution to industry 4.0 [64]. We have recognized the value of evolution as the gap in research of managing people in the digital era, which, due to the focus on business sustainability, needs to be examined. The study contains a literature review, which is an overview of present knowledge on the effects of digitalization on corporate production systems, the business challenges of people management in the 4.0 era and values, which are enforced in this era and seem to be important for future success. The study results present new knowledge to the theory, especially on the transformation of values. We have discovered that the values are relatively stable, although not static, even in the era of massive digitalization and people interaction in virtual environments. The ideas of different companies on the values they consider as important for future business success do not change significantly based on the size, type of business or quality of people management, and are not dependent on the level of technological innovations. The basic prerequisites and the values of human behavior in organizations built upon them are formed by personal, cultural and evolutionary history, which even in an era of fast and intense environmental changes does not allow for fundamental changes in behavior. Therefore, digitalization does not change values, nor do the

values affect the level of digitalization. Manifestations of values and tools and processes for their implementation do change.

5.2. Practical Implications

Principal changes in production systems introduce digitalization and information overload in the world of work, which lead to global work and the formation of labor markets in the knowledge economy. We consider it important to examine the manifestations of digitalization in companies in Slovakia, understand their make-up, present state and their part to play in the future. We assumed differences in the implementation of technological innovations of digitalization in customer-oriented solutions and employee focused measures. The research results presented in this paper describe the present and expected level of technological innovations of digitalization aimed at the internal and external customer. We have discovered that companies invest in customer-focused technological innovations of digitalization slightly more than for the support of people management. We observed a certain discrepancy between how far the companies have moved towards digitalization in relation to the customers and towards their employees. We interpret our findings in agreement with the findings of foreign studies [65,66]. The authors have argued that there has been a lower level of technological innovations of digitalization in relation to employees, by the fact that even in the case of state-of-the-art technologies, face-to-face communication in people management is still preferred for getting information from the systems. On the other hand, Bondarouk and Brewster [35] point out that the inconsistent frameworks created by subjective perception or different understanding or interpretation can lead to incorrect expectations, counterproductive activities or skepticism. Therefore, the technological innovations of digitalization should also be introduced in relation to employees at a much higher rate [32] upon the elimination of shortcomings, when such negatives as commitment, intention to leave, or the social behavior of employees can be overlooked by the different E-Systems [67]. At the same time, the actual difference between the technological support of employees and customers can be reflected in inconsistencies in corporate behavior.

Virtual space in the post-globalization era represents another dimension of the market space for business and gives it the form of an unlimited space. New market space generates new forms of added value, requires new resources and calibrates market relations. New business models based on novel value-creating mechanisms can achieve an increase in customer satisfaction [63]. The re-evaluation of added value for the customer and methods of its generation changes the business model, form of employment, working system, position of the employee in the value-creation process and introduces a redefinition of the relation between the employee and the employer. In the context of examining people management in the 4.0 era, we consider it important to know the values upon which modern business stands. The research results presented in this paper describe the value profiling of companies operating in Slovakia and the values the companies consider crucial for the success of their business in the 4.0 era. We have discovered that, currently, the companies consider meaningfulness of work and communication as the most important values of people management. These are also variables where we have determined the biggest difference in the tested parameters, which is between importance for the future of the business and actual present implementation. We have discovered that, in the digital, narrowly specialized and advanced globalized era, meaningfulness of value-creating activities is important for the future of the business. This is closely related to communication and cooperation. Values, which could be considered as important in the era of digitalization, such as, autonomy, automation and the elimination of monotony, have not been significantly verified. Therefore, the idea of sustainable business in a digital age is built on cooperation, communication and meaningfulness of work.

We have verified the relation of digitalization with the transformation of key values for people management in companies in the industry 4.0 era by testing the relations between the digitalization index and the value portfolio. We have discovered that the formation of values of people management depends on the technological sophistication of the companies. The values we have verified were chosen based on their theoretical foundations as values, which the companies currently enforce as modern values of people management, important for the future sustainability of the

business. The results indicate that the perception of importance and the implementation of these values in companies are high, without a necessarily high level of technological innovation in digitalization. Based on these findings, we argue that digitalization tendencies are neither a condition of the value profiling of the companies, nor a guarantee of business success. It appears that new technological innovations are not important for the future sustainability of the business of the company, but new methods of cooperation between people are, which are possible thanks to these technologies. Therefore, the technological innovations themselves are not important, what is important is their use.

5.3. Limitations and Future Directions

The study presented in this paper has several limitations and many other possibilities for the continuation of research. The set of companies, which were the subject of the research, is a limiting factor. The selection of companies based on their regional operation, size and business sector does not correspond to the structure of companies in all of Slovakia. These are primarily companies in the capital of the country and its vicinity, which is the cultural, scientific, industrial and economic center of the country. Therefore, the set contains a large number of companies providing services. Human resources specialists of the companies operating in the capital city were more prepared to cooperate on the research of people management in the 4.0 era; therefore, we have decided to abstract from the regional perspective in the respondents' pool. By including companies from other parts of Slovakia, we would have probably worked with a lower level on the digitalization index. The generalizability of the sample outside of Slovakia is also one of the limitations of the presented results. Slovakia is specific for its automotive industry focus, having the greatest number of cars produced per capita in Europe. Therefore, the responses of large companies in the sample reflect the automotive industry.

Diversity is the last tendency significantly affecting people management in the 4.0 era, according to Weyer. Fundamental changes in the demographic development of the digital age are uncontrollable, but they introduce several challenges in social-economic systems [2]. Here, the phenomenon of diversity is being formed, which is the logical consequence of globalization tendencies and an increase in the intensity of the interconnection and digitalization of the world [18,68–70]. The phenomenon, which forms the future world of work, is the change of values resulting from an increase in the diversity of the social system. In the world of work, for which an environment of changes is typical today, diversity is a term which acts as a challenge for managers in different forms [71–75]. The effect of diversity was not a research subject of the study published in this article. The assumption is that diversity surrounding the companies or inside them forms the value profiling of the companies in different dimensions and forms. Therefore, it is necessary to expand the research to include the verification of the relation of the diversity index and the value profiling of the companies to examine the main determinants affecting the formation of values of a successful business in the digitalization era.

Author Contributions: Conceptualization, J.B., Z.J., N.J., K.S. and Z.S.; methodology, J.B., Z.J. and Z.S.; data curation, J.B., Z.J., K.S. and N.J.; writing—original draft preparation, J.B., Z.J., N.J., K.S. and Z.S.; visualization, J.B., Z.J., K.S. and Z.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by VEGA No. 1/0412/19 Systems of Human Resources Management in the 4.0 Industry Era.

Acknowledgments: This research was supported by VEGA No1/0017/20, Changes in the implementation of management functions in the context of the fourth industrial revolution and adaptation processes in business in Slovakia.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Bonekamp, L.; Sure, M. Consequences of Industry 4.0 on Human Labour and Work Organisation. *J. Bus. Media Psychol.* **2015**, *6*, 33–40.
2. Kergroach, S. Industry 4.0: New Challenges and Opportunities for the Labour Market. *Foresight STI Gov.* **2017**, *11*, 6–8, doi:10.17323/2500-2597.2017.4.6.8.
3. Vojtech, F.; Levický, M.; Filip, S. Economic policy for sustainable regional development: A case study of Slovak Republic. *J. Secur. Sustain.* **2019**, *8*, 597–608, doi:10.9770/jssi.2019.8.4(4).
4. Bartuska, L.; Hanzl, J.; Lizbetinova, L. Possibilities of Using the Data for Planning the Cycling Infrastructure. *Procedia Eng.* **2016**, *161*, 282–289, doi:10.1016/j.proeng.2016.08.555.
5. Blštáková, J.; Joniaková, Z.; Skorková, Z.; Némethová, I.; Bednár, R. Causes and Implications of the Applications of the Individualisation Principle in Human Resources Management. *Ad Alta J. Interdiscip. Res.* **2019**, *9*, 323–327.
6. Hitka, M.; Zavadská, Z.; Jelačić, D.; Balážová, Ž. Qualitative indicators of company employee satisfaction and their development in a particular period of time. *Drv. Ind. Znan. Čas. Za Pitanja Drv. Tehnol.* **2015**, *66*, 235–239, doi:10.5552/drind.2015.1420.
7. Bonilla, S.; Silva, H.; Terra da Silva, M.; Gonçalves, F.R.; Sacomano, J. Industry 4.0 and Sustainability Implications: A Scenario-Based Analysis of the Impacts and Challenges. *Sustainability* **2018**, *10*, 3740, doi:10.3390/su10103740.
8. Fettermann, D.C.; Cavalcante, C.G.S.; Almeida, T.D.; Tortorella, G.L. How does Industry 4.0 contribute to operations management? *J. Ind. Prod. Eng.* **2018**, *35*, 255–268, doi:10.1080/21681015.2018.1462863.
9. Liao, Y.; Deschamps, F.; Loures, E.F.R.; Ramos, L.F.P. Past, present and future of Industry 4.0—A systematic literature review and research agenda proposal. *Int. J. Prod. Res.* **2017**, *55*, 3609–3629, doi:10.1080/00207543.2017.1308576.
10. Erol, S.; Jäger, A.; Hold, P.; Ott, K.; Sihn, W. Tangible Industry 4.0: A Scenario-Based Approach to Learning for the Future of Production. *Procedia CIRP* **2016**, *54*, 13–18, doi:10.1016/j.procir.2016.03.162.
11. Beier, G.; Ullrich, A.; Niehoff, S.; Reißig, M.; Habich, M. Industry 4.0: How it is defined from a sociotechnical perspective and how much sustainability it includes—A literature review. *J. Clean. Prod.* **2020**, *259*, 120856, doi:10.1016/j.jclepro.2020.120856.
12. Lasi, H.; Fettke, P.; Kemper, H.G.; Feld, T.; Hoffmann, M. Industry 4.0. *Bus. Inf. Syst. Eng.* **2014**, *6*, 239–242, doi:10.1007/s12599-014-0334-4.
13. Lizbetinova, L.; Lorincova, S.; Caha, Z. The Application of the Organizational Culture Assessment Instrument (OCAI) to Logistics Enterprises. *Nase More* **2016**, *63*, 170–176, doi:10.17818/NM/2016/SI17.
14. Spisakova, E.D.; Mura, L.; Gontkovicova, B.; Hajduova, Z. R&D in the Context of Europe 2020 in Selected Countries. *Econ. Comput. Econ. Cybern. Stud. Res.* **2017**, *51*, 243–261.
15. Kucharčíková, A.; Mičiak, M. Human capital management in transport enterprise. In Proceedings of the MATEC Web of Conferences: LOGI 2017—18th International Scientific Conference, České Budějovice, Czech Republic, 19 October 2017, doi:10.1051/mateconf/201713400030.
16. Jankelová, N.; Joniaková, Z.; Blštáková, J.; Némethová, I. Readiness of human resource departments of agricultural enterprises for implementation of the new roles of human resource professionals. *Agric. Econ.* **2017**, *63*, 461–470, doi:10.17221/189/2016-AGRICECON.
17. Lorincová, S.; Hitka, M.; Štarchoň, P.; Stachová, K. Strategic instrument for sustainability of human resource management in small and medium-sized enterprises using management data. *Sustainability* **2018**, *10*, 3687, doi:10.3390/su10103687.
18. Dreachslin, J.L.; Weech-Maldonado, R.; Gail, J.; Epané, J.P.; Wainio, J.A. Blueprint for Sustainable Change in Diversity Management and Cultural Competence. *J. Healthc. Manag.* **2017**, *62*, 171–183, doi:10.1097/jhm-d-15-00029.
19. Gabriel, M.; Pessl, E. Industry 4.0 and sustainability impacts: Critical discussion of sustainability aspects with a special focus on future of work and ecological consequences. *Ann. Fac. Eng. Hunedoara* **2016**, *14*, 131.
20. Hirsch-Kreinsen, H. Welche Auswirkungen Hat “Industrie 4.0” Auf Die Arbeitswelt? 2014; pp. 1–4. Available online: <http://libraryfes.de/pdf-files/wiso/11081.pdf> (9 April 2020).
21. Brettel, M.; Friederichsen, N.; Keller, M.; Rosenberg, M. How Virtualization, Decentralization, and Network-Building Change the Manufacturing Landscape: An Industry 4.0 Perspective. *Int. J. Mech. Aerosp. Ind. Mechatron. Eng.* **2014**, *8*, 37–44, doi:10.5281/ZENODO.2658202.

22. Baur, C.; Wee, D. Industry 4.0 is More than just a Flashy Catchphrase. A Confluence of Trends and Technologies Promises to Reshape the Way Things Are Made. *Manufacturing's next act*. **2015**, Available online: <https://www.mckinsey.com/business-functions/operations/our-insights/manufacturings-next-act#> (25 March 2020).
23. Weyer, S.; Schmitt, M.; Ohmer, M.; Gorecky, D. Towards Industry 4.0—Standardization as the crucial challenge for highly modular, multi-vendor production systems. *IFAC-Pap.* **2015**, *48*, 579–584, doi:10.1016/j.ifacol.2015.06.143.
24. Qin, J.; Liu, Y.; Grosvenor, R. A Categorical Framework of Manufacturing for Industry 4.0 and Beyond. *Procedia CIRP* **2016**, *52*, 173–178, doi:10.1016/j.procir.2016.08.005.
25. Dragicevic, N.; Ullrich, A.; Tsui, E.; Gronau, N. A conceptual model of knowledge dynamics in the industry 4.0 smart grid scenario. *Knowl. Manag. Res. Pract.* **2019**, 1–15, doi:10.1080/14778238.2019.1633893.
26. Wright, P.M.; Nishii, L.H. *Strategic HRM and organizational behaviour: Integrating multiple levels of analysis*. *CAHRS Work. Pap.* **2007**, *3*. Available online: <http://digitalcommons.ilr.cornell.edu/cahrswp/468> (12 October 2019).
27. Piccarozzi, M.; Aquilani, B.; Gatti, C. Industry 4.0 in Management Studies: A Systematic Literature Review. *Sustainability* **2018**, *10*, 3821, doi:10.3390/su10103821.
28. Verma, A.; Bansal, M.; Verma, J. Industry 4.0: Reshaping the future of HR. *Strateg. Dir.* **2020**, *36*, 9–11, doi:10.1108/SD-12-2019-0235.
29. Martin, G.; Cerdin, J.L. Employer branding and career theory: New directions for research. In *Strategic Talent Management: Contemporary Issues in International Context*, 1st ed.; Sparrow, P.R., Scullion, H., Tarique, I., Eds.; Cambridge University Press: Cambridge, UK, 2014; pp. 151–176, ISBN 978-1107032101.
30. Levy, F.; Murnane, R. Dancing with Robots. Human Skills for Computerized Work. 15 July 2015 Available online: <http://content.thridwayorg/publications/715/Dancing-with-Robots.pdf>.
31. Guerci, M.; Radaelli, G.; Siletti, E.; Cirella, S.; Rami Shani, A.B. The Impact of Human Resource Management Practices and Corporate Sustainability on Organizational Ethical Climates: An Employee Perspective. *J. Bus. Ethics* **2013**, *126*, 325–342, doi:10.1007/s10551-013-1946-1.
32. Weston, M. Wearable surveillance—A step too far? *Strateg. Hr Rev.* **2015**, *14*, 214–219, doi:10.1108/SHR-09-2015-0072.
33. Sivathanu, B.; Pillai, R. Smart HR 4.0—How industry 4.0 is disrupting HR. *Hum. Resour. Manag. Int. Dig.* **2018**, *26*, 7–11, doi:10.1108/HRMID-04-2018-0059.
34. Hecklau, F.; Galeitzke, M.; Flachsa, S.; Kohl, H. Holistic approach for human resource management in Industry 4.0. *Procedia CIRP* **2016**, *54*, 1–6.
35. Bondarouk, T.; Brewster, C. Conceptualising the future of HRM and technology research. *The International J. Hum. Resour. Manag.* **2016**, *27*, 2652–2671, doi:10.1080/09585192.2016.1232296.
36. Müller, J.M. Assessing the barriers to Industry 4.0 implementation from a workers' perspective. *IFAC-Pap.* **2019**, *52*, 2189–2194, doi:10.1016/j.ifacol.2019.11.530.
37. Haines, V.Y.; Lafleur, G. Information technology usage and human resource roles and effectiveness. *Hum. Resour. Manag.* **2008**, *47*, 525–540, doi:10.1002/hrm.20230.
38. CIPD. *Talent Analytics and Big Data—The challenge for HR*; Chartered Institute for Personnel and Development: London, UK, 2013.
39. Angrave, D.; Charlwood, A.; Kirkpatrick, I.; Lawrence, M.; Stuart, M. HR and analytics: Why HR is set to fail the big data challenge. *Hum. Resour. Manag. J.* **2016**, *26*, 1–11, doi:10.1111/1748-8583.12090.
40. Smeyers, L. What We Learned about HR Analytics in 2014—Part 2. 2015. Available online: <http://www.inostix.com/blog/en/what-we-learned-about-hr-analytics-in-2014-part-2/> (14 May 2015).
41. Shamim, S.; Cang, S.; Yu, H.; Li, Y. Management approaches for industry 4.0: A human resource management perspective. In *Proceedings of the 2016 IEEE Congress on Evolutionary Computation (CEC)*, Vancouver, BC, Canada, 24–29 July 2016; pp. 5309–5316.
42. Schumacher, A.; Erol, S.; Sihn, W. A Maturity Model for Assessing Industry 4.0 Readiness and Maturity of Manufacturing Enterprises. *Procedia CIRP* **2016**, *52*, 161–166, doi:10.1016/j.procir.2016.07.040.
43. Stock, T.; Seliger, G. Opportunities of Sustainable Manufacturing in Industry 4.0. *Procedia CIRP* **2016**, *40*, 536–541, doi:10.1016/j.procir.2016.01.129.
44. Mohelska, H.; Sokolova, M. Effectiveness of Using E-learning For Business Disciplines: The Case of Introductory Management. *Econ. Manag.* **2014**, *17*, 82–92, doi:10.15240/tul/001/2014-1-007.

45. Zhou, K.; Liu, T.; Zhou, L. Industry 4.0: Towards future industrial opportunities and challenges. In Proceedings of the 12th International Conference on Fuzzy Systems and Knowledge Discovery, Zhangjiajie, China, 15–17 August 2015; pp. 2147–2152, doi:10.1109/FSKD.2015.7382284.
46. Liu, Y.; Xu, X. Industry 4.0 and Cloud Manufacturing: A Comparative Analysis. *J. Manuf. Sci. Eng.* **2017**, *139*, 34701, doi:10.1115/1.4034667.
47. Bauer, W.; Hämmerle, M.; Schlund, S.; Vocke, C. Transforming to a Hyper-connected Society and Economy—Towards an “Industry 4.0”. *Procedia Manuf.* **2015**, *3*, 417–424, doi:10.1016/j.promfg.2015.07.200.
48. Xu, L.D.; Xu, E.L.; Li, L. Industry 4.0: State of the art and future trends. *Int. J. Prod. Res.* **2018**, *56*, 2941–2962, doi:10.1080/00207543.2018.1444806.
49. Li, X.; Di Li; Wan, J.; Vasilakos, A.V.; Lai, C.F.; Wang, S. A review of industrial wireless networks in the context of Industry 4.0. *Wirel. Netw.* **2017**, *23*, 23–41, doi:10.1007/s11276-015-1133-7.
50. Urbancova, H.; Hudáková, M. Benefits of employer brand and the supporting trends. *Econ. Sociol.* **2017**, *10*, 41–50, doi:10.14254/2071-789X.2017.
51. Stachova, K.; Stacho, Z.; Blstakova, J.; Hlatká, M.; Kapustina, L.M. Motivation of Employees for Creativity as a Form of Support to Manage Innovation Processes in Transportation-Logistics Companies. *Naše More* **2018**, *65*, 180–186, doi:10.17818/NM/2018/4SL3.
52. Lorincová, S. The Improvement of the Effectiveness in the Recruitment Process in the Slovak Public Administration. In *International Scientific Conference: Business Economics and Management (BEM2015)*; Slovakia: Procedia Economics and Finance: Zvolen, Slovakia, 2015; Volume 34, pp. 382–389, doi:10.1016/S2212-5671(15)01644-5.
53. Babelova, Z.G.; Starecek, A.; Caganova, D.; Fero, M.; Cambal, M. Perceived Serviceability of Outplacement Programs as a Part of Sustainable Human Resource Management. *Sustainability* **2019**, *11*, 4748, doi:10.3390/su11174748.
54. Kucharčíková, A.; Tokarčíková, E.; Blašková, M. Human Capital Management—Aspect of the Human Capital Efficiency in University Education. *Procedia Soc. Behav. Sci.* **2015**, *177*, 48–60. Available online: <http://www.sciencedirect.com/science/article/pii/S1877042815016869#> (25 November 2019).
55. Xu, Y.; Wang, Y.; Tao, X.; Ližbetinová, L. Evidence of Chinese income dynamics and its effects on income scaling law. *Phys. A: Stat. Mech. Its Appl.* **2017**, *487*, 143–152, doi:10.1016/j.physa.2017.06.020.
56. Pavlendova, G.; Sujanova, J.; Caganova, D.; Novakova, R. Smart Cities Concept for Historical Buildings. *Mob. Netw. Appl.* **2020**, *25*, 876–881, doi:10.1007/s11036-020-01521-7.
57. Hitka, M.; Lorincova, S.; Bartakova, G.P.; Lizbetinova, L.; Starchon, P.; Li, C.; Zaborova, E.; Markova, T.; Schmidtova, J.; Mura, L. Strategic Tool of Human Resource Management for Operation of SMEs in the Wood-processing Industry. *BioResources* **2018**, *13*, 2759–2774, doi:10.15376/biores.13.2.2759-2774.
58. Caganova, D.; Starecek, A.; Hornakova, N.; Hlasnikova, P. The Analysis of the Slovak Citizens Awareness about the Smart City Concept. *Mob. Netw. Appl.* **2019**, *24*, 2050–2058, doi:10.1007/s11036-018-01210-6.
59. Hitka, M.; Lorincová, S.; Ližbetinová, L.; Bartáková, G.P.; Merková, M. Cluster analysis used as the strategic advantage of human resource management in small and medium-sized enterprises in the wood-processing industry. *BioResources* **2017**, *12*, 7884–7897, doi:10.15376/biores.12.4.7884-7897.
60. Urbancova, H.; Vnouckova, L. Investigating talent management philosophies. *J. Compet.* **2015**, *7*, doi:10.7441/joc.2015.03.01.
61. Stacho, Z.; Stachová, K.; Cagáňová, D. Participation of all Employee Categories in Innovation Processes in Slovak Organisations. *Mob. Netw. Appl.* **2020**, 1–7, doi:10.1007/s11036-020-01518-2.
62. Romero, D.; Wuest, T.; Stahre, J.; Gorecky, D. Social factory architecture: Social networking services and production scenarios through the social internet of things, services and people for the social operator 4.0. In *IFIP International Conference on Advances in Production Management Systems*; Springer: Cham, Switzerland, 2017; pp. 265–273, doi:10.1007/978-3-319-66923-6_31.
63. Kiel, D.; Müller, J.M.; Arnold, C.; Voigt, K.I. Sustainable industrial value creation: Benefits and challenges of industry 4.0. *Int. J. Innov. Manag.* **2017**, *21*, 1740015, doi:10.1142/S1363919617400151.
64. Machado, C.G.; Winroth, M.P.; Ribeiro da Silva, E.H.D. Sustainable manufacturing in Industry 4.0: An emerging research agenda. *Int. J. Prod. Res.* **2020**, *58*, 1462–1484, doi:10.1080/00207543.2019.1652777.
65. Sparrow, P.; Brewster, C. Reuters: Human resource management in global perspective. In *Case Studies in Global Management*; Dundon, A., Wilkinson, A., Eds.; Tilde University Press: Victoria, Australia, 2012; pp. 261–270, ISBN 978-0734611130.

66. Brewster, C.; Brookes, M.; Gollan, P.J. The institutional antecedents of the assignment of HRM responsibilities to line managers. *Hum. Resour. Manag.* **2015**, *54*, 577–597, doi:10.1002/hrm.21632.
67. Swan, M. Sensor mania! The internet of things, wearable computing, objective metrics, and the quantified Self 2.0. *J. Sens. Actuator Netw.* **2012**, *1*, 217–253, doi:10.3390/jsan1030217.
68. Choi, S. Demographic diversity of managers and employee job satisfaction. *Rev. Public Pers. Adm.* **2013**, *33*, 275–298.
69. Opstrup, N.; Villadsen, A.R. The right mix? Gender diversity in top management teams and financial performance. *Public Adm. Rev.* **2015**, *75*, 291–301, doi:10.1111/puar.12310.
70. Johansen, M.; Zhu, L. Who values diversity? Comparing the effect of manager gender across the public, private, and nonprofit sectors. *Am. Rev. Public Adm.* **2017**, *47*, 797–809, doi:10.1177/0275074016634201.
71. Guillaume, Y.R.F.; Dawson, J.F.; Otaye-Ebede, L.; Woods, S.A.; West, M.A. Harnessing demographic differences in organizations: What moderates the effects of workplace diversity? *J. Organ. Behav.* **2015**, *38*, 276–303, doi:10.1002/job.2040.
72. Ashikali, T.; Groeneveld, S. Diversity management in public organizations and its effects on affective commitment: The role of transformational leadership and inclusiveness of organizational culture. *Rev. Public Pers. Manag.* **2015**, *35*, 146–168.
73. Andersen, S.C.; Moynihan, D.P. How do socially distinctive newcomers fare? Evidence from a field experiment. *Public Adm. Rev.* **2018**, *78*, 874–822.
74. Ritz, A.; Alfes, K. Multicultural public administration: Effects of language diversity and dissimilarity on public employees' attachment to employment. *Public Adm.* **2018**, *96*, 84–103, doi:10.1111/padm.12366.
75. Schaffer, B.S. Examining Reactions to Workplace Diversity: The Role of Dissimilarity—Attraction in Teams. *Can. J. Adm. Sci./Rev. Can. Des Sci. De L'adm.* **2019**, *36*, 57–69, doi:10.1002/cjas.1476.



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).