



Article

An Analysis of the Corporate Social Responsibility and the Industry 4.0 with Focus on the Youth Generation: A Sustainable Human Resource Management Framework

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Abstract: The global movement around themes like sustainability on its triple bottom line and industry 4.0 allows for the establishment of a ground of connection with corporate responsibility towards society. This current research study was developed between 1 March 2019 to 2 September 2019, through a literature review involving human resources and terms related to the concept of sustainability, industry 4.0, corporate social responsibility, and the youth generation. Its target audience is the world's youth generation. Two proposals were created after the literature review and data collection, which allowed the elaboration of “an analysis of the corporate social responsibility and the industry 4.0 with focus in the youth generation: a sustainable human resource management framework.” Regarding conclusions, the authors of this research study contribute with theoretical and practical educational purposes to insert the youth citizen into society. This contribution also involves the work of companies on planning and preparing their staffs to develop activities in the communities in their neighborhood. Future studies are stimulated, which will allow the creation of new proposals to be presented, so that the nations can incorporate their youth people on the transitional job market and have a sustainable view for the future generations.

Keywords: sustainable human resources; industry 4.0; corporate social responsibility; conceptual framework; youth generation

1. Introduction

Human resource management enables a holistic view involving concepts and practices presented in many research studies [1,2]; sustainability [3,4], industry 4.0 [5,6], and corporate social responsibility (CSR) [7,8] are among these concepts. The implementation of sustainable practices, together with the disruptive technologies presented by the fourth industrial revolution, make possible the enhancement of professional activities and creation of new job opportunities. Disruptive technologies are present in the population's day-to-day life and are especially present regarding the youth of the new millennium. On one hand, this presence can positively impact knowledge structure and educational activities. Haines et al. [9] presented the positive impact promoted by the use of technology on their research.

The authors also showed that human resource management and the relationship between the delivery of knowledge and technologies help to support human resources.

On the other hand, disruptive technologies can impact negatively if the use of these digital tools is not appropriate. The construction of knowledge and the stimulus to learn can be done by the tools coming from the fourth industrial revolution, but their indiscriminate use, without any educational purpose, should not be stimulated. Therefore, these technologies should work as learning facilitators and as propagators of information, either local and globally. Technology is a tool that can be used as a support within the teaching process [10]. The Internet of Things (IoT) enables it through an auxiliary disruptive purpose, in which youth people can be inserted in the digital context, allowing for the integration among software, systems, and people. The actions that allow for communion between sustainability and industry 4.0 concepts may transform economic outlooks, leading to improvement under economic aspects, through the insertion of these youth people into workplaces and society.

The World Economic Forum [11] affirmed that the work population nowadays is primarily made up of youth people, but they are not appropriately represented in global subjects. The most recent edition of the World Economic Forum has conducted research aiming to learn how these youth people see the world. They consider career opportunities and growth as compensation, the sense of the purpose, and social impact. Some disadvantages they have pointed out include lack of experience to obtain one's first job, excessive competition, and the availability of job positions. Two major points were observed by this millennium generation and highlighted; these include the corporative values of sustainability and social responsibility. This integration between sustainable practices and CSR allows for the amplification of institutional actions, making these companies' jobs easier in order to strengthen the corporative environment with CSR and corporate sustainability [12]. Then, the institutions can collaborate with the implementation of 2030 United Nations (UN) Agenda [13] and contribute to the achievement of the 17 Sustainable Development Goals (SDGs) [13] proposed in 2015 by the same organization.

Among the 17 Sustainable Development Goals, goal eight—"decent work and economic growth" [13]—is analyzed in the current research study. For this goal, the UN established some targets such as productive and decent work for women and men with equal payment and value. Reducing youth unemployment, as well as educating and training this population, are other targets for this goal. The relationship between human resource management and sustainability is currently present in society and establishes many paths [2] for sustainable development. The authors propose a conceptual framework involving the world's youth population in the global context, presenting two proposals related to sustainable human resource. Figure 1 shows the sustainable human resource management framework with focus on the youth generation.

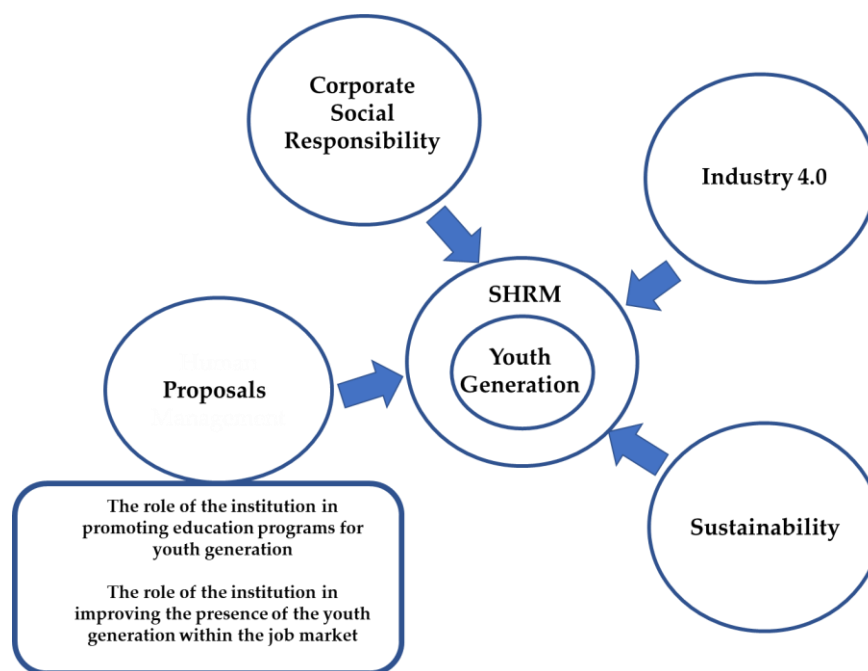


Figure 1. Sustainable human resource management framework with focus on the youth generation.

The world's youth population is characterized by people between 15 and 24 years old [14]. According to data provided by the Brazilian Institute for Geography and Statistics (IBGE) [15], in 2017, the female population between 15 and 19 years old represented the second biggest population, only after those between the ages of 35 and 39. The Brazilian male population had a higher concentration at this stage (15 and 19 years old). The reference to the Brazilian youth brought by the institute was based on 50% of the population between zero and 34 years old; yet this is changing as a result of a decrease in the birth rate and increase in life expectancy of the Brazilian population.

The problems of the youth generation have impacted the previous generation, promoting dynamism in society [16]. The global datum highlights the constant search for the youth generation and the digital world, but in fact, around one third of the population did not have access to the internet in 2017 [15]. This number signifies the need to improve internet access for the youth population. The Agency Brazil - Brazilian Company of Communication [17] presents the statistics of countries, showing that 46.8% of schools have information technology spaces for students, and 65.6% of schools can access the internet, with 53.5% accessing through broadband connection. The agency still reinforces the notion that half of the schools cannot provide students with access to technology.

The stimulus for youth people to study and work helps make them capable of working and thus offers better work conditions. It allows for the integration of these youth citizens into society and the construction of a new culture. Sivathanu and Pillai [18] observed that companies must be prepared for the absorption of technologies in attention to the demands of the so called, Generation (Gen) Y and Gen Z. The authors present the age groups for these generations; Gen Y are those born between 1980 and 2000 and Gen Z are those born after the year 2000. The youth population must be remembered by companies during planning, so that they can be included in the job market.

From this rational, the authors establish the following research questions: Can institutions contribute to the inclusion of youth people into society through CSR? How can institutional management of the youth and sustainable human resources promote a partnership with local communities? How can institutions promote industry 4.0 educational practices for youth people, aiming at partnerships with local communities?

In order to allow the world's youth people access to the internet, improvement of learning, exercise of skills, and interaction with the world, the authors of this research study present two proposals:

“the role of the institution in promoting education programs for youth generation” and “the role of the institution in improving the presence of the youth generations within the job market.” These proposals can be approached by partner companies and singly with local communities. They enable the insertion of the youth population and stimulate the improvement of the study and search for job positions. From structuring the educational programs, the partnership with communities brings the youth people to a new world, making them aware of new activities and enabling study, and job opportunities.

The educational programs of information technology companies can bring youth people into the corporative environment and study laboratories where they can apply technology concepts learned previously, which are ways to enhance the fourth industrial revolution. This activity contributes to the consolidation of the fourth industrial revolution concepts in countries where it is necessary. The institutions can establish opportunities by making partnership with technical schools and including these youth people in the job market.

In order to answer the questions of the current research, the authors present the information regarding the strategy used for data search and collection, as well as the literature available in the Materials and Methods, and Results sections, respectively. The Results section shows the product of this strategy and data collection. The two proposals are presented in the Discussion section. At the end, the authors present the study’s limitations, suggest future studies and make their own contributions regarding the theme approached in the Conclusions section.

2. Theoretical Background

2.1. Corporate Social Responsibility, Industry 4.0, the Youth Generation, and Human Resource Management

2.1.1. Corporate Social Responsibility and the Human Resource Management

The relationship between CSR and human resource management can create internal and external values for the institution. Social responsibility, climate organization, and how employees perceive the CSR [19] open doors to promote ways to plan a structure for involving the workforce in this context. De Stefano et al. [1] referred to human resource contributions to CSR in their study and attributed a lack of clarity caused by the characteristics and different dimensions. The same authors included the concept of the corporate sustainability in addition to the CSR concept. Corporate sustainability is discussed by many researches [20–22] and addresses points about the training [23], behavior [23], and perception of employees [21]. The implementation of sustainable practices and integration with the human resources should thus be done [22].

Once the country stimulates these practices through the government by reducing taxes and duties, it leads other companies to practice CSR. This action becomes circular, since its implementation induces companies to help the population and the government. Sharma and Tewari [24] indicated that India was the first country in which the government mandated CSR practices and implemented guidelines regarding the subject.

Human resources can contribute to CSR implementation. Gond et al. [25] analyzed responsible leadership and revealed that human resources has many roles in this kind of leadership. These roles might be interrelated to three dimensions described by the authors: functional, practical, and relational. It is important to reinforce the search for CSR applicability, supported by many groups, which means, the government, institutions, and human resources. Wilcox [26] referred to changes in the regulation of social, economic, and institutional fields.

CSR may benefit institutions by accelerating the implementation of actions related to sustainability and the fourth industrial revolution [27]. Therefore, institutions should exceed their territorial limits and develop actions involving CSR and engage with the local population, as well as spread practices and help other institutions by doing so. An aspect approached by López-Fernández et al. [28] was the perception of the employee regarding social responsibility. Therefore, not only does the institution have its responsibility, but also the collaborator needs to have a perception of the institutional practices and policies.

2.1.2. Industry 4.0 and Human Resource Management

Service education is present either in knowledge stages, or the stages that are necessary to base this knowledge. New technologies come up all the time in the job market, and new careers are planned to attend to the needs of the market [5]. Human resources should own their careers and lives, aiming to improve its abilities and experiences. Harris [29] approached emerging technologies and the need of reeducation back in the 1980s. Nessler [30] showed three basic categories in relation to virtual technologies: recruiting, onboarding, and training education.

The impact of information technology needs more study, according to Stone et al. [31]. These technologies interfere in daily practices and the work itself, but the interference can be either positive or negative, depending on its use. The insertion of human resources in the fourth industrial revolution brings corporative benefits, apart from the job itself inserting and reinserting the professional in a new context and allowing job maintenance, with resulting economic balance for the country.

Technology is a driver [32] that can promote and impact the future of the jobs and create an innovative movement [33]. Burita and Ondryhal [34] worked with a methodology that contains digital information for the preparation of students. The same authors say that students are still not ready for innovative thinking and work. According to the global and Brazilian data presented in this research study, there is still a lack of data which needs to be filled when it comes to digital insertion. Both schools and the government can look for partnerships to provide computers and internet access through companies that partake in CSR. These opportunities can represent a lever for some countries, especially those with low involvement of youth people, so that they can eliminate gaps and mitigate risks that may come up regarding unemployment.

Whysall et al. [35] showed that the fourth industrial revolution enabled fast technological growth, demanded collaborators to search for adaptation, and quickly developed a new job market. The authors present that the development of new talents should also be considered. For Sivathanu and Pillai [18], emerging technologies are connected with a new generation of employees with aspects relative to talent development. This way, preparing students and future workers to think in an innovative bridge, and their insertion into the job market creates opportunities. These opportunities can be exemplified by digital insertion in schools, the use of teaching methods through disruptive technologies aimed at the creation of innovative thinking, and the insertion of family in the preparation context for the fourth industrial revolution.

2.1.3. The Youth Generation and Human Resource Management

Yadollahzadeh et al. [36] approached the competitive environment of the 21st century and the need of a corporative culture, with defined strategies being chosen. The authors bring the development of the emerging markets, the environmental factors, the high technology, and the development of businesses that aim the success of these topics.

Regarding experience required by the job market, a study by Stankiewicz et al. [37] presented the work of youth people of the third sector, who promoted civic attitude as well as the opportunity to develop abilities and professional experience. Then, the stimulus aimed at having the youth notice that activities of this nature adds value both to the community and youth generation formation; thus becoming a signal of cultural changes. The volunteers' work is an opportunity to include the youth generation in the many areas of the society and in according Stankiewicz et al. [37] citizens work with volunteers in democratic societies. For Bombiak [38], in order to achieve cultural changes regarding sustainable practices, the development of politics for green human resources starts with awareness and the dissemination of knowledge, bringing a positive impact to the corporation [39]. Chaudhary [40] showed the human aspect of environmental sustainability.

Another concern is retaining talent. This theme is discussed in a study developed by Ljupco and Andrijana [39] in the Republic of North Macedonia. The youth generation, specifically Gen Y, was studied in the research of Williams and Turnbull [41] who presented the skills and reflexive knowledge like a path to the sustainable point of development of this generation. Molloy and

Johnson [42] approached the topic of managing attraction and retaining new generations at Nova Scotia municipalities. In a high-quality human resources study, concerns about education, high costs, and the “brain drain” in Africa were the focus of research by Savino et al. [43].

Human resource management needs to look forward and cannot recover the traditional model [44,45]. This current point of view was brought forward in 1982 and remains current in the new millennium. Ray and Singh [46] approached the transition between the baby boomers and Gen Z and the transformation of recruitment, selection, and performance. The many topics that were brought in this subsection allow for understanding the possibilities of the insertion of the youth generation, companies, and the social responsibility of citizens.

2.2. Sustainable Human Resources and Human Resources Management

Sustainability has been widely discussed due to global issues and environmental impact [47–49] and its applicability with the aim of accomplishing the 2030 Agenda of the United Nations. The search for adding value in social responsibility and environmental sustainability should be developed by human resources. Sustainability, applied to human resources, involves the social base of the triple bottom line (environmental, social, and economical). The job process and physical environment can influence the final results. Sadatsafavi and Walewski [50] dealt with the physical environment, discussing behavior and attitude improvement and raising the human potential of healthcare institutions. The creation of a culture to perform sustainable practices can be stimulated by managers, aiming the reflection of the professionals towards their corporative, domestic, and community environments.

There is a relationship between human resources management and sustainability. The organizations can bring their focus for this topic to achieve a sustainable way [51]. Parakandi and Behery [52] highlighted that sustainable practices and politics are more and more present inside industries' routines. The search to create a balanced life culture is also present in industries. These strategies offer productivity and the satisfaction and retention of employees. The perception of employees was reinforced and discussed by López-Fernández et al. [28]. The disruptive tools brought by industry 4.0 may be implemented as a means to educate staff while on duty, to spread sustainable practices, and to insert process control to be done by human resources. The adoption of sustainable practices requires the involvement of all staff, being led by service education, protocols, and control.

3. Materials and Methods

The authors made a literature search from 1 March to 2 September, 2019. The aim created by the use of this strategy was to know the interface presented by the scientific publishing, focusing on the following: human resource and sustainability; human resource and industry 4.0; human resource and corporate social responsibility; and human resource and the youth generation. The acronyms for human resource (HR) and human resource management (HRM) were also added into the search equations. From this view, the authors were able to know the contributions made by other authors and establish an analysis to create a sustainable human resource management framework with focus on youth generation. The focus on youth people was raised by the possibility of new initiatives, which are able to prepare and insert the youth population in today's society. This kind of action promotes changes that allow society to absorb the sustainability concept and insert industry 4.0 day-by-day. This type of cultural change is expected and should be supported by institutions, whatever their nature.

For research purposes, the equations searched were as follows: (Human resource OR Human resources OR HR OR HRM) AND (Disruptive OR Disrupting); (Human resource OR Human resources OR HR OR HRM) AND (Triple Bottom Line OR 3BL OR TBL OR Quadruple Bottom Line OR QBL OR 4BL OR Bottom line OR Reverse OR Waste OR (Economy AND Society) OR (Economic AND Social) OR (Economy AND Environment) OR (Economic AND Environmental)); (Human resource OR Human resources OR HR OR HRM) AND (Smart), (Human resource OR Human resources OR HR OR HRM) AND (Young OR Youth OR Generation OR World Economic Forum); (Human resource OR Human resources OR HR OR HRM) AND (Internet OR Digital OR Virtual OR Virtualization OR

Artificial intelligence OR Big data OR 4.0 OR Machine learning OR Automation); (Human resource OR Human resources OR HR OR HRM) AND (Responsible OR Responsibility OR Responsibilities OR CSR); (Human resource OR Human resources OR HR OR HRM) AND (Technology OR Technologies OR Technological); (Human resource OR Human resources OR HR OR HRM) AND (Sustainability OR Sustainable OR CS OR MDG OR SDG OR Circular economy OR Millennium). The equations aimed to integrate human resources with the concepts involved in CSR, industry 4.0, sustainability, and the youth generation.

The literature review did not aim to restrain the years which papers were published; inclusion criteria included the choice of papers written in English, with the research terms presented as previously mentioned and which are present in the title, and with peer reviewed journals. The research included the following Science Publishers: Academy of Economic Studies (Bucharest, Romania); Allied Business Academies (London, England); Associação Nacional de Pós-Graduação e Pesquisa em Administração—ANPAD (Paraná, Brazil); Institute of Management Accountants, Inc. (New Jersey, United States of America); AOSIS Publishing (Cape Town, South Africa); Bookseller Media Ltd. (London, England); Benthon Open (Sharjah, United Arab Emirates); Bucharest Academy of Economic Studies Publishing House (Bucharest, Romania); Centre of Sociological Research (Szczecin, Poland); Društvo za Regionalne Nauke (Subotica, Serbia); Editura ASE (Bucharest, Romania); Editura Universităţii din Oradea (Bucharest, Romania); EDP Sciences-Web of Conferences (Les Ulis, France); Elsevier (Amsterdam, Netherlands); Emerald (Bingley, England); Electrotechnical and Electronic Engineer Institute - IEEEExplore Digital Library (New Jersey, United States of America); Faculties of Medical Sciences (Belgrade, Serbia); Fundação Cesgranrio (Rio de Janeiro, Brazil); Hong Kong Bao Long Accounting and Secretarial Limited (Hong Kong Island, Hong Kong); Idea Group Publishing (Michigan, United States of America); Internext (São Paulo, Brazil); Institute of Physics—IOP—Publishing (Bristol, England); Iranian Research Institute for Information and Technology (Tehran, Iran); JSTOR (New York, United States of America); Limited Liability Company “Consulting Publishing Company—LLC CPC Business Perspectives (Sumy, Ukraine); MDPI (Basel, Switzerland); Michigan Publishing (Michigan, United States of America); Mona Campus and St. Augustine Campus (Kingston, Jamaica); National Taiwan University (Taipei, Taiwan); Omnia Science (Barcelona, Spain); Ovidius University Press (Constanta, Romania); Oxford University Press—OUP (Oxford, England); SAGE (Newcastle upon Tyne, England); Science Publishing Group (New York, United State of America); Sciendo (Warsaw, Poland); Scientific Journal Publishers Limited (Wuhan, China); Shri Ram Centre for Industrial Relations and Human Resources (Michigan, United States of America); Slovenian Academy of Management (Ljubljana, Slovenia); Singapore Institute of Management (Singapore, Singapore); Springer Nature (Berlin, Germany); Society for Personality Research (Palmerston North, New Zealand); Stefan cel Mare University of Suceava (Suceava, Romania); Taylor and Francis (Abingdon, England); TECSI Laboratório de Tecnologia e Sistemas de Informação—School of Economics, Business and Accounting of the University of Sao Paulo (São Paulo, Brazil); The David Follmer Group (Illinois, United States of America); The London School of Hygiene and Tropical Medicine and Oxford University Press (London, England); The Society of Digital Information and Wireless Communications—SDIWC (United States of America); University of Technology, Sydney – UTS ePress (Haymarket, Australia); Universidad Autónoma del Estado de México, Centro de Investigación y Estudios Avanzados de la Población (Toluca de Lerdo, Mexico); Universitas Gadjah Mada (Yogyakarta, Indonesia); Universitas Indonesia (Jawa Barat, Indonesia); University of Agricultural Sciences and Veterinary Medicine Bucharest (Bucharest, Romania); University of Zagreb, Faculty of organization and informatics (Zagreb, Croatia); Virtus (Sumy, Ukraine); Willey (New Jersey, United States of America); World Scientific Publishing Co. Pte. Ltd. (Singapore, Singapore). In total, 450 papers were found in many combinations of the search terms. Of these 450 papers, the authors identified papers that appeared in two and three search equations. The data is shown in the Results section, where we present the number of papers found, the literature support, and their profiles, for each of the search equations. An outlook is obtained by using the equations research presented, which will be discussed in the Discussion section. The findings allowed

the elaboration of two proposals, enabling the integration between literature findings and the purposes brought by the authors of this research study.

4. Results

The authors of the current research study present the search results of the papers considering the pre-established search equations and create a legend for the search equations in order to present each one. Figure 2 shows the legend.

(Human resource OR Human resources OR HR OR HRM) AND (Disruptive OR Disrupting)	A
(Human resource OR Human resources OR HR OR HRM) AND (Triple Bottom Line OR 3BL OR TBL OR Quadruple Bottom Line OR QBL OR 4BL OR Bottom line OR Reverse OR Waste OR (Economy AND Society) OR (Economic AND Social) OR (Economy AND Environment) OR (Economic AND Environmental))	B
(Human resource OR Human resources OR HR OR HRM) AND (Smart)	C
(Human resource OR Human resources OR HR OR HRM) AND (Young OR Youth OR Generation OR World Economic Forum)	D
(Human resource OR Human resources OR HR OR HRM) AND (Internet OR Digital OR Virtual OR Virtualization OR Artificial intelligence OR Big data OR 4.0 OR Machine learning OR Automation)	E
(Human resource OR Human resources OR HR OR HRM) AND (Responsible OR Responsibility OR Responsibilities OR CSR)	F
(Human resource OR Human resources OR HR OR HRM) AND (Technology OR Technologies OR Technological)	G
(Human resource OR Human resources OR HR OR HRM) AND (Sustainability OR Sustainable OR CS OR MDG OR SDG OR Circular economy OR Millennium)	H

Figure 2. Search equation legend.

Figure 3 shows the eight search equations and the number of papers found. In total, 450 papers were discovered. The results show that the biggest number of papers recovered (144 papers, 32%) were related to the H search equation. The second biggest number of papers found (133 papers, 29.55%) was related to the G search equation. For the F search equation, 86 papers were recovered. These three equations represent 80.67% of the total number of papers. The E, D, C, B, and A search equations brought respectively 54, 18, 8, 5 and 2 papers. In relation to the total number, these four equations represent 19.33%.

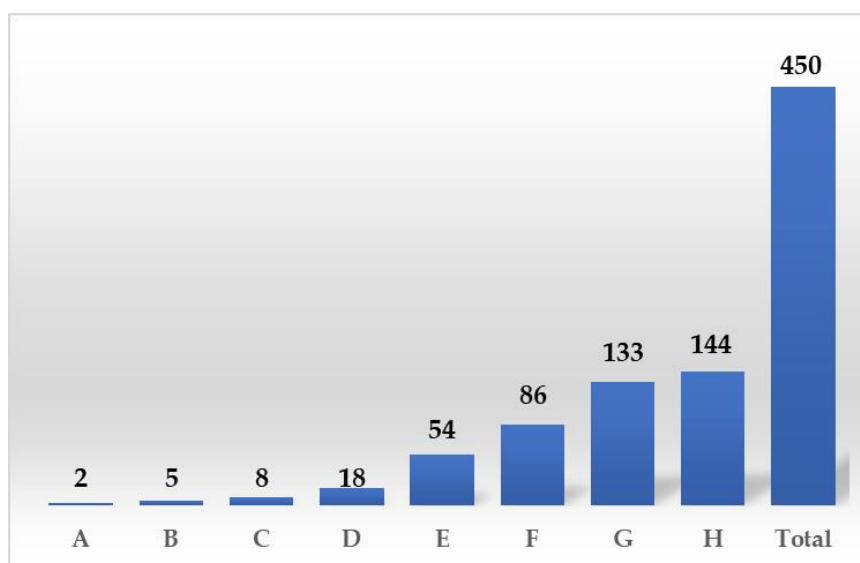


Figure 3. Literature review: number of papers recovered.

Analyzing the H search equation for the term “sustainability”, the approach is checked, especially regarding topics related to ethics, green human resources, hospitality, healthcare, motivation, talent,

tourism, training, young Polish companies, work environment, methodologies from the industry, and holistic look. The studies for specific regions like the Adriatic area, Central Himalayas, Maldives, Sub-Saharan Africa, and countries like Albania, Australia, Barbados, Brazil, China, India, Hong Kong, Japan, Mozambique, Tanzania, Ukraine, and the United Arab Emirates are highlighted. Figure 4 presents the H search equation and the number of papers recovered per year.

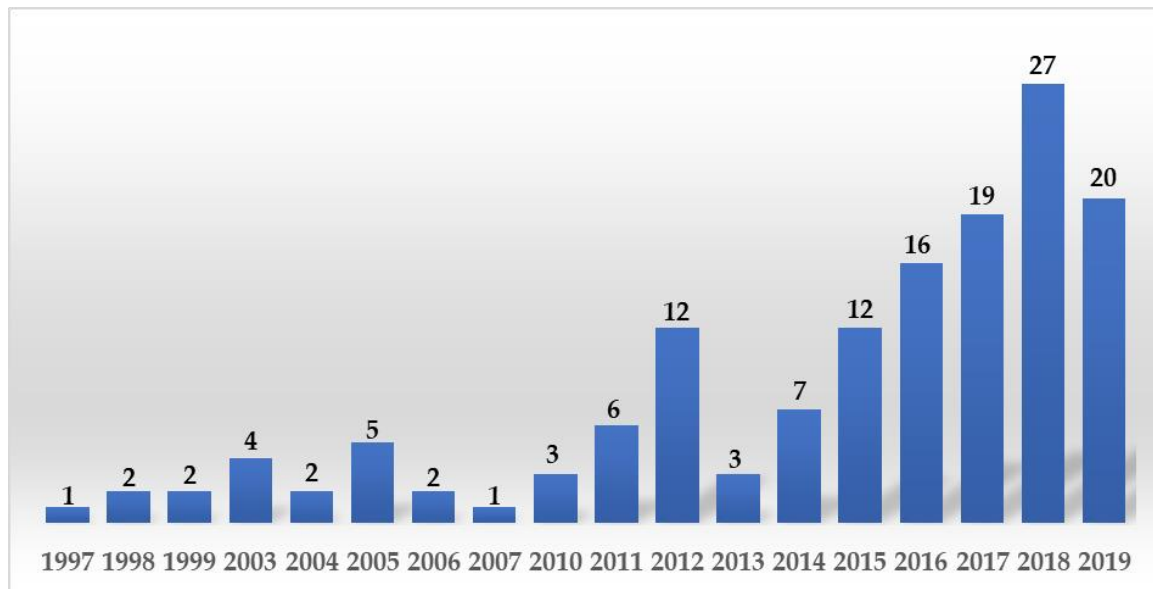


Figure 4. The H search equation: number of papers recovered per year.

The G search equation highlights the digital era, educational sector, healthcare organization, hospitality, information communication and technology (ICT), mobile communication technology, and value creation. Many countries and regions were approached in the studies involving this equation: Africa, Asia, Belarus, Bangladesh, Canada, China, Croatia, India, Korea, Malaysia, The Netherlands, Great Britain, Palestine, Sri Lanka, Thailand, Spain, Hungary, Turkey, and Yugoslavia. Figure 5 presents the G search equation and the number of papers recovered per year.

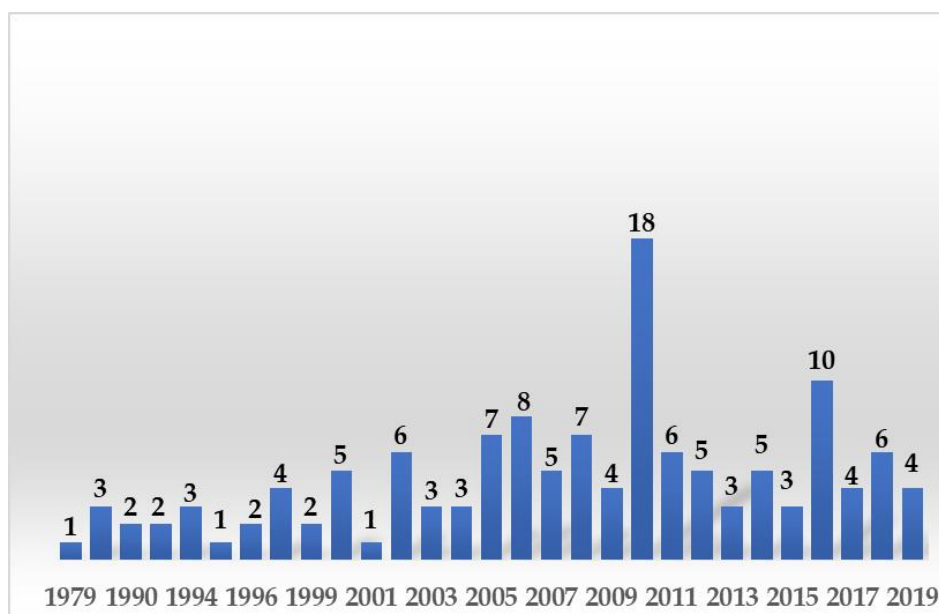


Figure 5. The G search equation: number of papers recovered per year.

The F search equation brings the themes that involve citizenship behavior, gender, health, intellectual capital, job satisfaction, social responsibility, tourism, and hospitality. Some countries targeted in the studies include Colombia, India, Poland, and Spain. Among the regions are Europe and the European Union, Ibero-America, and Western Romania. Figure 6 presents the F search equation and the number of papers recovered per year.

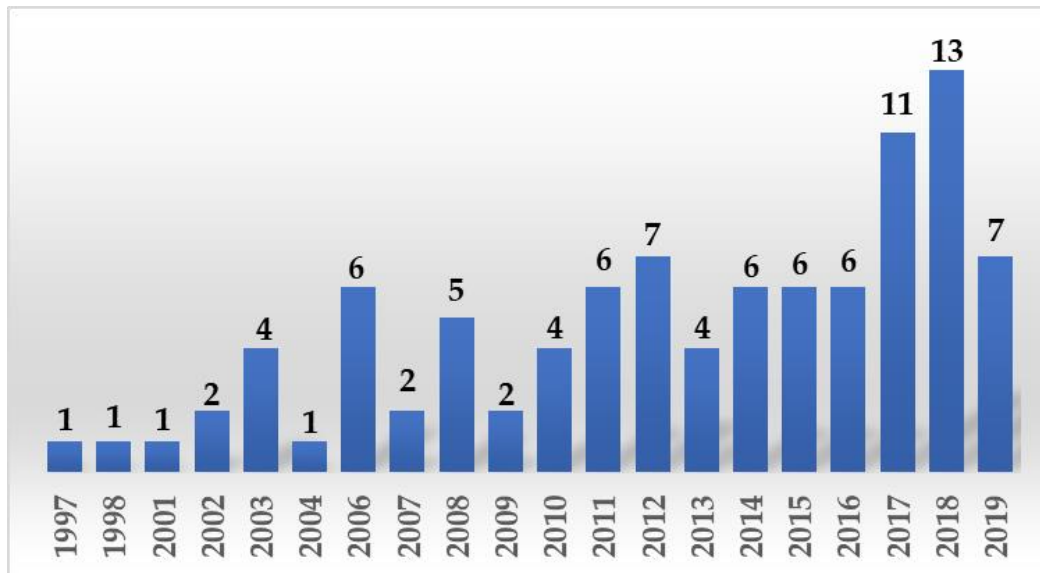


Figure 6. The F search equation: number of papers recovered per year.

Using the E search equation, the authors recovered papers related to the fourth industrial revolution. These papers approach topics like global virtual teams, virtual leadership, digital age, organizational innovation, information technology, digital transformation, and digital engagement. Figure 7 presents the E search equation and the number of papers recovered per year.

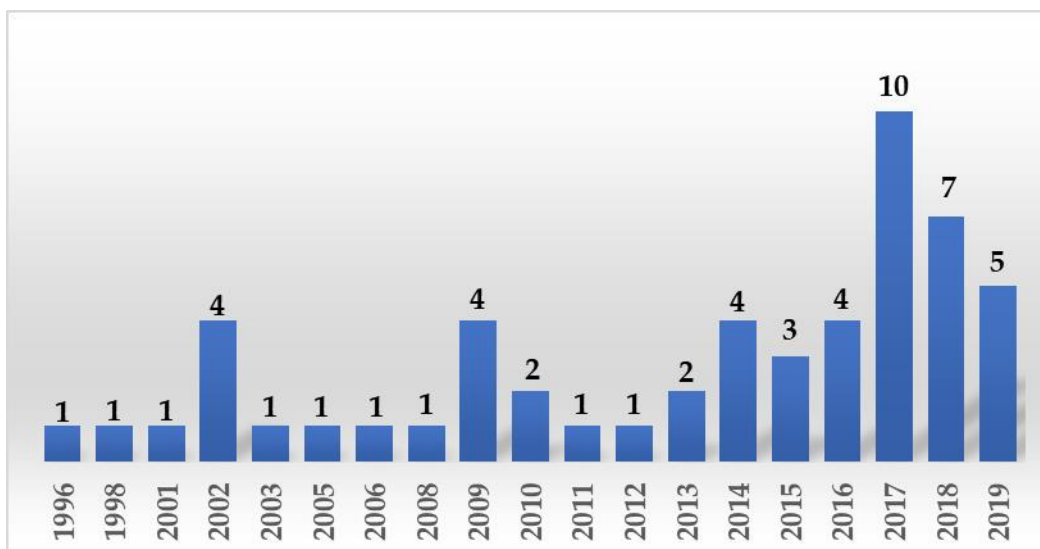


Figure 7. The E search equation: number of papers recovered per year.

For the D search equation, the authors found papers with the following topics including, Gen Z, Gen Y, hospital nursing, health research, green human resource management, the third sector, and

young Polish companies. The countries and the regions were China, Nova Scotia, and the Western Azerbaijan Province. Figure 8 presents the D search equations and the number of papers recovered.

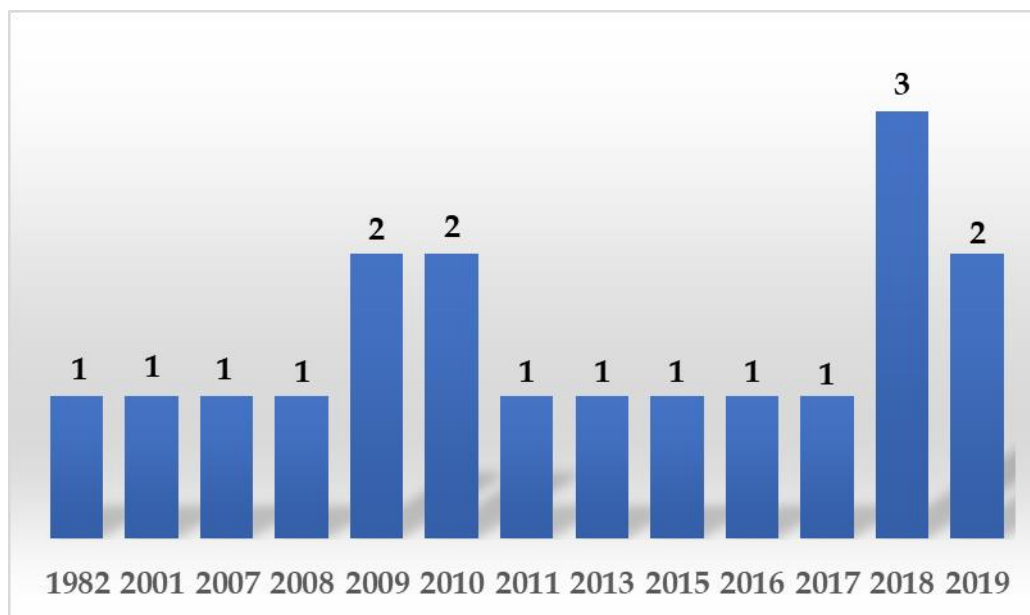


Figure 8. The D search equation: number of papers recovered per year.

The C, B, and A search equations present eight, five, and two papers. The C search equation shows innovation, information communication and technology, HR 4.0, HRM 4.0, and industry 4.0. The B search equation presented the triple bottom line, waste collection system and health impact, workaholism and productivity, waste, and work of employees. Finally, the A search equation represented by (Human resource OR Human resources OR HR OR HRM) AND (Disruptive OR Disrupting) brought papers connected among disrupting HR, disrupting technology, smart HR 4.0, and industry 4.0. Figures 9–11 show the search equations C, B, and A and the number of papers recovered per year.

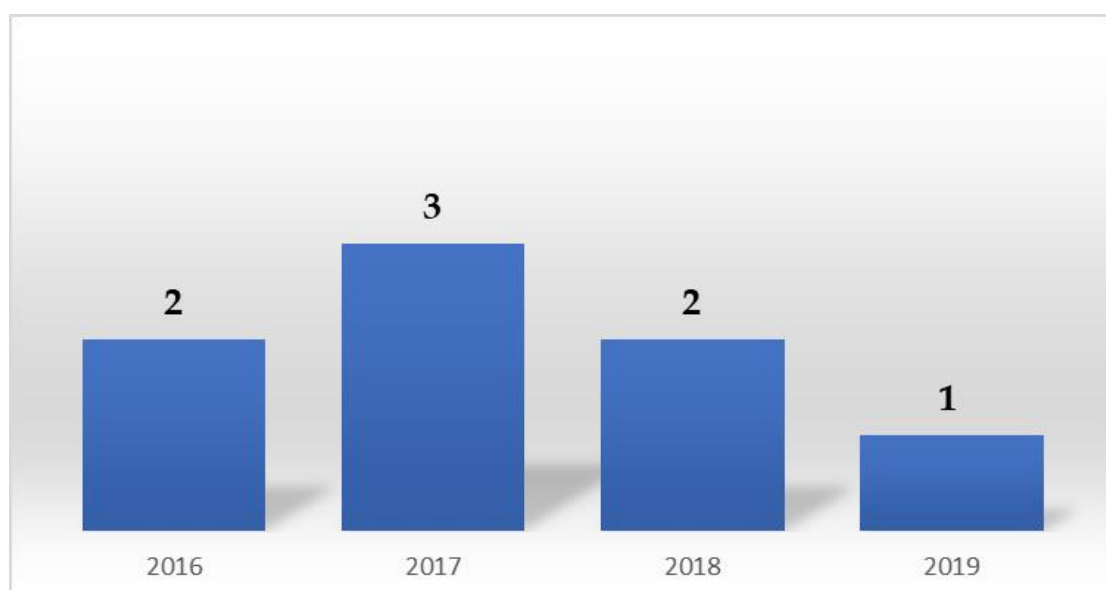


Figure 9. The C search equation: number of papers found per year.

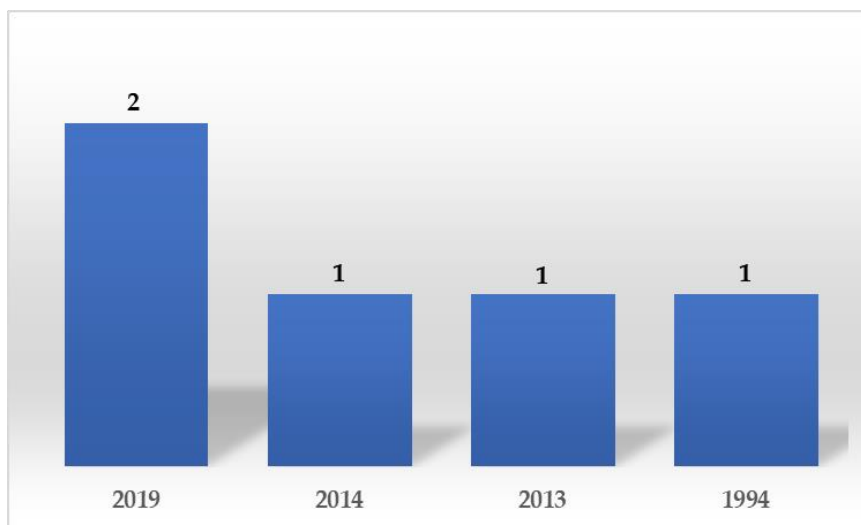


Figure 10. The B search equation: number of papers found per year.

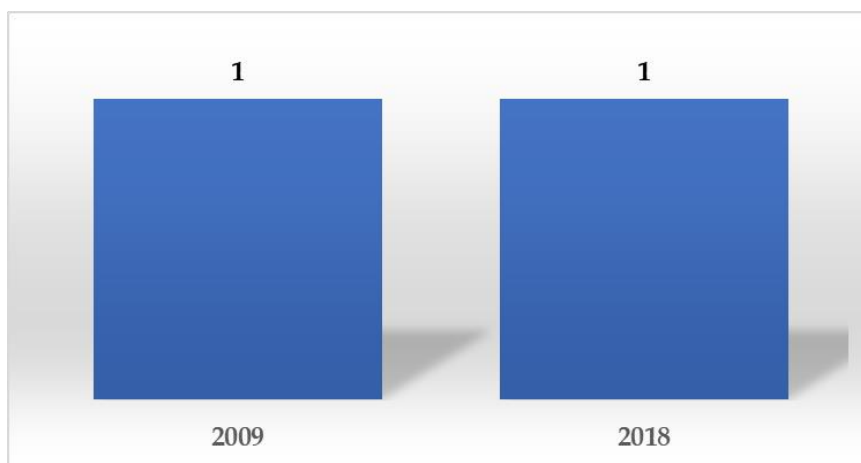


Figure 11. The A search equation: number of papers recovered per year.

The number of papers found about sustainability establishes a relation between the 2030 Agenda Goals and the growth absorption of disruptive technologies brought by the fourth industrial revolution. This presence is observed in the work environment and daily in society, becoming a healthy practice to share knowledge and search for new findings in future research. The connection with the eighth Sustainable Development Goal—“decent work and economic growth”—can be established and leads to the Discussion section, which is divided into two subsections.

The number of the papers published in 2019 in comparison to 2018 can be analyzed like a tendency for increasing the publications. An example is the G search equation that represents the topic of sustainability. The number of papers recovered in 2019 was 20, in comparison to the number of papers recovered in 2018 (27 papers). Fourteen papers attend two search equations and three papers attend three search equations. They were considered in the final account of this research paper. The authors who appear the most in the 450 papers recovered were Asta Savaneviciene, Charbel José Chiappetta Jabbour, Tanya Bondarouk, and Jie Shen (three papers); Jesus Barrena-Martinez and Marco Guerci (four papers); Sugumar Mariappanadar (five papers); and Macarena Lopez-Fernandez and Pedro M. Romero-Fernandez (six papers). The five countries represented the most include the United States of America with 163 authors (21.59%), England with 55 (7.28%), Australia with 54 (7.15%), Spain with 52 (6.89%), and China with 36 (4.77%). Figure 12 presents the papers in the ResearchGate with 100 or more citations (in total 18 papers).

#	Authors	Title	Year	Country	Topics/Keywords	University	Periodic
1.	Daily, B.F.; Huang, S.	Achieving sustainability through attention to human resource factors in environmental management	2001	USA	Environment; Sustainable development; Human resource management; international standards	New Mexico State University, Las Cruces, New Mexico	International Journal of Operations & Production Management
2.	Boudreau, J.W.; Ramstad, P.M.	Talentship, talent segmentation, and sustainability: A new HR decision science paradigm for a new strategy definition	2005	USA	Not presented	University of Southern California, Los Angeles	Human Resource management
3.	Paie, G.; Tremblay, M.	The influence of high-involvement human resources practices, procedural justice, organizational commitment, and citizenship behaviors on information technology professionals' turnover intentions	2007	Canada	Human resource practices, Organizational commitment, Organizational citizenship behaviors, Information technology specialists	HEC Montreal - École des Hautes Études	Group & Organization Management
4.	Jabbour, C.J.C.; Santos, F.C.A.	The central role of human resource management in the search for sustainable organizations	2008	Brazil	Cultural diversity; Environmental management; Human resource management; Innovation; Sustainable development; Sustainable organizations	University of São Paulo (USP)	The International Journal of Human Resource Management
5.	Larsen, H.H.; Brewster, C.	Line management responsibility for HRM: what is happening in Europe?	2003	Denmark and England	Line management; Human resource management; Europe	Copenhagen Business School, Frederiksberg, Denmark; London South Bank University	Employee Relations
6.	Whittaker, S.; Marchington, M.	Devolving HR responsibility to the line: Threat, opportunity or partnership?	2003	England	Line management; Partnerships; Human resource management; Responsibility; Strategy	People and Organisational Development Department, Carat Ltd, London, UK; Manchester School of Management, UMST, Manchester	Employee Relations
7.	Hendrickson, A.R.	Human resource information systems: Backbone technology of contemporary human resources	2003	USA	Large Firm; Enterprise Resource Planning; Enterprise Resource Planning System; Human Resource Practice; Client Firm	Iowa State University Ames	Journal of Labor Research
8.	Bondarouk, T.; Ruël, H.J.M.	Electronic Human Resource Management: challenges in the digital era	2009	The Netherlands	Not presented	University of Twente, Enschede	The International Journal of Human Resource Management
9.	Kramara, R.	Beyond strategic human resource management: Is sustainable human resource management the next approach?	2013	Australia	Approaches to HRM; Links between sustainability and HRM; Organisational performance; Strategic human resource management; Sustainable HRM	Australian Catholic University, Sydney	The International Journal of Human Resource Management
10.	Glover, W.J.; Farris, J.A.; Van Aken, E.M.; Doelen, T.L.	Critical success factors for the sustainability of Kaizen event human resource outcomes: An empirical study	2011	USA	Lean production; Teams; Performance improvement sustainability; Quality management; Manufacturing companies	Massachusetts Institute of Technology, Cambridge; Texas Tech University, Lubbock, TX; Virginia Polytechnic Institute and State University, Blacksburg, VA; School of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University, Corvallis	International Journal of Production Economics
11.	Morgenson, F.P.; Aguinis, H.; Waldman, D.A.; Siegel, D.S.	Extending Corporate Social Responsibility Research to the Human Resource Management and Organizational Behavior Domains: A Look to the Future	2013	USA	Not presented	Michigan State University; George Washington University; Arizona State University	Personnel Psychology
12.	Dreesch, N.; Dolea, C.; Dal Poz, M.R.; Goubarev, A.; Adams, O.; Aregawi, M.; Bergstrom, K.; Fogstad, H.; Sheratt, D.; Linkins, J.; Scheepster, R.; Youssef-Fox, M.	An approach to estimating human resource requirements to achieve the Millennium Development Goals	2005	Switzerland	Health planning, Human resources for health, Health interventions, Tuberculosis, Maternal health, Child health, Malaria, HIV/AIDS	Human Resources for Health, Cluster of Evidence and Information for Policy, World Health Organization, Switzerland; Rio de Janeiro State University	Personnel Psychology
13.	Ferwick, T.; Biemans, L.	Corporate social responsibility: Issues for human resource development professionals	2008	Scotland and USA	Societal HRD, Sustainability, Corporate social responsibility	University of Stirling; University of Georgia	International Journal of Training and Development
14.	Ganawan, T.N.; Meguire, D.	Human Resource Development and Society: Human Resource Development's Role in Embedding Corporate Social Responsibility, Sustainability, and Ethics in Organizations	2010	Ireland and Scotland	Not presented	University of Limerick, Limerick, Ireland; Queen Margaret University, Edinburgh	Advances in Developing Human Resources
15.	Gartner, S.D.; Lepak, D.P.	Virtual HR: The Impact of Information Technology on the Human Resource Professional	2003	USA	Information technology; Job roles; Human resource	The College of New Jersey; Rutgers University, Levitt Building; The University of Maryland	Journal of Vocational Behavior
16.	Stone, D.L.; Deadrick, D.L.; Lukaszewski, K.M.; Johnson, R.D.	The Influence of Technology on the Future of Human Resource Management	2015	USA	Human resource management; Technology; HRIS; eHRM; e-recruiting; e-selection; e-learning; e-compensation	University of New Mexico; Old Dominion University; Wright State University; University at Albany, The State Unvers	Human Resource Management Review
17.	Preuss, L.; Haunschild, A.; Matten, D.	The rise of CSR: Implications for HRM and employee representation	2009	USA, Germany, and Canada	Corporate social responsibility; Europe; Human resource management; Labour representation	University of London, UK; University of Trier, Germany; York University, Toronto	Sustainability
18.	Shen, J.; Benson, J.	When CSR Is a Social Norm: How Socially Responsible Human Resource Management Affects Employee Work Behavior	2014	Australia	Corporate social responsibility; Employee work behavior; Organizational identification; Socially responsible human resource management	University of South Australia	Journal of Management

Figure 12. The papers in ResearchGate with 100 or more citations.

5. Discussion

The section shows two proposals that were developed through the literature review. The topics of hospitality [53–55], information technology [35,56,57], and health [35,50,58] were highlighted in at least three of the major search equations. The digital era and the 21st century have been the subject of studies as well as educational programs involving the information technology field. From this perspective, the authors have established two proposals: “the role of the institution in promoting education programs for youth generation” and “the role of the institution in improving the presence of the youth generations within the job market.” They are ways to help achieve sustainable practices and disruptive technology use for the insertion of youth citizens into the job market.

5.1. The First Proposal—The Role of the Institution in Promoting Educational Programs for the Youth Generation

Apart from providing sustainable business practice, the role of institutions is to bring about actions related to CSR. Rosolen and MacLennan [59] discussed the positive impact between sustainable human resource and CSR. The authors also reinforce human resource department for creating behaviors and an ethics culture. For Lopez-Cabrales and Valle-Cabrera, human resources practices can have sustainable structure, considering the triple bottom line [60]. One of the challenges presented by the public during the research made by the World Economic Forum [11] is related to access to first job experience. Companies usually seek experienced employees, but how does any citizen acquire experience without being given an opportunity first? This binomial first job and experience goes through the uncertainty of a future foundation. If the data show that the world is going to increase in the number of elderly people [61] and whether there are not any actions implemented in order to change this situation, in the future, the elderly population will not have quality of life. By quality of life we refer to health conditions, basic care, basic sanitation, and education.

Human resource professionals must be prepared to receive Gen Z into the job market. Part of this preparation aims to culturally involve the many generations present and implement policies aiming at the future job market [62]. Taking youth people away from criminality leads to a cultural change and a new society. This change creates an educational reverse movement and it can be implemented through CSR practices. What the authors call reverse movement is every action that goes from kids to parents, aiming a cultural change that transforms society.

The companies of many segments can create intern volunteer programs involving their own employees. These programs, while implemented in poor communities, can contribute to the youth generation and improvement of their knowledge. For example, the authors of the present research study bring three segments: information technology companies [63,64], healthcare companies [65,66], and hospitality companies [67,68]. From the structuring of an educational program, the partnerships made with communities bring the youth into a whole new universe, making them eager to partake in new activities and allowing new work and study opportunities.

The choice of these segments was established based on the following criteria: the authors of this research study analyzed the 1,674 keywords from the papers recovered and found seven sectors (in the sequence from the most frequent and the last frequent): information technology, health, tourism and hospitality, artisanal fisheries, banking, automobile industry, and textile industry. Among these sectors, three sectors appeared most frequently in the papers and were integrated into this discussion: information technology (23 times), health (15 times), and tourism and hospitality (12 times). The companies of information technology count on professionals who can help insert youth people into the digital world. These professionals hold technical knowledge in different levels, from basic to complex problem solving in the information technology area. Healthcare institutions, one of the attention areas of the authors, can combine education for health and its relationship with sicknesses and prevention. The absorption of the youth generation in the administration areas, for example, is another point. The hospitality sector can present the youth generation with the opportunities in administration, front desk, and hotel governance. Recreational tourism and hospital tourism have been highlighted worldwide lately.

Educational programs of information technology companies can bring the youth generation to the corporative environment and allow them to access study laboratories where they can apply technology concepts of the digital world and the fourth industrial revolution. These activities also allow the fourth industrial revolution to take more and more space in the countries that still need to strengthen these concepts. Healthcare institutions can establish opportunities for partnerships with technical schools for the insertion of these youth people in the job market.

Information technology companies can work with the implementation of the computer laboratory in communities close to the institutions which insert the youth in the digital world. Some purposes, like the offer of basic computer skills courses, allow youth people to be better inserted in the job market, since professionals should have minimum previous knowledge of handling disruptive tools nowadays. Healthcare companies can offer courses aimed at those youth people who search for jobs in nutrition and stock control who may have initial contact with the job. The aim can be graduation to the university level, in area like nutrition and administration. Hospitality companies can organize the learning process for room service, restaurant service, and front desk attendance. These are some of the points that can be inserted by the hospitality companies, so that the youth generation may have the option to be inserted in the job market.

Celma et al. [69] indicated that the service sector emerged and offered more responsibility to human resources. These services include education, health, retail, transport, and hospitality. These proposals can be developed by partner companies or singly with local communities. They enable not only the insertion of these youth people, but the stimulus to study, enhancement, and search for work.

5.2. The Second Proposal—The Role of the Institution in Improving the Presence of the Youth Generations within the Job Market

The job market demands more and more effort so that the youth generation and people of different ages are prepared for the transformation brought by the fourth industrial revolution [70], like the insertion of disruptive technologies [71]. Raising educational level is maybe the greatest challenge for a country with continental dimensions. In addition, in some countries, there are huge crises in the sectors like environmental, social, ethical, political, and economical. Garavan and McGuire [72] presented in their study an approach with CSR, sustainability, and ethics.

During crisis periods, many times it is possible to observe corporative competitiveness situations, in which companies need to show their differences in the market by gathering value to their own business [73]. CSR brings a variety of contributions to institutions, and specifically, as shown in this paper, it creates a two-way road in which companies and youth generation are involved in the practice of the model proposed for cultural change. Barman and Das [74] referred to disruptive technologies and how the change of business models created a path to search for innovation and technologic investments. Liboni et al. [75] showed changes in the relationship between people and how they develop their relationship with business, models, technologies, and innovations. These relations highlight the importance of human resources management with industry 4.0. The authors still focus on cultural changes regarding people, the man/machine relationship and its connection with technological aspects, and the relationship between people and organizations.

The institution then promotes educational programs with the youth generation [76], which is the second proposal presented for the insertion of them in the job market. The idea is to recognize those youth people who highlighted their abilities and showed dedication during the process. This dedication is directly related to the assessments and attendance during the course. The use of this youth generation labor may determine the job field and its absorption at companies. The program is not exclusive and it should offer opportunities to all members included, with recognition of virtue as a stimulus to those who thrive in their positions.

For those who did not reach the results expected, it is possible to offer psychological support as a tool. The purpose is always to try to understand, to help, and to insert these youth people into the job market and society. In Brazil, programs like “Young Apprentice Program” [76] allow many

possibilities in different job markets, by the insertion of the youth people and the stimulus to search for new opportunities. Ensuring that the youth generation has an opportunity after the end of the course is a way to break the vicious circle of the chain “no experience-no job.” The first experience may be acquired by means of the first job or internship programs offered by the companies at the end of the course. Carvalho et al. [77] showed the importance among human, organizational, and technological aspects. The authors reinforce these elements as essential for the production process. In this case it is possible to establish the relation with this subsection.

5.3. Sustainable Human Resource Management Framework with Focus on the Youth Generation

The conceptual proposal aims to attend the needs of the world’s youth population, as highlighted by the World Economic Forum in 2019 [11]. The search for a spot in the job market goes through subjects discussed internationally, like education, experience, and job opportunities. So, the authors aimed to structure a sustainable human resource management framework, focusing on the youth population.

The proposal presented that the youth generation should be taken as the focus of the subject and first positioned in this conceptual proposal. These youth people are involved in actions created in the Discussion section: “the role of the institution in promoting education programs for youth generation” and “the role of the institution in improving the presence of the youth generations within the job market.” These proposals reflect the creation of educational programs and the insertion of the youth population in the job market. This is the reason why the industry 4.0, the corporate social responsibility, and the sustainability are positioned right above the youth people. These concepts, inserted in the conceptual framework all the time, will facilitate the implementation of both of the actions proposed.

The social responsibility, either regarding corporative public and private sector, gathers efforts of many natures with a holistic view for the future of the youth in the job market and consequent future of nations, once it is implemented. Creating national programs that push educational and social practices allows the youth population to follow more stable paths in the future.

6. Conclusions

The implementation of sustainable practices and technologies brought by the fourth industrial revolution is globally highlighted [13]. The attention for the use of these concepts is important, bringing the possibility to absorb a workforce of youth people in the job market. In order to do so, the CSR concept integrates with this conceptual triple established by the authors of the current research study. The UN on their eighth SDG, call for the context analysis to be applied to the youth population [13] and The World Forum [11] also refers to this theme.

This context aims to present a sustainable human resource management framework, focusing on the youth generation, from the research questions: Can the institutions contribute with the insertion of the youth people in the society through CSR? How can the institutional management of youth sustainable human resources promote a partnership with local communities? How can institutions promote industry 4.0 educational practices for youth people, creating a partnership with local communities? After the literature review, in order to answer the research questions, two proposals were presented: “the role of the institution in promoting education programs for youth generation” and “the role of the institution in improving the presence of the youth generations within the job market.”

The presence of CSR is highlighted as a facilitator for the implementation of sustainability and industry 4.0 concepts. In order to do so, institutions may plan and promote educational projects for the youth population through volunteer work of their own employees. The authors bring information technology, health, and tourism and hospitality institutions to the Discussion section, because these sectors were frequently found in the keywords. These projects bring the possibility of the youth generation to acquire and improve their knowledge and skills, as well as to arouse curiosity for new opportunities in the job market. Initiatives related to projects aiming the insertion of the youth generation in the job market may be attached to partnerships with public and private educational institutions. The donation of computers allows accessibility to information, research, and the integration

of the youth population with technology. This integration raises knowledge and aspirations, making a cultural change possible. These outlooks can help to allow for sustainable development goal #8 as proposed by the 2030 UN Agenda.

The companies should work on their territorial domains, as well as out of them, preparing and mobilizing their staff and taking theoretical and practical education for the youth citizens of the communities in their neighborhood. This action impacts the triple bottom line, strengthening the country for the future. In this way, the institutions can promote sustainable human resources by CSR practice [19]. This contribution presented by CSR helps for the insertion of youth people into society and reinforces the brand of institution through CSR. Rosolen and MacLennan [59] showed that CSR practices are increasing and have impact on strategic and operational levels. For this, the authors present human resource as the essential factor.

The limitation of this research study can be the use of only papers in English. Thus, future research studies can develop by considering papers in other languages and sources like books and magazines. This limitation does not affect the scope of the paper but can be a stimulus to new research studies. The authors stimulate new studies, including new proposals that work or which include other educational purposes, involving the youth population. These studies can be shared, since CSR actions create a wave of positive impact on changes for the current generation and the next ones.

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