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Megatrends and Disruptors and Their Postulated Impact on Organizations

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Abstract: The coming decades are expected to be extremely challenging for organizations. On the one hand, there are the United Nations Sustainable Development goals to end poverty, protect the planet and improve the lives and prospects of everyone. On the other hand, organizations are expected to have to deal with an increasing number of megatrends and disruptors, many of which are already having an impact. To help organizations in their priority setting and decision-making so they can contribute to the development goals (specifically Goal 8: decent work and economic growth), a descriptive literature review was undertaken to identify which megatrends and disruptors will impact the future of organizations and in what ways they are expected do this. From the literature, thirteen megatrends and one disruptor emerged, and for each of these their postulated impact and consequences for organizations as described in the literature were gathered. The study reveals that there is ample attention given to megatrends in the academic literature but that not much can be found about dealing with disruptors. As a consequence, academic literature currently falls short in suggesting ways in which organizations can deal with disruptors. Managerial literature offers more suggestions in this respect.

Keywords: future of work; megatrends; disruptors; organizational performance; future-readiness

1. Introduction

This decade is expected to be extremely challenging for organizations. On the one hand, there are the United Nations (UN) Sustainable Development Goals [1], a universal call to action both to the general population and the business world; to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. For this, an ambitious agenda of actions has been agreed which must be achieved by 2030. At the core of the 2020–2030 agenda is the need to tackle growing inequalities, empower women and girls, and address the climate emergency [2]. A specific call is made to the business community to contribute to achieving this agenda. On the other hand, organizations are expected to have to deal with an increasing number of megatrends and disruptors, many of which already have an impact. These megatrends, such as rapid technological progress, demographic changes and the rise of the platform economy, and disruptors, in particular the recent Coronavirus epidemic, are triggering potentially exponential changes in the way organizations are going to function [3,4].

Our research question, therefore, is: *How can high performance organizations (HPOs) address megatrends and disruptors in such a way that they can secure sustainable performance and at the same time work on the UN sustainable development goals?*

One would assume that an HPO, defined as "an organization that achieves financial and non-financial results that are exceedingly better than those of its peer group over a period of five years or more by focusing in a disciplined way on that what really matters to the organization" [5], p5, is ideally positioned to deal adequately with megatrends and disruptions. After all, in general these megatrends and disruptions are difficult to manage for organizations as they often require modified or

even completely new business models and ways of working, which is difficult for many organizations to achieve, especially on short notice [6]. In contrast, HPOs are known to be well able to cope with changing circumstances because of their flexibility and adaptability and can thereby be assumed to be able to better deal with these megatrends and disruptions [7]. However, there is an issue with this assumption. The HPO literature indicates that the above is especially true for short-term challenges, as this type of organization is very agile and can adapt quickly to problems and opportunities that pop up either internally or in the external environment. This adaptability is not necessarily suited for changes that (often gradually) take place over a longer period of time (the megatrends) or for short-term sharp changes with high impact (the disruptors). In addition, most of the literature on HPOs is backward looking, i.e., it mainly looks at what organizations have done (past tense) to deal with current changing circumstances to become high-performing. It barely addresses how these organizations can, or have to, deal with longer-term changing circumstances, specifically with megatrends and disruptors [6].

To address this gap in the literature and help HPOs to better prepare for future developments, we decided to start a study with the goal of identifying how HPOs should adapt to megatrends and disruptors in such a way that they will remain high-performing and as such contribute towards achieving the UN sustainable goals. Our research will take place in two phases. In the first phase, we review the literature to identify the megatrends and disruptors which are already appearing or are expected to perhaps appear, and to identify what the current literature tells us about what effects these megatrends and disruptors will have on organization structures, processes and behaviors.

Our sub-research question is therefore: *What are the megatrends and disruptors that can be found in the literature for which HPOs have to prepare themselves?*

In this article, we provide the answer to this sub-research question. The results of the first phase will set the stage for the next phase in which we will match the identified megatrends and disruptors with the characteristics of HPOs, to evaluate their effects on this type of organization and to propose courses of action so they can stay high performing. The results of phase two will be described in a subsequent paper [8], in which we will be able to give an answer to our original research question.

Our study will add to the academic debate on the future management of organizations, and specifically HPOs, by providing a starting point for a research agenda on the implications of megatrends and disruptors on the operation of organizations. From a practical point of view our study will help prepare leaders of organizations, and specifically of HPOs, in their decision-making and prioritization of efforts to deal with the (near and longer-term) future. This way, they will be able to achieve 'organizational sustainability' [9], defined as the result of the activities of an organization, voluntary or governed by law, that demonstrate the ability of the organization to maintain its business operations viably (including financial viability as appropriate) whilst not negatively impacting social or ecological systems [10].

The remainder of this article is structured as follows. In the next section the set-up and results of our literature review are presented. This is followed by an analysis of these results. The article ends with a conclusion, research limitations and opportunities for future research.

2. Literature Review

In this section, our approach to the literature review, a discussion on the difference between megatrends and disruptors, and a quantitative presentation of the literature review are laid out.

2.1. Review Approach

Our research is based on a descriptive review as it focuses on trying to discern an interpretable pattern from the extant literature [11]. This type of review covers many studies, which are directly or indirectly related to our topic, and summarizes information about the results obtained by the researchers [12–14]. It then applies some form of quantification, often in the form of frequency analysis as in our case, the frequency disruptors are mentioned in the literature. To this end, the descriptive method uses a systematic procedure including searching, filtering, and classifying processes so trends

and patterns among the papers surveyed can be detected [15]. We used the content analysis technique, in the form of the Sort, Label, Integrate, Prioritize technique (SLIP) [16] to process the collected articles as this is a good method to analyze academic and managerial texts and articles, and to sort results found or elaborated on by other authors [17]. The outcome of the descriptive review aims to be representative of the current state of a research domain [18,19]. Descriptive reviews do not aim to contribute to theory-making as their goal is to map and classify prior research findings [20].

2.2. Review Results

The descriptive literature review started with a review of the academic literature on megatrends and disruptors, which researchers predicted will potentially become bothersome for organizations in the (near) future. For this, a search of the various academic databases (EBSCO, Emerald, Google Scholar) was performed, using the keywords 'Megatrends', 'Disruptors', 'Future of Work' and '4th Industrial Revolution'. To focus on the latest insights, making sure that the findings in these studies are relevant, we narrowed the scope of our search to the previous decade (2010–2019). We did not only look at the academic literature as it was rather scarce on the topic of megatrends and especially disruptors [21], but also the professional literature was examined, using the same keywords, as the future of work and megatrends are prominent topics in descriptive studies conducted by consultants and professional associations [22]. The chosen keywords delivered many results from which we took a sample of 250 articles, books and papers which seemed most promising judging by their synopses. Duplications were eliminated, where duplication can be described as searches with different keywords delivering the same article or when an article of almost the same content (by the same authors) was found multiple times in different journals. Our final sample contained 162 relevant articles (The complete literature overview can be requested from the authors). These articles were searched for the following elements: whether the article qualified as primary or secondary literature (Literature was marked as primary when it was based on practical research (such as a survey or interviews); and secondary if it consisted of the opinion of the authors of the particular article); what the scope of the article was in terms of industry, geography, and scientific discipline; whether the article had a monodisciplinary, multidisciplinary or holistic view of the topic (If a source was addressing the future from one perspective or only focused on one megatrend/disruptor, it was marked as monodisciplinary. A source was marked as multidisciplinary if more than one discipline was involved, for example if the future was discussed from a legal as well as an HR point of view and/or when it discussed multiple megatrends/disruptors. Literature was marked as holistic when it addressed many megatrends/disruptors, discussing them from multiple angles and or disciplines.), which megatrends or disruptors are given in the article; and what the (potential) impact of the megatrend or disruptor is on the future of work and organizations. If an article stated more than one megatrend or disruptor, all of them were noted down. We then grouped the megatrends and disruptors in categories of similarity (for example 'climate change' and 'global warming' were clustered in the category 'environmental issues'; 'millennials/generation Z', 'crowded planet' and 'demographic/aging' formed the category 'changing workforce composition') and counted the number of times the megatrends and/or disruptors in each category were mentioned in the selected articles. To express the relative significance of the megatrends and disruptors in the literature review, the following weights were assigned to the type of sources in which they were found: academic/primary source 6 points, managerial/primary source 4 points, academic/secondary source 2 points; and managerial/secondary source 1 point. The relative weight was then calculated by adding the number of times a disruptor was mentioned in a certain type of source and then dividing it by the total number of points possible (If a megatrend or disruptor would appear in all literature sources, it would get the maximum amount of points which is calculated by adding the points per source type and then adding the resulting totals to a grand total) and converting the result in a percentage. Appendix A provides an overview of the review results.

2.3. Difference between Megatrends and Disruptors

The literature makes a distinction between changes (often gradual) that take place over a longer period of time, i.e., the megatrends; and short-term, seemingly unexpected sharp changes with high impact, i.e., the disruptors. This distinction will most likely result in differences in how HPOs have to deal with each of these. To get a better feel for the two types of occurrences, a description of them is given here.

2.3.1. Megatrends

Megatrends are larger in magnitude, longer in duration, and deeper in their effects than normal trends, fads or fashions [23]. Naisbitt [24] was the first to introduce the term 'megatrends' which he defined as socio-economic or structural processes that are slowly forming, but once they occur, influence all areas of life for some time. A few years later, he expanded the definition to 'large social, economic, political, and technological changes that are slow to form, and once in place, they have an influence for some time, between seven or ten years, or longer' [25]. In subsequent years, various definitions were put forward in the literature. Many are a variation of that of Naisbitt [26,27] with the emphasis on the impact of a megatrend being extensive and global, in all areas of life and society and over a longer period of time. Regarding the latter there is some difference of opinion, with Naisbitt and Aburdene [25] stating a horizon of ten to fifteen years, Utikal and Wothe [28] speaking of a period of 20 years, Galinska [29] advocating a period of 50 years, while both von Groddeck and Schwarz [30] and Vielmetter and Sell [31] warn that megatrends can also consist of and create short-term phenomena. Several definitions add specific aspects to the original definition of Naisbitt. For instance, various definitions touch on the aspect of certainty when defining a megatrend, in the sense that a megatrend is a rather certain phenomenon, that slowly evolves but certainly will eventually lead to big changes [32–34]. Other definitions stress that a megatrend is not a single large event but rather a series of events, a trajectory of changes or interconnected trends [21,33–35] which are complex combinations of factors [23,30] and which increase complexity within and between economic, social, political, technological and environmental systems [27].

2.3.2. Disruptors

In the academic literature, barely any definitions can be found of disruptors. The Cambridge Dictionary [36] provides some relief by describing a disruptor as 'someone or something that prevents something, especially a system, process or event, from continuing as usual or as expected.' The only other source we were able to find was the National Intelligence Council [34] which states that disruptors (sometimes called 'gamechangers' or 'black swans') are, just as megatrends are, transformational but that their occurrence and impact—where, when and magnitude of effect—is uncertain and therefore difficult to plan for. The study provides potential black swans that would cause the greatest disruptive impact. A salient detail may be mentioned: a severe pandemic is listed as the top threat and greatest disruptor, resulting in millions of people suffering and dying in every corner of the world in less than six months.

We have to point out here that in our research we are looking for phenomena that are industry-independent, in the sense that they are global (just as megatrends are). This is in contrast to industry-dependent disruptors which in general are seen as products or incumbents that disrupt the established order ("the old guard") in a particular industry—such as Uber in the taxi industry, Airbnb in the hotel sector and the iPhone in the telephone market—and which can be more accurately described as disruptive innovations [37].

The main difference between megatrends and disruptors, based on the (sparse) definitions given above seems to be the predictability of the occurrence and its impact, or in the case of disruptors their unpredictability. We therefore decided to discuss the megatrends and the disruptors separately as they are of different natures.

3. Results

In this section, the megatrends and disruptors identified in the literature review are discussed in order of significance (as measured in 'relative weight'). For each category of megatrends/disruptors, a general description is given as well as an explanation of how it disrupts organizations' ways of working. It must be noted that the megatrends and disruptors found should not be interpreted as independent nor mutually exclusive forces. They can be the cause or the effect of another megatrend/disruptor. It is also possible that especially megatrends overlap each other.

3.1. Megatrend 1: Speed of Technological Advancement (Relative Weight 69%)

Technological advancement is the collective term for the progress of technological and digital tools such as automation, big data and advanced analytics that increase productivity and provide better access to information and ideas. With a relative weight of 69 percent in the literature review, technological advancement, in conjunction with the fast pace of these advancements, was the most frequent megatrend mentioned. Organizations have been automating work for decades, but it is specifically the increasing speed of change that makes technological advancement a force of change according to the extant literature.

Technological advancement is the main theme in 'Industry 4.0', also called the 'Fourth Industrial Revolution'. Industry 4.0 is originally a German project that discusses the strategic approach to digitalization and automation. Erboz [38] describes the nine pillars of Industry 4.0 as follows: big data and analytics that will affect decision making in organizations; autonomous robots which have the ability to learn and perform certain tasks; simulation which is based on mathematical modelling to optimize processes; horizontal and vertical system integration leading to smart factories; the industrial internet of things which connects physical objects and systems; the cloud which enables work through shared platforms; additive manufacturing such as 3D printing enabling customization; augmented reality which makes human-machine interaction possible; and cyber-security awareness which leads to implementation of defense mechanisms to safeguard organizations from cyber-attacks. Recent advances in areas such as robotics and artificial intelligence are not only obliging people to work side by side with machines but also creating replacements for human employees, nowadays even in sophisticated roles [3].

The impact of technological advancement on organizations, according to the literature, can be summarized as follows [3,39–48]. There will be fewer employees because of increasingly automated tasks, resulting in fear among employees of job losses. Many tasks will disappear and be replaced by new tasks, resulting in an increasing mismatch between the skills needed in the workplace and those offered by employees. A continuing increase in remote working will require different leadership styles. Changes in the organization of work, processes and the way employees collaborate which again require the learning of new skills and changes in how organizations organize themselves and their networks with suppliers and customers. Technological considerations will play an even more important role during the decision-making processes in the organization. This will require more technological awareness from and therefore training of management and employees. It is necessary not only to increase the knowledge level of technology but also to take away the fear of technology and what it can and will do to their organization and the industry it operates in. Changes in external communications are required as organizations will increasingly have to show their customers and other stakeholders that they are on top of technological developments and are capable of dealing with these adequately.

3.2. Megatrend 2: Flexible Employment (Relative Weight 36%)

Flexible employment refers to the increasing variety in working arrangements and work practices, variation in working time/hours, working locations, amount and type of work contracts and employment contract forms. It is expected that traditional nine-to-five jobs will decrease in favor of mobile and

on-demand employment, and that because of mobile technology and the internet, employees will no longer need to work in the same location, even after the current Covid-19 crisis. There will also be a rise in 'fluid' positions and jobs where people will have multiple roles within one organization or sign on as independent contractors [49,50].

The literature mentions the rise of the so-called 'gig-economy' or 'network-economy' quite a lot. The gig-economy can be described as a labor market in which temporary positions are common and organizations have contracts with independent workers for short-term engagements rather than long-term employment contracts [49–53]. Fast growing markets are digital labor platforms to outsource work through an open call to a geographically dispersed crowd such as Upwork and Clickworker, and location-based applications, which allocate work to workers in a specific geographical area (such as Uber and Airbnb). Consequently, a growing number of workers are no longer employed but hired for a specific task. Although it is difficult to pinpoint the number of people working on so-called crowdsourcing platforms, there are indications that there is an exponential growth in this [54].

The impact of flexible employment on organizations, according to the literature, can be summarized as follows [55–59]. There will be a decrease in employment contracts for indefinite periods as well as for fixed terms in favor of an increase in self-employed contract workers. This will, potentially, result in more insecurity for (certain categories of) people and less loyalty to organizations. It will be more common that workers have multiple contracts with multiple organizations at the same time, potentially resulting in more burn-out and more difficultly in scheduling work in organizations. There will be a continuing increase in remote working, as well as working at different times and with varying working hours, which requires different leadership styles of managers and more complex scheduling of work and meetings. Additionally, there will be more flexible working hours and contracts with consequential shorter tenures for employees as well as managers, a potential decrease in employee engagement but also potentially a better work-life balance for workers. There will also be fewer employees physically present in the office, which will require changes in the organization of work and the way employees collaborate.

3.3. Megatrend 3: Changing Workforce Composition (Relative Weight 35%)

By looking at changing workforce composition as a megatrend, both the aging of the worldwide population and generation shifts are addressed. According to data from the United Nations [60], by 2050 one in six people in the world will be over age 65, up from one in eleven in 2019. Older employees are not only a growing proportion of the workplace, but they also work longer. Older adults plan to remain in the workforce longer for a variety of reasons, including concerns about maintaining healthcare benefits and income, and the desire to remain active and engaged as they will live longer than former generations [61,62]. The generation shifts from baby boomers (generation X, 1960's–1970's) to millennials (generation Y, 1980's–1990's), followed by generation Z (2000's–2010's) and generation A (2010's and onwards), will cause major changes to the composition of the workforce, as by 2025, millennials will make up the majority of the workforce [63,64]. Although the literature is not in agreement about what these changes in workforce resulting from the generation shift entail, they do agree on the fact that different generations have different interests and thus different needs.

The impact of changes in workforce composition on organizations, according to the literature, can be summarized as follows [3,65–68]. The workforce in general is aging and organizations need to make sure aging at work can take place successfully, through vitality and well-being programs for older employees. Younger people who are entering the workforce are more sensitive to sustainability and climate change, they want purposeful and varied work. Thus, to attract and retain these younger generations, organizations must create (more) meaningful and sustainable work with enough learning opportunities, sufficient variety in work tasks, and personalized working conditions. In summary, to meet the diverse needs and wishes of the different generations, organizations need to prepare for more flexible employment conditions.

3.4. Megatrend 4: Sustainable Employment (Weight 34%)

Sustainable employment (or similar concepts such as sustainable work and decent work) refers to the extent to which workers are willing and able to remain working now and, in the future [60,69–71]. It is about offering work and working conditions that keep workers happy, healthy and motivated. There is rising interest and concern around sustainable employment amongst management, as there is in many (Western) countries an imminent worker shortage arising from the aging of the population, coupled with a growing awareness of the need for sustainability in general among the population (and thus the clients of the organization) [72].

The impact of increasing attention towards sustainable employment on organizations, according to the literature, can be summarized as follows [41,62,69,73–75]. Increased awareness of successful aging at work, staying healthy at work. Inclusion of worker groups with special needs, such as disabled people. Offering a safe working environment and safe working conditions; increased attention to vitality and well-being. Offering challenging and meaningful jobs that lead to self-development. Increased attention paid to workforce self-development; increased awareness of gender equality and equal pay. Consequently, organizations must pay more attention to and take measures toward: more flexibility in the type of work they offer, what they can demand of their employees, the make-up of their workforce, eliminating the factors that discourage or hinder employees from staying in or entering their workforce, and matching the needs and abilities of the individual with the quality of job on offer.

3.5. Megatrend 5: Environmental Issues (Relative Weight 33%)

Climate change refers to changes in the world's climate, caused by human activity, and its consequences [76]. Flooding, the rise in sea level, extreme weather conditions and natural disasters caused by climate change result in major impacts on daily life. Climate change is expected to have a huge negative impact on future economic growth because much investment must be made available for reducing the ecological footprint of people and businesses, fostering sustainability and protecting the environment, and dealing with the expected migration of people from countries that are at risk of the sea level rising and flooding [77–80]. In this respect, the so-called triple bottom line concept is worth mentioning: a recommendation for organizations to ensure sustainable value creation focusing as much on social and environmental concerns as they currently do on profits [78].

The impact of climate change on organizations, according to the future of work literature, can be summarized as follows [53,67,79–81]. Because of the expected consequences of climate change, there will be a growing awareness of the ecological footprint of organizations and increasing pressure on governments to enforce clean and sustainable value creation. This will require increased and continuous innovation in production methods and use of resources by organizations, and for the population, customers and stakeholders, visible measures to deal with the negative consequences of processes on the environment.

3.6. Megatrend 6: Continued Globalization (Relative Weight 31%)

Globalization is the process by which businesses or other organizations develop international influence or start operating on an international scale [82], or alternatively, the growing interaction and integration among people, companies and governments worldwide [83]. Globalization of course is not new and therefore we were curious as to why globalization is still often mentioned as a megatrend in the literature. We noticed that the mention of 'globalization' as megatrend had a 100 percent overlap with the mention of the megatrends 'technical advancement' and 'flexible employment', which suggests that there is a connection between the three. We did not find any recent sources solely on globalization as a megatrend. Additionally, we did not find a description of how globalization impacts the future of work, beside the impact on organizations already mentioned under technological advancement and flexible employment. This is in line with a recent study of Hagel et al. [84] in which globalization is explained as a megatrend but not as a new disruptor. We therefore assume for our analysis that the

consequences of globalization will be the same as those mentioned for 'technical advancement' and 'flexible employment'.

3.7. Megatrend 7: Skills Mismatch (Relative Weight 24%)

Skills mismatch refers to the expected gap between the skills of the existing/current workforce and the skills that will be needed for jobs in the future workplace. Learning new skills to adapt to the changing work environment is not a new phenomenon but with the increasing speed of change it is seen as a challenge to prepare organizations, employees and educational systems in time for these changes. In addition, it is not quite clear yet what the changes will entail and exactly what new skills they will require [85,86]. The World Economic Forum [70] states that in many industries and countries, the current most in-demand occupations or specialties did not exist ten or even five years ago, and the pace of change in occupations is expected to accelerate. Most of the literature highlights the imperative of ensuring that organizations and workers focus on lifelong learning to maintain a smooth transition to new ways of working, new jobs, or to other forms of employment contract [44,87]. The future of work seems no longer to be about mere college degrees but about having the required skills for specific tasks [88].

Given the speed of change, skills and competencies such as adaptability and agility, critical thinking, entrepreneurship and interpersonal skills are being recognized as essential to survive in the workplace [89–91]. At the same time, policy makers, educators and education systems in general must reform and prepare for the new ways of working and the requisite new skills [89,92,93].

The impact of an increased skills mismatch on organizations, according to the literature, can be summarized as follows [72,91,94–96]. There will be a shortage of workers with the right skills and a surplus of workers with skills that do not match the jobs of the future. As a consequence, organizations will be unable to deliver the performance needed which threatens the continuity of these organizations. Organizations will need to invest more and more often in educating their workforce in the new skills required, requiring more investment in both these educational programs as well in the people that organize and run them.

3.8. Megatrend 8: Increasing Inequality (Relative Weight 16%)

There is a growing concern about increasing wage and income inequality [97]. Although employment rates have gone up from a global perspective, there are several groups of workers that are not benefiting, and their situation seems to be deteriorating [72]. Particularly low-skilled employees, employees with jobs that are likely to disappear due to automation, self-employed employees (gig-workers) and employees with a migrant background are at risk; in addition, the gender gap (which also creates differences in pay between workers) is not expected to disappear in the near future [53,80,98]. Thus, there is an increasing need for social protection of vulnerable employees, with measures ranging from legal protection for flexible working arrangements to the introduction of a universal income [99,100]. Legal protection for flexible working arrangements in this respect means that contract workers are receiving the same income as employees with the same tasks who have an employment contract. A universal basic income was introduced in Finland in 2017 as a social experiment. Unemployed inhabitants in the range of 25–58 years receive an unconditional basic monthly allowance. This is not only a solution to poverty; it seems to save the government from bureaucratic enforcing and policing of legislation.

The impact of increasing inequality on organizations, according to the literature, can be summarized as follows [55,101–103]. There will be an increase in governmental policies to eliminate inequalities and protect vulnerable employees, which organizations will have to accommodate: they will need to offer training programs for lower-skilled employees which can lead to sustainable employment for this type of employee, and they will have to offer equal and sustainable pay and working conditions. This legislation may result in an increasing administrative burden for organizations as they need to be able to 'prove' that they are compliant with the new legislation.

3.9. Megatrend 9: Individualism (Relative Weight 13%)

By individualism we mean the trend to distinguish oneself from others as a result of a shift from a more collectivist society to a focus on the individual and the increasing expectations from society of the instant availability of goods and services. According to Boumphrey and Brehmer [104] the consumers of today focus on obtaining the most out of life, reassessing values and priorities. People and organizations are increasingly expecting tailored or personalized products, services and solutions. Furthermore, with the pace of societies, they expect round the clock use of services while ICT pervasiveness drives e-commerce, e-shopping and mobile service expansion [105,106]. Organizations need to address this increasing demand for individual attention. Client experience and employee experience have become key performance indicators that need close monitoring. According to Hessel [107], individualization reaches a new stage. In response to this, much more specialized goods, services and even education are offered. For example, instead of offering common degrees, universities are developing and offering individualized degrees. The same will apply to corporate training and mentoring approaches which are becoming more bespoke and tailor made to fit individual career ambitions.

3.10. Megatrend 10: Urbanization (Relative Weight 11%)

Although it does not often appear in the future of work literature, in academic literature on megatrends urbanization is certainly not overlooked. By the megatrend urbanization, we refer to the worldwide population shift from rural to urban areas, as a consequence of which an increasing number of people become permanently concentrated in relatively small areas (cities or metropolitan areas). This has an impact on organizations in rural as well as urban areas. The impact of urbanization on organizations, according to the literature, can be summarized as follows [21,33,34,108–110]. In rural areas there may be a drain on qualified workers leading to organizational issues while urban areas are becoming too crowded, leading to a higher cost of living, competition for jobs, and a more hectic/less balanced life and, as a consequence of that, health issues. On the other hand, urbanization will come with opportunities for skilled (e.g., professional services), as well as non-skilled workers (e.g., construction, housing services). Especially in Asia and Africa, urbanization can boost competitiveness, if well managed. Various sources warn that too little attention paid to the financing and management of cities will potentially lead to huge problems of social and economic backgrounds.

3.11. Megatrend 11: Cross-Border Migration (Relative Weight 11%)

Cross-border migration refers to the migration of employees to another country with the aim of finding (better) work. Cross-border migration has been a natural consequence of a world in which people do not find attractive work opportunities in their country of origin, at a time when other economies are not adequately filling their skills gaps [111]. Cross-border migration changes the workforce composition and can create social issues. In addition, cross-border migrants are more vulnerable than native employees and have a higher unemployment rate, especially when they have a non-western background [62].

The impact of cross-border migration on organizations, according to the future of work literature, can be summarized as follows [94,111–114]. There will be an increase in migration which changes the workforce composition in 'receiving countries' while at the same time causing a knowledge and skills drain in the home countries of the migrants (countries with low wages, subject to climate change, politically unstable). In Amsterdam for example, there are Romanian employees working in low paid and unskilled jobs, while the resulting job gaps in Romania itself are filled with workers from Ukraine. This kind of economic migration, with workers far away from their friends and families, living packed into small and expensive rooms in Amsterdam, can hardly be called sustainable. Organizations will need to prepare for a more diverse workforce (in culture, religion and language) to accommodate immigrant workers and at the same time become more aware of sustainable value creation.

3.12. Megatrend 12: Economic Powershifts (9%)

By economic powershifts we refer to the shift in economic power from the traditional West to the upcoming East. Countries in Asia such as China, and to a lesser extent in South America and Africa, are becoming bigger and more important globally, due to an increase in the global middle class. The impact of economic powershifts according to the literature can be summarized as follows [33,115,116]. Emerging markets will rewrite the rules of work and work culture. It is projected that as a result of economic growth in these areas, their political power will increase. This undoubtedly will have an impact on the competitive position of organizations in the developed countries, making them more vulnerable and at the same time creating endless opportunities for growth. These growth opportunities will come, for example, from an increasing demand in the logistics sector and for 'diversity proof' goods and services.

3.13. Megatrend 13: Resource Scarcity (9%)

Resource scarcity refers to the problem of an increasing demand for resources such as water, food, energy, land and minerals which is causing scarcity and inherent cost increases. According to the literature on megatrends, disruptors and the future of work, global consumption has increased dramatically over the past century, which has had its impact on demand and the use of natural resources [109,110,117]. However, after years of exploitation, it may not come as a surprise that resources are now becoming scarcer or falling in quality. Although scoring 9% in our study, in a megatrend analysis by Utikal and Wothe [28] resource scarcity was mentioned by all sources as the megatrend to take into account for the future. Organizations increasingly need to address and reconsider their dependence on raw materials and resources. Finding new ways of working, innovation and the use of alternative resources will be key for organizations to survive in the future. Additionally, even if leaders are not responding to that out of intrinsic motivation, society will force them to minimize the negative impacts on society and the environment. Fossil fuels are not renewable but may be replaced by alternatives such as wind and solar energy. A bigger problem, according to the literature, is water shortage, as water is used in many production processes including the production of food [118].

3.14. Disruptors Identified

Interestingly we only found one disruptor mentioned in the academic literature in relation to the topic of 'future of work': the occurrence of a pandemic disease. Other possible disruptors, like (nuclear) war (especially on a grand scale), regional conflicts with worldwide consequences (like a war with Iran), infrastructural disasters (caused for instance by foreign hackers), collapse of economic power blocks (like the EU or China), or natural phenomena (such as solar geomagnetic storms) are (sparsely) discussed in the literature but not specifically their consequences for the 'future of work'. Furthermore, even the pandemic disruptor was only mentioned six times in the literature sources, of which two were about the recent Coronavirus pandemic. This is all the more remarkable as Kavanagh et al. [119] state that in recent decades every U.S. President has had to respond to at least one pandemic disease and that this will become worse as a side-effect of globalization and because of the rising risk of infectious diseases associated with climate change. In addition, as Larson and Nigmatulina [120] warn, an outbreak of, for instance, pandemic influenza has the potential to be more disastrous than a nuclear exchange between two warring nations. These authors go on to state that pandemics will place extraordinary and sustained demands on the public health and medical care systems and will strain the operations, and even survival, of all organizations, something that we have already experienced with the Coronavirus epidemic. Thus, major outbreaks will leave severe, often long-lasting, effects on the economy and society as a whole, with economic and fiscal impacts outlasting the epidemiological impact due to severe shocks to investment, production and consumption [121]. In general, according to Calero and Soledad [121], current response systems and capabilities for disease outbreaks are not

sufficient to deal with the enormous impact, rapid spread and shock to health, social and economic systems of a highly lethal pandemic.

Thus, the consequences of a pandemic can be severe for individual organizations, the business world and society at large. Regarding the recent Coronavirus epidemic, Karabag [122] identified several pressing consequences, such as the global integration of industries and businesses which now turns out to have created a high degree of vulnerability because of complex and failing global supply chains having a large detrimental impact on health-related sectors. The crisis will undoubtedly impact the future free movement of people and goods across borders and across the world negatively, thus potentially revitalizing local industries. The use of digital communication tools and advanced technologies such as 3D printing, digital solutions, digital currencies, and AI increased spectacularly during the COVID-19 crisis. The question is, what will happen to these when the immediate medical crisis has passed; will this development continue or even accelerate and how will this affect more traditional businesses and industries. In response to infection risks, many organizations expanded the use of home office practices and digital activities, eliminating face-to-face meetings and introducing online meetings. Again, the question is whether these new ways of working will continue after the crisis.

4. Analysis

Based on the data collected during the literature review and summarized in Appendix A, we can analyze the review results from different angles, to arrive at an answer to our sub-research question.

4.1. Geographical Perspective on Megatrends and Disruptors

We expected that the occurrence and severity of megatrends and disruptors might depend on geographical area, for example that climate change might have more impact in lower-lying countries than elsewhere. Another potential influence in this respect might be local legislation which, of course, already influences organizations and could have even more impact in the future when governments react to local circumstances. Twenty-five percent of the sources in our literature review contained a geographical perspective such as a province, country, continent, or collaborating countries (such as the G20 and the EU). The content of these sources, however, varied a lot. Some articles discussed the economic situation, opportunities and threats in a specific geographical area with a holistic view, others looked in-depth into, for example, how the education system in a country should be altered to accommodate the future of work. We expect that more of these discussions are held in the local literature of a non-English nature. For instance, we found a report in our native Dutch language, addressing the future of work in the Botlek area in the Province of Zuid-Holland, The Netherlands [123]. Therefore, the 25 percent we found might be an underrepresentation of the geographical perspective on the future of work literature.The size of the literature giving a geographical perspective strengthens our expectation that the occurrence and severity of megatrends and disruptors might depend on geography, and that local circumstances should always be considered when assessing the impact for a specific organization.

4.2. Industry Perspective on Megatrends and Disruptors

We also expected to find extensive literature on how megatrends and disruptors will impact organizations within specific industries, but surprisingly we found only nine specific sources providing information from a specific industry perspective. In other sources, examples are sometimes given such as the financial services sector where work is being automated at a fast pace in contrast to other sectors which are less likely to change such as personal coaching and beauticians [123–125]; or the heavy industry and stock breeding sectors where organizations are likely to be impacted severely by measures against climate change. The size of literature found with an industry perspective, a meagre six percent in our review, does not support the notion that the impact of megatrends and disruptors on organizations varies by industry/sector.

4.3. Holistic/Multidisciplinary/Monodisciplinary Perspective on Megatrends and Disruptors

For organizations, a holistic perspective, preferably a model or framework, seems to be a good starting point for impact assessment as it (at least in theory) considers all the megatrends and disruptors so an organization can fully prepare itself for the future. Throughout our literature review, we were on the look-out for such a model providing all possible megatrends and disruptors and perspectives in a structured way for organizations to translate to their own context to take appropriate measures. We did not find such a holistic model in the literature, as most studies (54 percent) were of a monodisciplinary nature, having, for example, solely a legal or economic view on the future of work. Holistic articles made up 33 percent of the literature review, most of it being management literature from institutions such as The International Labour Organization (ILO) and consultancy firms, and barely supported by any evidence from primary research. We found 18 academic literature studies (primary sources) that could be marked as holistic (examples are: 57, 80, 89, 123), the remainder of the literature sources being either managerial or secondary in nature. In these 18 studies the future of work is addressed, including megatrends in society as well as government policies and organizations. However, the impact on organizations is stated in a rather generic way and may or may not be applicable to any specific situation or organization. Thus, the literature provides information on the megatrends and disruptors from various perspectives, however there seems to be a research gap regarding the holistic view on these megatrends and disruptors and therefore there is hardly any information on how the megatrends and disruptors relate to each other.

4.4. Overview of Postulated Impact of Megatrends and Disruptors on Organizations

The overview of the postulated impact of megatrends and disruptors as described in the 162 sources in our literature review is presented in Appendix B. For each of the thirteen megatrends and the one disruptor, their postulated impact is described. In addition, the relation of each megatrend to the other megatrends and the disruptor is discussed. These interdependencies were identified as follows.

Technological advancement (M1) makes flexible employment (M2) possible and enhances globalization (M6), but causes skills mismatches (M7) and changes in the workforce composition (M3) through depletion of work, which increases inequality (M8). Automation can be a solution for worker shortages (M3) and to make work more sustainable (M4), for example when robots take over boring or heavy tasks. Technological innovations accelerate personalized and specialized solutions in light of increasing individualism (M9). Technological advancement can play a role in the detection of and/or measures against further spread of pandemics (D1). An example of this is the recently developed coronavirus app.

Flexible employment (M2) changes the workforce (amount of employment for workers/employment contracts) (M3), may lead to more sustainable work (M4) via a better work-life balance and working remotely, and in the slipstream supports individualistic worker preferences (M9), but may also increase inequality (M8) for workers who do not have enough work and/or struggle with a low pay rates and lack of social protection. Flexible work, especially via platforms, can be a solution for workers who cannot find a job in their home country or for organizations with worker shortages (M3) and bring about a reverse reaction to urbanization (M10) as work can be completed from rural areas via tech solutions (M1). The same applies in times of disruption such as the coronavirus crisis (D1): flexible employment can give workers as well as organizations flexibility in numbers of workers and working hours.

Changing workforce composition (M3) is related to cross-border immigration (M11) as immigrant workers may be a solution for worker shortages or the cause of worker shortages in countries where workers are choosing to leave. Ageing is related to pandemics (D1) as an older workforce is more vulnerable to diseases and organizations have to take more precautions.

Offering sustainable employment (M4) can moderate the expected changes in skills mismatch (M7) and workforce composition (M3) as it leads to worker retention and therefore reduces the expected effects on (M8) increasing inequality. Sustainable employment (M4) is also associated with

environmental issues (M5) as they both focus on sustainable value creation. Environmental issues (M5) cause cross-border immigration (M11) as extreme weather, flooding and forest fires force workers to seek jobs elsewhere. Continued globalization (M6) is related to the extensive worldwide impact of pandemics (D1). We have seen during the coronavirus crisis that many imported goods were not available. Reinforced by the desire to solve environmental issues (M5), there is a growing interest in local suppliers, especially for critical goods. Skills mismatch (M7) leads to unsustainable work situations because workers cannot deliver the required performance (M4) which may lead to stress, burn out and potential dismissal (M3), which as a consequence increases inequality (M8). Increasing inequality (M8) is related to cross-border immigration (M11) and urbanization (M10); immigrant workers and specific worker groups in rural and/or urban areas are more vulnerable as they receive less (social) protection and suffer more stress as they are away from their home culture, family and friends. Economic powershifts (M12) could in time reduce inequalities as organizations will need more workers from a diverse background. Individualism (M9) together with economic powershifts leads to potential growth of demand, at least in developing countries, but also for organizations who want to play a role in developing countries. Urbanization (M10) may lead, or is already leading, to enormous smart regions in developing countries. If managed correctly this can lead to an increase in the power of those regions (M12) but if poorly managed, can become the Achilles heel of developing countries lacking resources (M13) such as water.

From Appendix B it becomes clear that the main expected effects of the megatrends and disruptors on organizations are:

- Technological advancement (M1) leads to changes in work, in the organization of work, and in leadership.
- Flexible employment (M2) leads to shorter tenures for workers as well as leaders, a greater variety in contracts, challenges in the planning and organization of work and leadership, as well as an increase in administrative burden because of legislation.
- Changing workforce composition (M3) induces organizations to offer work and work conditions to ensure successful aging at work and to meet the needs of the younger generations such as generations Y and Z, which is critical to prevent worker shortages (worker retention).
- Sustainable employment (M4) leads to increased awareness of and programs for healthy work conditions, meaningful work and opportunities for self-development. This may have a positive effect on worker retention and performance.
- Environmental issues (M5) force organizations to rethink the way they create value, ensuring the achievement of sustainable development goals and decent (sustainable) work.
- Continued globalization (M6) leads to changes in work, in the organization of work and in leadership, as well as the possibility of solving workforce shortages by making use of remote workers.
- Skills mismatch (M7) leads to a shortage of qualified workers and a surplus of workers who lack the right skills, which leads to organizations being unable to deliver the expected performance.
- Increasing inequality (M8) leads to government policies that protect certain groups of workers and a potential administrative burden on organizations to prove their compliance.
- Individualism (M9) impacts organizations as it leads to a higher degree of availability, specialization and personalization of goods and services. Workers will expect the same from their employer and therefore flexibility of work, working conditions and education will get more organizational attention in order to attract and retain qualified staff.
- Urbanization (M10) leads to a brain drain from rural areas to cities, providing opportunities for organizations located in urban areas. Organizations may benefit from increases in demand in urban areas, if resources, transportation and mobility are managed in the right way.
- Cross-border migration (M11) impacts the workforce composition of both the immigrant country and the receiving country but it may also lead to workforce tensions and miscommunication.

- Economic powershifts (M12) impact organizations depending on their geography and industry; Western organizations become more vulnerable and Asian and African firms may benefit from increased buying power. Organizations who want to expand their business will need to adopt local business cultures and hire more diverse workers.
- Resource scarcity (M13) leads to raw material shortages and hampers production processes when it involves utilities and water.
- Pandemics (D1) impact organization workforce health and ways of working, leading to increased pace of digitization and working from home.

5. Conclusions, Limitations and Future Research

The literature review described in this article is the first step toward answering our research question: How can HPOs address megatrends and disruptors in such a way that they can secure sustainable performance and at the same time work on the UN sustainable development goals? The first phase of our research has answered the sub-research question: What are the megatrends and disruptors that can be found in the literature for which HPOs have to prepare themselves? Based on a literature review we were able to construct an overview of the megatrends and disruptors that will have the most profound influence on organizations in the (near) future. We also identified how the megatrends and disruptors are expected to influence ('disrupt') organization structures, processes and behaviors, so that these organizations can better prepare themselves for these. Our study revealed there are thirteen megatrends and one disruptor that individually and in conjunction will most probably affect organizations in the foreseeable future and might even threaten their continued existence. This means that if organizations want to remain 'alive', let alone high performing, they will need to adapt to a work landscape that will most probably be severely changed by the identified megatrends and disruptor. The upside is that adapting to the future, if done in the right way, leads to opportunities for sustainable performance and a high(er) return on investment, while at the same time safeguarding decent work and thus fostering the continuity of the organization.

As always, there are limitations to the study. First, we took a sample of 162 articles for our review with the help of chosen keywords. It is possible that in this process we missed important literature that could lead to other insights, megatrends and disruptors. We found it, for example, noteworthy that environmental issues did not appear as a top three megatrend and that we found only one disruptor; and we also expected that type of industry would moderate the effects of the megatrends and disruptors, but this was not supported by the literature in our sample. Additional literature might do this and might yield more different megatrends and disruptors. Another limitation is that many of the megatrends that emerged from the review were often described on such a high level that clear impacts and consequences of these megatrends on organizations could not be identified. This means that the postulated impacts as presented in Appendix B need more research to obtain more detailed information. What also needs more research work, as we feel we only scratched the surface here, are the (potential) connections between the megatrends and disruptor, their impacts, and the measures organizations can, and have to, take to deal with these impacts. The last limitation is the influence of the pace of change in the environment of organizations. Although not really ignored, we could have taken into greater consideration how this pace affects the speed of occurrence and speed of impact of the megatrends and disruptor, which in turn will have great influence on the actions organizations must take to prepare themselves for the future.

The aforementioned limitations offer opportunities for future research. In addition, various authors mentioned that the existing literature provides little guidance for organizations to shape the future work landscape and that more research is needed in this area [4,51], especially as most of the current studies are of a managerial, monodisciplinary and secondary nature. Particularly, more academic research is needed to understand the impact of the megatrends and disruptor on the future structures, processes, behaviors and performance of organizations, preferably with a holistic perspective. In our specific case, we will study the effects of the megatrends and disruptor on

high-performing organizations, focusing especially on the question whether this type of organization is better able than 'ordinary' organizations to prepare itself for, and deal with, these disruptors.

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Appendix A —Overview of the Literature Review Results

This appendix provides a quantitative overview of the review results.

Table A1. Overview of the Literature Review Results.

Megatrends and Disruptors	TOTAL	Relative weight %	Academic	Academic %	Managerial	Managerial %	Primary	Primary %	Secondary	Secondary %	Holistic	Holistic %	Multi	Multi %	Mono	Mono %	Geographical	Geographical %	Industry	Industry %
M1 Technological advancement	118	69%	53	45%	65	55%	51	43%	83	70%	45	38%	21	18%	53	45%	34	29%	6	5%
M2 Flexible employment	65	36%	24	37%	41	63%	19	29%	46	71%	23	35%	17	26%	25	38%	14	22%	2	3%
M3 Changing workforce composition	47	35%	24	51%	23	49%	21	45%	26	55%	31	66%	4	9%	12	26%	12	26%	5	11%
M4 Sustainable employment	61	34%	22	36%	39	64%	18	30%	43	70%	26	43%	10	16%	25	41%	15	25%	2	3%
M5 Environmental issues	44	33%	18	41%	26	59%	18	41%	25	57%	28	64%	4	9%	12	27%	15	34%	3	7%
M6 Continued globalization	45	31%	23	51%	22	49%	18	40%	27	60%	31	69%	7	16%	7	16%	13	29%	5	11%
M7 Skills mismatch	44	24%	19	43%	25	57%	12	27%	32	73%	16	36%	9	20%	15	34%	15	34%	1	2%
M8 Increasing inequality	30	16%	9	30%	21	70%	9	30%	21	70%	14	47%	4	13%	12	40%	12	40%	1	3%
M9 Individualism	11	13%	9	82%	2	18%	9	82%	2	18%	8	73%	0	0%	3	27%	3	27%	4	36%
M10 Urbanization	13	11%	9	69%	4	31%	7	54%	6	46%	10	77%	1	8%	2	15%	3	23%	3	23%
M11 Cross-border migration	15	11%	7	47%	8	53%	7	47%	8	53%	10	67%	2	13%	3	20%	3	20%	0	0%
M12 Economic power shifts	10	9%	6	60%	4	40%	6	60%	4	40%	7	70%	2	20%	1	10%	2	20%	1	10%
M13 Resource scarcity	10	9%	6	60%	4	40%	6	60%	4	40%	7	70%	1	10%	2	20%	3	30%	1	10%
D1 Pandemics	6	5%	4	67%	2	33%	3	50%	3	50%	2	33%	0	0%	4	67%	3	50%	0	0%
Count in sample (total 162)			71		91		48		114		53		22		87		41		9	
Percentage of count in sample (total 162)			44%		56%		30%		70%		33%		14%		54%		25%		6%	

Table A2. Legend.

TOTAL =	Number of times that the megatrend or disruptor is mentioned in the literature sample	Holistic literature =	Number of literature sources with holistic view
Relative weight =	Adjusted percentage (see also paragraph 2.1)	Holistic literature % =	Percentage of literature sources with holistic view
Academic literature =	Number of academic articles that mention a megatrend or disruptor	Multidisciplinary literature =	Number of literature sources with multidisciplinary view
Academic literature % =	Percentage of academic articles that mention a megatrend or disruptor	Multidisciplinary literature % =	Percentage of literature sources with multidisciplinary view
Managerial literature =	Number of managerial articles that mention a megatrend or disruptor	Monodisciplinary literature =	Number of literature sources with monodisciplinary view
Managerial literature % =	Literature % = Percentage of academic articles that mention a megatrend or disruptor	Monodisciplinary literature % =	Percentage of literature sources with monodisciplinary view
Primary literature =	Number of primary sources in the literature sample	Geographical perspective =	Number of literature sources with a geographical perspective
Primary literature % =	Percentage of primary sources	Geographical perspective % =	Percentage of literature sources with a geographical perspective
Secondary literature =	Number of secondary sources in the literature sample	Industry =	Number of literature sources with an industry perspective
Secondary literature % =	Percentage of secondary sources	Industry % =	Percentage of literature sources with an industry perspective

Appendix B —Overview of the Impact of the Megatrends and Disruptor

This appendix provides an overview of the impact the megatrends and disruptor, according to the literature, will have on organizations.

Table A3. Overview of the impact of the megatrends and disruptor.

Disruptor	Interdependencies between Megatrends and Disruptors	Impact of Megatrends and Disruptors on Organization
(M1) Technological advancement	(M2), (M7), (M4), (M6), (M3), (M8)	- Potential drop in organization performance and results if organization cannot keep up with the pace, threatening continuity of organization - Increase in automation of work, depletion of, changes in and creation of new jobs - Feeling of insecurity, fear of job-loss for workers - Feeling of insecurity, fear of not being to cope with technological advancements as managers - Skills mismatch, reskilling programs - Remote working, reduced office space, need for social networks/hangouts for workers - Changes in organization design, organization of work and work environment (such as suppliers, customers) - Need for other leadership styles and reskilling of management - More data and advanced analytics tools, changes in decision making processes - Technological awareness of leadership - Prepare for internal and external communications being able to prove that organization is on top of technological developments - Being able to handle security issues
(M2) Flexible employment	(M1), (M4), (M3), (M8), (M11)	- Decrease in employment contracts (indefinite and definite period), increase in self-employed workers and multiple contracts for workers (working for more organizations at the same time) - Greater variety in contracts in terms of working hours and working location - Shorter tenures for workers as well as managers - Decrease in workforce stability, potentially leading to miscommunications, not fully counting the opinions of flexible workers, decrease in worker engagement - Remote working, reduced office space, need for social networks/hangouts for workers - Changes in organization design, organization of work and work environment (such as suppliers, customers) - Need for other leadership styles and reskilling of management - Better or worse work-life balance for workers, depending on whether workers have work, the amount of work and the working conditions - Deteriorating economic situation for flexible workers (lack of social protection) - Challenges in planning and oversight of work and workers - Comply with changing employment legislation (being able to prove compliance) - Potential drop in organization performance and results if organization lacks skills in oversight, management and decrease in engagement of workers

Table A3. *Cont.*

Disruptor	Interdependencies between Megatrends and Disruptors	Impact of Megatrends and Disruptors on Organization
(M3) Changing workforce composition	(M1), (M2), (M7), (M4), (M11)	- Aging workforce, investment in programs for successful aging at work including continuous development - Increasing variety in needs of workers because of generation shifts, investment in flexible working conditions (flexible benefits, customization of work environment), adjustment to cultures and backgrounds of foreign workers - Potential loss of productivity and engagement workers, a potential drop in performance and results, threatening the continuity of the organization
(M4) Sustainable employment	(M2), (M7), (M3), (M8)), (M5)	- Increased awareness of the needs of employees, work culture, inclusion, working conditions and safety at work - Investment in programs such as vitality, well-being, adjusting the workplace, remote working, self-development, gender equality including implementation of tools to measure and improve employee experience - Leadership development to reduce unsustainable working environments such as fear culture, or expectations around availability for work - Communicate/advertise to stakeholders (workers, customers, shareholders) that sustainable work is important for the organization - Not adapting to sustainability expectations from society may lead to burn-out, workers leaving or reduced engagement, a potential drop in performance of the organization and results, threatening the continuity of the organization.
(M5) Environmental issues	(M4), (M11)	- Increasing awareness of the ecological footprint of organization, investment in clean and sustainable value creation (including the value chain of the organization) - Investment in innovation - Increased customer and stakeholder awareness leading to visible measures and refusing to work with organizations who are not working in a sustainable way, potentially leading to loss of results threatening the continuity of the organization
(M6) Continued globalization	(M1), (M2)	See impact mentioned at (M1) and (M2)
(M7) Skills mismatch	(M1), (M4), (M3), (M8)	- Focus on skills and capabilities here and now- for a specific work task, instead of relying on former achievements such as college degrees – lifelong learning – skills passport - Need for workers with skills such as agility, adaptability, critical thinking, entrepreneurship and interpersonal skills – currently underrepresented in school curricula - Shortage of workers with the right skills, surplus of workers with a skill mismatch - Higher investment in education programs and those who run them - Increasing inequality for specific worker groups - Potential drop in organization performance and results, threatening the continuity of the organization

Table A3. *Cont.*

Disruptor	Interdependencies between Megatrends and Disruptors	Impact of Megatrends and Disruptors on Organization
(M8) Increasing inequality	(M1), (M2), (M7), (M4), (M11)	- Increase in government policies, investment in the development of workers and compliance with legislation treating workers equally - Increasing administrative burden
(M9) Individualization		- 24/7 – round the clock 'readiness' - Increased specialization of goods and services - Increasing attention for customer experience and employee experience - Personalization of goods and services for clients as well as employees - Increasing demand will lead to shortages and scarcity of energy
(M10) Urbanization		None
(M11) Cross-border migration	(M2), (M3), (M8)	- Increase in workers with different cultural background, tensions in workforce, increase in languages, investment in culture programs - Possibility of filling skills and workforce gaps with migrant workers - Knowledge and skill drain in home country organizations
(M12) Economic powershifts		- Shift from west to east (emerging countries) making western companies more vulnerable - Powerhouses India and China are unleashing endless opportunities for growth - International logistics sector may increase - Organizations who want to compete should adopt ways of working and business culture of eastern countries - Business environment will become less stable as it is impacted by political power
(M13) Resources scarcity		- Costs of raw materials and consumer goods will rise and/or quality will drop - New production methods must be found, especially for water intensive production processes - Renewed focus on risks of overconsumption and waste for generations to come - Legislation on/regulated use of resources - Tax rates may rise in specific countries for specific resources
(D1) Pandemic		- Increase in illness and absence rates - Investment in safe working environment - Increase in digitization and working from home - Pressure on health sector - Worldwide negative impact on various sectors and economy - Focus on local products, avoiding dependency on global suppliers - Increase in online learning platforms

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