**The shape of careers in the future workplace: Extreme scenarios and their prospect impact**

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**Abstract**

**Purpose** – To discuss the way future workplace may operate and how careers will be developed under possible extreme scenarios.

**Design/methodology/approach** – We propose a thought-provoking conceptual discussion of the challenges for people’s careers under such scenarios.

**Findings** – We identified four such possible extreme scenarios and elaborated on the theoretical knowledge regarding the essence of each scenario. We discussed their impact on future workplace in general and on careers in particular. These are (1) highly developed *Artificial Intelligence* (AI) and other Cyber entities; (2) Massive immigration due to wars, refugees, and other forces; (3) Widescale *De-globalization*; and (4) *Major global recession*.

**Originality/value** – Employing the Career ecosystem and sustainability theories, we identify possible outcomes and implications for theory as well as practice of managing careers under these extreme scenarios.This offers a novel perspective for individuals, organizations and policymakers at national and global levels.

*Keywords:* workplace of the future, future careers, extreme scenarios, Artificial Intelligence

**Introduction**

The world of work is constantly changing, and different factors and events influence the direction and magnitude of the change. However, a review of the new world of work' practices revealed a very uneven experience of this world and raises questions regarding the extent to which this world of work is new and about the ‘emancipatory potential’ of its practices (Aroles et al., 2019). While some changes are incremental and gradual, others, particularly extreme scenarios, have a rapid and major impact on the workplace and world of work, including on employment. For example, 44% of current core skills are expected to change within the coming five years (WEF, 2023). We explore how possible prospective extreme scenarios may influence the workplace of the future, where traditional perspectives of the need to fit with the environment needs to be challenged (Glosenberg et al., 2019; Guan et al., 2021). Such extreme scenarios can be due to chance events (Bright et al., 2005) and may lead to career shocks at different levels (Akkermans et al., 2021). Chance events have been frequently overlooked in research and theory, despite evidence indicating that they are commonly experienced and have an impact on the course of many people’s work lives (Bright et al., 2009). More specifically, we explore four cases of extreme change and suggest how these may influence or be reflected in the future of work for individuals, employers, and society, focusing on the lenses of career. These extreme cases relate to technology and society, answering calls to further study the future (Meindl et al., 2021) and future careers (Baruch and Sullivan, 2022). By doing so we challenge the academic community and decision makers in society to think beyond boundaries, to consider the “what if?” question, through the lenses of relevant theoretical perspectives.

Our aim is to present a viewpoint and stimulate a conceptual discussion about the impact of possible future developments on the future of careers. We have chosen four extreme scenarios to demonstrate what future careers might look like. The purpose of this demonstration is to provoke a thought piece and to stimulate a discussion on what career actors can potentially do about it, offering a thought-piece, to stimulate scholarly discussion. The set of scenarios we cover represent just a few out of many future possibilities, as trying to cover a wider set will be beyond the scope of a single paper.

Hannah et al. (2009) defined the case of extreme scenarios or context settings as:

"where one or more extreme events are occurring or are likely to occur that may exceed the organization's capacity to prevent and result in an extensive and intolerable magnitude of physical, psychological, or material consequences to-or in close physical or psychosocial proximity to-organization members" (p. 898).

This might create a crisis, which requires managerial response (Mitroff et al., 1987; Williams et al., 2017). Extreme scenarios pose challenges, sometimes threats, to the management of people at work in general and to their careers in particular, in all industrial sectors (Baruch, 2022).

We employ Career Ecosystem (Baruch, 2015; Baruch and Rousseau, 2019), and Career Sustainability (De Vos et al, 2020; DeVos and Van der Heijden, 2015), as the theoretical underpinning for the paper. The implications are relevant for strategic management of people at the workplace (Boselie, 2014).

We explore the possibilities and prospects where each scenario will take place, and the anticipated impact on the workplace of the future, careers in particular, at different levels: individuals, groups, organizations, nations, and wider societies. We then identify how future studies may explore the workplace of the future, either from a focused perspective, or via interdisciplinary lenses; and discuss possible implications at the strategy, policy, and practice levels. We also propose individual, organizational, sectorial, and national response strategies, as preparing for future uncertainties is essential for resilience at any level (Bamberger and Pratt, 2010; Baruch and Rousseau, 2019; Geiger et al., 2020).

In reality, the future may present humanity with a number of such possible scenarios, some of which might take place simultaneously, and all are influenced, to varied level of impact, by new technologies. It is helpful, of course, to be ready and prepared for what the future may bring, as suggested by the happenstance learning theory (Krumboltz, 2009). As it is impossible to cover all options, we focused on the following:

* Artificial Intelligence (AI) impact
* Massive immigration due to wars, refugees, and other forces
* Wide range de-globalization
* Major global recession

The rational and justification for these four scenarios include the following reasons. We opted for scenarios that cover multiple perspectives: The AI impact has the technology as the focal point; the massive immigration due to wars, refugees, and other forces reflects geo-political conflicts, but also cultural, society and legal issues; de-globalization is mostly about nationalization and economics; whereas major global recession is mostly economics related. Moreover, we chose scenarios whose seeds have already been sown (there is already AI, there were always wars and immigration and, ‘thanks’ to Covid-19, there is a relatively new direction of de-globalization) and therefore we can anticipate them to develop further in the proximal or more distal future.

Earlier studies referred separately to the impact of certain events on individual careers, but not from a holistic perspective of extreme scenarios in terms of their relevance to careers. This paper offers the following contributions: an overarching analysis of such events or scenarios and their anticipated impact on career actors at different levels: Individual, organizational, national and global (Baruch and Rousseau, 2019). The message includes practical implications for all these career actors and agencies. While the scenarios are defined as ‘futuristics’, they were chosen due to their contemporary relevance, as well as being realistic future developments. Theory typically applies to normative and ongoing progress, but the scenarios we present include disruptive characteristics which archetypal theories do not cover.

**Literature review**

The application of the general ecosystem theory in the field of management studies refers to “a system that contains a large number of loosely coupled (interconnected) actors who depend on each other to ensure the overall effectiveness of the system” (Iansiti and Levien, 2004, p. 5). The Career Ecosystem Theory (Baruch, 2015; Baruch and Rousseau, 2019) expands this theory to career studies by positioning a social system of labor market of employment and of self-employment. Career development, planned progress, and opportunity utilization, all emerge from interdependencies across various career actors (Baruch and Rousseau, 2019). The major actors are individuals, organizations, and societies (Baruch, 2015), and they interact with each other. The nature of the association between the actors is of interconnectedness and interdependence for fulfilling mutual and related aims.

The system as a whole is dynamic, where individuals make career decisions about keeping or changing their career trajectories (Guan et al., 2019), and career adaptability is important in keeping this dynamic (Wang et al., 2022). Organizations plan and manage the careers of their workforce via a system of HRM practices and policies, following HRM and career related strategies (Bagdadli and Gianecchini, 2019; Boselie, 2014). They interact with individuals, but the individual agency of contemporary workforce tends to be self-focused, following, for example, the protean career orientation (Hall, 1976, 2004). At the national or society level, the roles of national and global career agents are to regulate and apply rules to both individuals and organizations in terms of the way the labor market operates, hence the way careers evolve (Kaše et al., 2020). This is where collective beliefs, norms and values set the direction for career strategies and practices. Career structures are created and developed based on the inputs and actions of the actors and what they receive in return.

A complementary theory of the career ecosystem is the sustainable career theory (De Vos and Van der Heijden, 2015; De Vos et al., 2020). It adds the ‘sustainability’ perspective to contemporary career studies, recognizing the complexity of contemporary development of career concepts. It is defined as “the sequence of an individual’s different career experiences, reflected through a variety of patterns of continuity over time, crossing several social spaces, and characterized by individual agency, herewith providing meaning to the individual” (Van der Heijden and De Vos, 2015, p. 7).

To analyze careers by employing the sustainable career framework one needs to bear in mind the different dimensions of *Time*, because careers are dynamic and entail a cycle of events and work-related decisions including transitions between types of work, jobs, employers, and other statuses like non-paid work, unemployment, temporary leave, and retirement. *Context* is another major dimension: work, home, friends, leisure, all intertwine with working careers (Greenhaus and Kossek, 2014) and influence other actors and factors in one’s social spaces, namely, the wider system with the career actors, besides the specific person, and the scenarios wherein these careers take place. The *Personal* dimension means that the antecedents as well as the outcomes of choices made by the individual as the main owner of the career.

Under the sustainable career theory, three indicators are distinguished: health, happiness, and productivity (cf. Heslin et al., 2020; Van der Heijden, 2005). These are critical to one’s destiny and are required for keeping different constituencies of a person, such as family, colleagues, the employer, and society as a whole (De Vos et al., 2020, p. 4). An integration of the two theories of careers ecosystem and sustainable career was recently offered, indicating their complementary nature (Donald et al., 2024). For example, various career actors within a system either enable or hinder career success and sustainability for individuals.

**The Four Scenarios**

In the following section we present four types of extreme scenarios and discuss them and

the way the different career actors interact. The future impact on the careers at all the levels will be presented and discussed for each scenario.

Before starting in-depth discussion for each scenario, we would like to suggest certain forecasting for those extreme scenarios. A central point in forecasting is the capacity to disentangle between what is merely a possibility and what is likely to take place. Rather than discussing possibilities, suggesting probabilities may be a useful exercise. In Table 1 we try to predict what might be the probability for those events and indicate the apparent temporality level, as some of these scenarios can happen very rapidly whereas others would take longer to materialize. In fact, some of the scenarios have already started to feature in our lives, like AI impact (Schwab, 2017) or global movement of people (Lazarova et al., 2023), yet not at the extreme level. This is important because there is ample evidence that most humans do not prepare very well for things that are likely but far away in the future (such as death, see Sartre and Camus case in Aronson, 2004). Lastly, Table 1 proposes the level of how extreme these changes could be.

***Insert Table 1 about here***

***Scenario 1: AI impact***

The essence of the extreme scenario

Artificial Intelligence (AI) means that computer-based machines are improving to the level that they assume capabilities normally thought to resemble human intelligence. According to Kok and colleagues (2009), most definitions of AI can be classified into the following four categories: (1) Systems that think like humans; (2) Systems that act like humans; (3) Systems that think rationally; and (4) Systems that act rationally. This includes learning capacity, the ability to adapt to changing circumstances (e.g., the ability to interpret human facial expressions and gestures; self-correction ability) although they (still?) cannot apply empathy, compassion, intuition, and ‘gut feelings’ (Bussin, 2017) or understand humor.

The AI scenario as part of the Fourth Industrial Revolution has digitalized significant sections of work segments (Schwab, 2017). The contemporary work environment comprises cyber-entities, including “all digital and virtual programs and algorithms; AI-based smart machines; robots; digital and virtual assistants; smart communication devices; all kinds of computing devices and the Internet.” (Raich et al., 2020, p. 55), which changes how people live and work. The workplace of the future will enable synergetic combination of humans and robots (Stein and Scholz, 2020).

*Prospective impact on careers*

**AI replaces humans**

Following major changes like the industrial revolution, there is a longstanding argument warning that there will be no employment for all. Each time during history these fears were unfounded. Earlier major transfers involved mass cross-over of workforces – for example, the first industrial revolution involved a mass migration from the rural areas to the cities, and from agriculture to production. The transition was fairly smooth as the reduced need for agriculture workers was complemented by a growing need for production workers. Further, the process took several generations of gradual movement. The same applies to the change from production to services. Table 2 represents the major transition trends.

***Insert Table 2 about here***

The introduction of AI will have a major influence on the shape of future work and on the workplace of the future. In manufacturing, more functions will be diverted or delegated to autonomous machine systems. In services, the use of AI (e.g., Bots, automated systems) will ‘release’ significant number of employees to unemployment. Many professions will not be needed, or very few employees will be required, as AI can do the tasks more efficiently and saving employment costs (be it low skills, like driving, or high skills, like coding). Thus, we anticipate a reduction in work opportunities and human skills (WEF, 2023), as well as a lack of confidence in the effectiveness of AI (Kong et al, 2023) or fear of it getting out of control (Lukaszewski and Stone, 2024). Indeed, organizations and nations will have to resolve the tension between automation and augmentation (Raisch and Krakowski, 2021). Applications of AI-humans collaboration could form an augmentation or "supermind" that can perform both cognitive and physical tasks previously considered impossible (Malone and Laubacher, 2020, see also Autor, 2015) versus perceptions of reduction in human work possibilities and de-skilling.

In order to resolve part of this tension, a recent analysis took into account the within-job relationships between AI use and the skill requirements of the job. Two generic types of uses of AI were found: (1) AI instructs/orders employees what to do; (2) AI supply information (input) for employees in their decision-making. AI's implications on employees' work are not uniform (Holm and Lorenz, 2022), but due to the pace of change, a significant share of the workforce may not be needed.

We included the AI impact as an extreme scenario due to its imminent effect on life and work on many grounds, including the extreme case of over-supply of work (under-supply of employment). These generate a major question: Which new career options will be open to the generation cast out by the (digital) service industries? This assumes an anticipated significant reduction in the need for workforce due to the AI penetration – which has not yet been identified (Autor, 2015; Malone and Laubacher, 2020; Rabenu, 2021), although already expected and researched (e.g., Eloundou et al., 2023; Kong et al., 2023; 2024).

Here we pose several intriguing questions. Will there be work for all? Will the future labor markets resemble those of today in any way? If a significant reduction in the need for humans in the service sector will take place, *where will they go to*? The AI changes will release many people whose work will not be needed, and who might not easily be able to acquire the cerebral-based high skills and education needed in the AI industry (e.g., drivers). This, in turn, might have major implications for the social structure (Baruch, 2022) – the formation of a new ‘social class’ of those who are not expected to work. The people who will find themselves permanently out of a job, unlike in previous eras, might not have other jobs to learn or acquire. A new type of future social non-career status will be created. To retain quality of life many will probably need to rely on socio-economic mechanisms, most prominently the introduction of Universal Base Income (UBI) system (Barley, 2020; Perkins et al., 2021), and learn to fill their time with non-work activities. The implications for people management will pose a significant challenge – how to retain employees which are still needed when they have a viable alternative of not working could be challenging.

There are, however, certain contingencies for such scenarios. For example, there are traditional industries and sectors that are reasonably shielded from the anticipated dynamics, such as primary and secondary education (although teaching methods will change drastically to more screen time individual tailored learning), religion ‘services’, and many sections of the public sector (Hart and Baruch, 2022). Other sectors are more subjected to insecurities, in particular the Gig Economy, which represents employment on demand (Lobel, 2017). New industries emerge or develop further while mature labor markets may disappear.

Yet, there is a major discrepancy in terms of newly created jobs versus disappearing jobs. One illustrative example is the major anticipated impacts of self-driving cars. Technologically, operation can start within a few years, eliminating the demand for drivers and related sectors.

While demand in many sectors will decline, in others (e.g., e-business, the leisure sector, gerontology, and tertiary education) it will increase (e.g., Autor, 2015). We anticipate that the amount of new jobs’ creation will not match those disappearing, as “Robots and smart machines are [already] taking care of a significant proportion of manual and administrative work” (Raich et al., 2020, p. 5). In the wider context, AI will have a substantial impact in reducing work demand for non-managerial staff, while managers and professionals tend to over-work (Moen et al., 2013; Rabenu, 2021), even in newer de-centralized organizational paradigms of authority (Schell and Bischof, 2022). It is important to note exceptions like a growing number of professionals, not merely low-skilled, that might be replaced by the AI (Eloundou et al., 2023). Despite these data, an in-depth study of strategies for dealing with the possibility of automation transforming the future of work have found that the majority of the participants were confident in their ability to maintain a good career despite future uncertainties (Skrbiš and Laughland‐Booÿ, 2019),

**AI in the service of HRM**

Intelligent algorithms are highly developed, enabling decision making in a wide range of sectors and occupations where, routinely, career-related decisions are being made by software systems rather than by people (Braun et al., 2016). Such algorithmic HRM offers a more objective HR decisions, as well as reducing administrative workload for HR managers (Pereira et al., 2023; Scheibmayr and Reichel, 2023). Decisions on selection, promotion and compensation can be made either solely based on algorithmic HRM, or with complementary input from humans. Between mid-March and the end of July 2020, Walmart, which has more than 3 million applicants each year, made more than 400,000 new hires. They applied a selection tool to predict on-the-job performance and turnover risk for new retail hires (ModernHire, 2023). Increasing number of firms use AI as part of the hiring process (Cao, 2021).

Take another example, the GPT (Generative Pre-trained Transformer) is a machine learning model capable of generating text in natural language, with major implications for society (Dwivedi et al., 2023). The (human) researchers fed the model with large amounts of writing samples which it analyzed until it identified patterns between words and sentences.

AI intersects with work and should be regarded not only as a tool but also as a medium (Anthony et al., 2023) and an actor in the career ecosystem. Applicants for jobs may unfairly benefit from ChatGPT in making a better self-presentation, and in the long term, written presentation skills, currently considered a critical factor, may be less required as advanced GPTs will do that better than humans. Risk of making wrong decisions still prevents wide-scale use of AI due to the potential of demographic-based discrimination in the selection process (Hofeditz et al., 2022).

As they continue to develop, HRM intervention will only be needed for exceptional decisions. This also has implications for the management of people at work, an area that, to date, is largely ignored in the management literature (Stein and Scholz, 2020). Yet, over monitoring of work by electronic means can lead to negative work-related outcomes like stress (Ravid et al., 2023).

***Scenario 2: Massive immigration due to wars, refugees, and other forces***

The essence of the extreme scenario

Wars inflict severe impact on humanity in many ways (Johnstone and McLeish, 2022). Here we focus on two perspectives:

1. Becoming a refugee or asylum seeker (hereafter, refugees).

2. Becoming an immigrant.

Table 3 presents the four types of moves (general migration, refugees’ migration, and expatriation)

***Insert Table 3 about here***

For example, the war in Syria has led to the forced migration of some seven million people, to either neighboring countries or the EU (Pajic et al., 2018). The current war in Ukraine has already caused some eight million refugees, mostly women and children (Ludvigsson and Loboda, 2022) and the one in the Middle East pose a threat to world peace.

Unfortunately, wars are still a fact of life in our planet. There has never been a long period in history without wars. Thus, our assumption is that wars will continue to erupt and cause havoc into the future. Yet, literature on the impact of wars in the context of work and the workplace is scant (cf. Hällgren et al., 2018). Indeed, much intention is given to the migration perspective, whether arising from wars or not.

Migration remains a major global phenomenon (Barnard et al., 2019). Migration typically focuses on a specific job or career move, for a certain period of time, although it can become a practical migration.

Prospective impact on careers

Refugees’ migration waves are caused by wars and other conflicts, looking to establish careers in a new place where their qualifications might not be recognized.

Regarding refugees’ careers, even where the host environment is supportive in both social and political aspects, access and integration into the labor market, in particular to high prestigious career opportunities, are extremely challenging, more so for refugees (Newman et al., 2018). Much depends on the willingness and readiness of the host country to enable them to work. These legal aspects are relevant to both refugees and unauthorized immigrants. The issues of the right to move, right to work, and other human rights are deeply intertwined with legal systems. One issue is the legal status of the individual. For example, there were an estimated 11 million unauthorized immigrants in the United States in 2015, the majority from Mexico (Hamilton et al., 2019). At the meso-level, organizations, in particular multinational corporations, develop policies and practices to deal with talent moves, and national institutions develop regulations and wider legal considerations to control the level of immigration. One example is the EU action to prevent and control the illegal immigration of those who try to cross the Mediterranean.

Regarding immigrants, there are forces that fuel their will to move, while other factors work against it. The fear of the unknown, loss of recognized qualifications, and impact on the family are some of the factors at the individual level. Other factors can be at the national level, like lack of easy access to work permits or unfamiliar national culture set (Walia, 2021). Even when national needs call for attracting a global labor force with specific qualifications – for example, nurses – the challenge of acculturation remains prominent (Pressley et al., 2022). This phenomenon can lead to ‘brain waste’ and significant national losses (Romani et al., 2019) which goes against the global desired outcome of ‘brain circulation’ (Saxenian, 2005). Yet, there is a danger that the movement will be unidirectional, from developing to developed countries, leading to ‘brain drain’ (Beine et al., 2001).

To be successful, skilled migrants apply a range of personal career strategies in the process of relocation from a developing to an industrialized country (Al Ariss and Syed, 2011) so that they may benefit from and build on their human capital. In some cases, these same skilled immigrants may have difficulties finding employment in their home country occupation (Sweetman et al., 2015), and many have needed to abandon their aspirations, as institutionalized self-regulation of local occupations’ authorities exert control over occupational entrance requirements.

Different countries use a variety of incentives vs. active opposition to migration, from actively inviting migrants (usually skilled) to vigorous prevention and applying tough immigration control systems to block immigrants. For example, many countries seek skilled migrants due to local labor shortage, with the hope of a positive impact on competitiveness at the national level (Hajro et al., 2021; Harrison et al., 2019).

When skilled migrants cross borders, their skills are often discounted (Shan, 2013), sometimes due to ethnic or gendered factors, creating an unadvisable discrimination. The match between qualification and employment is a critical factor for attaining individual outcomes (Shirmohammadi et al., 2019). However, dependance on immigrants can sometimes increase skill shortages. Such dependence in the local labor market might put the industry at risk if suitable migrants choose to work elsewhere or if demand for migrant labor exceeds supply (Wickham and Bruff, 2008).

Immigrants build on their human and social capital to gain access to work, hoping their skills to be recognized and accepted in the host country (Tseng, 2021). Capital mobilization is a way to encompass micro-individual, meso-organizational and macro-contextual influences that affect their career choices. The Career Ecosystem theory (Baruch, 2015; Baruch and Rousseau, 2019) offers an analytical tool to put the various actors of this phenomenon together. Richardson and colleagues (2019) apply the career ecosystem theory to analyze the impact of refugees on their host countries. Yet, those moving to affluent economies tend not to return after establishing themselves in the host country. When ethnic and religious differences between the new immigrants and refugees are significant, political tensions might increase.

***Scenario 3: De-globalization***

The essence of the extreme scenario

Globalization is “the process of increasing interdependence among nations” and therefore “de-globalization represents the process of weakening interdependence among nations.” (Witt, 2019a, p. 1054; for further definitions see Robertson, 1995). De-globalization is reflected in “moves toward trade protection, the limitations of movements of people, the regulation of capital flows and the attempts to restrict information access” (James, 2017, p. 1), leading to localization of careers.

Moving towards de-globalization was accelerated by the 2008 financial crisis which has led to a rethinking of the global financial capitalist model (García-Herrero, 2019; Madhok, 2021). It is possible that some of the scenarios can be related and influence each other. However, an abundance of recent significant events has accelerated the already existing move from global to local markets (e.g., Farndale et al., 2021; García-Herrero, 2019, Madhok, 2021, Manfredi-Sánchez, 2021; Ripsman, 2021). According to Madhok (2021, p.199), “globalization has peaked and is on the retreat”, accelerated by the global impact of the isolation and disruption to supply chains during the COVID-19 crisis and further technological progress that have made physical presence a less critical factor for society and for industry.

Next, we elaborate on three more events and processes which can lead to an extreme scenario of de-globalization, and discuss its potential opportunities and threats (see Figure 1).

***Insert Figure 1 about here***

**COVID-19 pandemic.** The pandemic has exposed “…the folly of globally concentrated value chains” (Madhok, 2021, p.199). After the closure of national boundaries throughout the beginning of the pandemic, there was a need to restructure global supply chain reconfiguration (Manfredi-Sánchez, 2021) and to reduce dependency on imported raw materials, spare parts, products, and people (Rabenu, 2021). Many firms scaled up their local production, e.g., respirators for hospitals to treat patients. Many countries that, until the pandemic, were counting on importing these devices suffered from shortages. However, due to their indispensability, opportunities arose for local production and industrial reconversion (Rabenu, 2021). Business flights were neither possible nor desirable and the recruitment of local employees was rejuvenated. Overall, the COVID-19 pandemic may be regarded as a contextual driver for de-globalization (Peng et al., 2021).

**The war between Russia and Ukraine**. This war has had many serious consequences but, in this section, we focus only on the de-globalization point of view. It has had a global impact on food supply chains (Mbah and Wasum, 2022; [Steinhauser](https://www.wsj.com/news/author/gabriele-steinhauser), 2022) and has led to food crises and hunger in several African countries (e.g., [Steinhauser](https://www.wsj.com/news/author/gabriele-steinhauser), 2022). Similarly, disruption was caused to the distribution of natural gas and oil, causing nations worldwide to seek alternatives (Mbah and Wasum, 2022).

**Competition between powerful countries**. De-globalization can be related to political power and international relations, such as the increasing tensions between the US and both Russia and China (Ripsman, 2021). The Sino-American rivalry is a competition that fosters de-globalization (García-Herrero, 2019); for example, the growing Sino-American rivalry regarding developing chips. Since May 2019, US firms were prohibited from selling software and components to Huawei, a decision which prevents Huawei from operating most of its mobile phones (Witt, 2019b). The competition between the technology giants on achieving the ability to self-manufacture chips continues in full swing. Apple, Google, Samsung, Xiaomi, Oppo and other have switched to using self-developed processors too (Cheng, 2021).

Self-developing and manufacturing of chips allow to break away from main supplier that are sometimes in the rival country and therefore eliminate dependency in this other country. One example is Oppo, the Chinese firm which could disconnect from its main American supplier- Qualcomm. If the Sino-American rivalry becomes fiercer, it will answer the definition of extreme cases. The communications technology revolution that networked the world using Internet infrastructures and enabled the globalization reaching its peak, might turn the bowl upside down and be the one that leads to severe de-globalization. Moreover, as communication technology has made consumers dependent on it (can we now imagine a world without cellular phones?), consumers might become furious if smartphones’ prices increase due to import issues, in this case, from Asia.

Another example in the Sino-American rivalry can be found in the race of the supercomputers. Those supercomputers have big impact on a range of areas such as decoding ciphers, climate studies, gravity calculations and calculations required for the development of nuclear weapons. Therefore, the supercomputers are regarded as strategic political decision, becoming a dominant power. For example- its implications for national defence.

China, at the moment, leads this race against the US. Moreover, US even blocked China from access to US hardware- a step which was crucial in the ability to build China’s supercomputers. However, China has overcome the obstacles of US trade restrictions and managed to produce supercomputers while relying on *local* technology ([Waters](https://www.ft.com/richard-waters), 2022).

In the technological race (for Supercomputers or chips), those who are ahead of others have technological superiority and can disable considerable parts of the world and/or control others. This is an extreme scenario in which the power and influence of countries will change. After Manfredi-Sánchez (2021, p.918): “Deglobalization has overlapped with “Westlessness,” defined as “the decay of ‘the West’ as a relatively cohesive geopolitical configuration anchoring a normative model of global order in which commitments to human rights, democracy, and the rule of law are central” (Munich Security Conference, 2020, pp. 6–8).”

Prospective impact on careers

We envisage a return to the traditional fields of manufacturing industry and agriculture. These domains that have become global over the years, will become more local, particularly in industries vital for survival, and therefore require renewed knowledge that may have been lost, in part, through years of globalization. There will be great value for older (even retired) people, who are/were experts in their field and can teach inexperienced workers how to perform. Also, the rejuvenation of these industries will necessitate more working hands and higher use of robotics, as many manufacturing industries require monotonic (rather than heuristic) jobs and tasks. Awakening of the local market, indirectly, creates a need for professional training for employees, which is important for their career path.

We expect an exacerbation in the war for talent – particularly in the race for technological superiority, when employers and countries look for talent, including graduates, to remain competitive. However, changes in the global technological race might change student priorities (as the change in the power relations between powerful countries might lead to a different culture being dominant). For example, so far, the largest number of international students has been in the US. However, if, for example, China (or other countries) will produce such a technological gap that places it above the competition, American students may want to study there, and not the other way around. Of course, there are many reasons for choosing host countries for international students apart from technological prestige. However, it is a significant consideration that needs to be addressed (Rabenu and Shkoler, 2020).

Increase in virtual work and study means that there are many workers and students operating outside their home countries. However, de-globalization decreases the number of travelers and international students, for reasons such as difficulties in obtaining student visas or quotes and the UK’s exit from the EU’s Erasmus Program (Manfredi-Sánchez, 2021). Under an extreme scenario of de-globalization, cross-border career relocations will decrease (for study or work). Online remote study and work may increase as a result, although, in extreme de-globalization, sharing knowledge will decrease nevertheless (James, 2017).

Moreover, the need to create new industries, such as self-developed and manufacturing processors, opens new local career options for all individuals.

***Scenario 4: Ultra-recession***

The essence of the extreme scenario

The period of recession in a business cycle has many definitions. There are also classifications regarding the recession magnitude (e.g., minor, major, severe and ultra: see Mazurek and Mielcová, 2013). In this section we focus on the ultra-recession, as we deal with extreme scenarios. Mazurek and Mielcová (2013 p.190) describe the ultra-recession as follows:

“Ultra recessions last several years … and GDP growth rates can decline as much as 20-25 % annually. During an ultra recession, GDP falls by 30 % or more when compared to GDP levels prior to a recession. The recovery from a recession may last a decade or longer. During an Ultra-recession the majority of population plunges into poverty, industrial production and agriculture is subdued and some industrial branches might even cease to exist. Population suffers from hunger, breakdown of social and medical services, high inflation, criminality and emigration. People lose their trust in economy, government and politics in general.”

*Prospect impact on careers*

Under such circumstances, the minority of organizations might thrive and even flourish during ultra recessions, (such as COVID-19 encouraging the use of Zoom, or fossil fuel shortage causing an energy crisis pushing for use of wind turbine firms.). However, most companies will have no surplus money; therefore, significant investments in research and development (R&D) will stop or at least be suspended, negatively impacting on talented employees who work in these departments, as they have become accustomed to a high living standard which can no longer be maintained. Obligations (e.g., mortgage) that were taken with a higher level of income in mind will cause financial and also emotional difficulties. To retain a meaningful and a worthy employment, these workers will have two options:

1. *Re-skilling*. Learning new skills in order to be placed in a new position in the organization. For example, electronic engineers’ re-skilling to become account managers in sales to increase the organization's revenue from selling the existing electronic (or other) products or services (occupational labor mobility horizontal within the organization).
2. *De-skilling.* Staying in the same field but degrading skills’ proficiency in order to be placed in a new position down the ladder. For example, electrical engineers will become electricians (occupational labor mobility vertically down within the organization).

Based on their employability, marketability, and alternatives, and with technology-induced occupational structure changes, employees will be more open to career mobility, including occupational mobility (Rabenu, 2021). However, this mobility might bring lower socioeconomic status in general and lower earnings in particular. At the same time, careers will continue to evolve in a dynamic way, when people change employers, occupations, and sectors as suggested by the boundaryless career theory (Arthur and Rousseau, 1996). Professionals and skilled employees will face an unstable and insecure employment future. They might be pushed out of their jobs and need to rely on other options to make a living. Many – particularly women – may opt to leave the corporate world altogether, as suggested by the Kaleidoscope Career model (Mainiero and Sullivan, 2006).

The gap between educated employees in high-skilled jobs and less-skilled or unskilled workers widen, as the latter can be easily replaced by more skilled employees or by AI or robots. The expected unemployment that might lead to innovative “models for living,” such as UBI or ‘Flexicurity,’ which is when “social contracts combine labor market flexibility with strong social security and active labour market programs” (World Bank, 2019, p. 125), might not work in a scenario of extreme recession due to budgetary constraints.

To increase their income, many employees will try to secure a supplementary income alongside their main wage through freelancing. However, the general population and organizations will not have enough money to pay for those extra services, or may pay less than the work's value, so freelancers may experience serious livelihood problems. The market becomes a “market of employers” when employees and workers have no (or very low) bargaining power. Also, it is well known that when organizations experience a severe recession or ultra-recession, they try to reduce their costs by layoffs (Elsby et al., 2019).

Therefore, although still active in many countries, particularly OECD countries, unionization is significantly decreasing. To increase job security, people may opt to return to unionization, as unionized employees may receive better terms (transactions) from the organization than those who are not unionized (Bureau of Labor Statistics, 2022). For instance, during the COVID-19 pandemic, unionized workers were able to better secure their jobs and suffered less from employment losses (Lemieux et al., 2020; McNicholas et al., 2020).

Furthermore, the philosophically-based ideas that become the core values of many organizations, and buzz words that are commonly used by many, such as Diversity, Equity and Inclusion (DEI) which are now a mainstream factor in contemporary management (Koellen, 2021) are not guaranteed to hold up in days of ultra-recession, as they are perceived as less crucial – i.e. “nice to have” but not a “must have” (Rabenu, 2021). Similarly, Feder (2020) argues that, during past economic downturns, some leaders focused on issues that are more critical to survival and have subsequently risked turning back the wheel of achievements in their area. It is important to bear in mind that during an ultra-recession, employees who are recruited under the DEI umbrella rather than for their skills, are less productive, and may be the first to be fired, unless legally protected (Rabenu, 2021).

Similarly, during a time of ultra-recession, organizations will be more likely to neglect the maintenance of a work-life balance, an issue which is currently important and progressing (Kelliher et al., 2019) as a public rather than an individual matter (Warren, 2021). Moreover, employees who were about to retire would prefer to continue to work (as long as they are healthy and physically fit) to sustain a reasonable income and support their family. This will create a situation of five generations in the labour market having to work together, with relatedchallenges such as dysfunctional knowledge-sharing and knowledge transfer issues (e.g., Kick et al., 2015). The young generation might develop resentment towards older employees who do not retire to make way for the benefit of young people needing work. On the other hand, five different generations together may also present an opportunity for a “wiser” workplace (e.g., Stewart et al., 2017).

Last, during ultra-recession, organizations might try to cooperate with government authorities (particularly welfare) to assist employees psychologically by supporting their mental health (suicide rates rise during periods of economic recession) and financially by providing loans to struggling employees (Coope et al., 2015).

In this context, there is still a question regarding the gap between top earners and low earners under ultra-recession. According to Perri and Steinberg (2012), governments “shield” low earners (the bottom 20%) and redistribute wealth through taxes and transfers. However, households with severe earnings loss included under this rubric (because of the recession or before) still experienced losses in net wealth and, therefore, became more vulnerable to further earning declines in the future. In an ultra-recession, many will suffer but, most likely, the “poor get poorer”.

**Discussion**

Management in the 21st Century will face many challenges (Drucker, 2012), some are known, others can only be anticipated. In line with our original aim, we presented a viewpoint and stimulated conceptual discussion about how the future of careers may be impacted by possible future developments. We trust that this thought-piece will stimulate this discussion.

We have examined the workplace of the future under extreme scenarios. We chose four extreme scenarios: (1) Artificial Intelligence (AI) impact; (2) Wars and refugees, (3) De-globalization and (4) Major recession. We have discussed their impact on individuals, organizations, and societies in general. By doing so we tried to prepare society for a possible "new normal" of extreme contexts (Atwater, 2021), with major implications for careers and their management.

Discussing those extreme scenarios reveals that no one has immunity to them and everyone is or will be influenced by them, sooner or later. We also point out the interdependence between places and societies in multiple domains: technological, political, cultural, and more. For example, a war in one place could lead to famine in another place, and pandemic that breaks out far away will lead to a local shortage of products.. After Madhok (2021, p.203):

*“…in today’s more global world, none of us is safe till everyone is safe.”.*

After asking hard (and frightening) questions through the article, trying to think out of the box and from an interdisciplinary perspective as required in complex scenarios, without surrendering to the politically correct while being sincere with our (potential) readers, we believe that there is much room for managerial actions to take preventive steps to deal with extreme scenarios, some of which have already occurred.

The more we learn to share global academic knowledge and connect political relations and forces between countries with regard to human survival, the easier it will be to deal with extreme scenarios. At a time like this, industry knowledge, local experience, community planning and action, collective thoughts and efforts, and openness to creative initiatives are critical.

With relations to the suggested extreme scenarios, as well as possible others that cannot be covered in a single article, we offer the following theory-based concluding propositions:

Proposition 1: The more salient and stronger the extreme scenario is, the more likely it will affect careers. This follows the way other extreme scenarios have influenced careers in the past, with the COVID as a recent example (Akkermans et al., 2020). The reason is that salient and strong extreme scenarios may alter the way individuals and their employer plan and manage careers. It might undermine the perceptions of career, sometimes challenge the career identity for individuals, or force organizations to re-design their career systems. Such changes may represent a challenge to contemporary career theories and at the same time offer opportunities to update and develop traditional theories.  
Proposition 2: The effects of extreme scenarios on careers might be dependent on (moderated by) societal and economic changes in general.  
Contemporary careers are evolving in different contexts, where the national and economic play a critical role, for example, in defining the meaning of career and career success (Andresen et al., 2020).   
Proposition 3: The more salient and stronger the extreme scenario is, the less is the effect of the occupational status (managerial or professional roles vs. nonprofessional roles) on careers. During an extreme scenario, the focus on careers might return to the need for livelihood (as opposed to career or calling). There may be a decrease in demand of professionals that are not "hands on tools" or that are more "nice to have" than "must have" (necessary required professions).  
Proposition 4: In all extreme scenarios, the autonomy of individuals in the management of their career is reduced, at least temporarily.

It could be seen that during the COVID-19 crisis, unemployment rates surged dramatically (OECD, 2020). While many suffered from underemployment (Kaur et al., 2020), other suffered from overemployment (i.e., individuals are driven to work longer hours than they originally intended, Golden, 2014). The mean investment at work (time and efforts) was higher than before the pandemic (Shkoler et al., 2021). This discrepancy suggests that the workload increase varied by industry, with employees in sectors like healthcare, food delivery, and the third sector (like charities and social enterprises) were able to continue working during the pandemic (whether from the office or home).

Explanations for increased work effort during the pandemic are (Shkoler et al, 2021):

1. The fear of job loss, driving individuals to "prove" themselves to avoid dismissal.
2. Excessive work may have served as a coping mechanism, distracting workers from stress and adversity during the pandemic.
3. If one of the main breadwinners loses his/her job, the other works harder to maintain financial stability.
4. Healthcare workers being overburdened by the crisis, may also explain the rise in work intensity.

These reasons are embodied in the theory of Heavy Work Investment (HWI), which distinguishes between various types (based on different antecedents) of heavy work investors (i.e., investing considerable time and effort in work). Those who have to invest heavily in their work because of the situation (situational HWI), as may occur in extreme scenarios, feel lower control in their ability to decide how much to invest in work, either because they are "Needy" or because of organizational requirements ("Overworked"). This is different from those who have higher control on their work investment such as "Work devoted" which are dispositional internal positive state of passion and engagement to work (Snir and Harpaz, 2014).

Proposition 5: AI is new and a direct player in the career arena. As a disruptive force, its influence may be dominant compared with the other scenarios that are more contextual.

The above builds on recent literature about the impact of AI on careers. Recent contribution indicates how AI may change career perceptions and provide new career trajectories, where extreme scenarios may serve as catalysts to the adjustment of career systems (Yin et al., 2024; Presbitero and Teng-Calleja, 2023).

And lastly, Proposition 6: There can be intersections when several extreme scenarios take place.

This proposition follows simple logic, as well as indications from past studies when combination of external events have strong impact on the realm of work for individuals and organizations.   
  
As presented in Table 4 there are six combinations when two extreme scenarios take place simultaneously. It can also be that three or even all the four will occur at the same time, making the outcomes more complex and intriguing – for individuals, organizations and nations. Within the space limits of a single paper, we cannot do justice to the description of all possible such combinations but wish to point out this possibility of combined simultaneous occurrences of more than one extreme scenario.

***Insert Table 4about here***

**Theoretical contributions**

The contribution we offer manifests the relevance of career theories, but also the need to expand and adjust them to deal with extreme scenarios of the kind we presented. Theories tend to fit conventional and normative events and processes – yet are less fit to deal with extreme or deviate cases. The concept of management by exception (Willis et al., 2017), represents a non-conventional or exceptional way to deal with extreme scenarios. We point out ways to cover such deficiency, bridging this gap and enhancing career theories by making them fit for purpose in dealing with a wide set of scenarios.

Revolution or evolution? Under extreme scenarios people will need to change (rapidly) their job, profession, career; Organizations might go out of business or flourish rapidly. Even competitive advantages of nations might be eliminated by such events (Adam Smith’s Wealth of Nations, 1776/2007). Extreme scenarios could shift people away from the luxury and privilege of dealing with high-level needs like ‘calling’ (Hall and Chandler, 2005; Wrzesniewski et al., 1997) rather, under extreme scenarios people may need to ‘regress’ and opt for basic works that will fulfill basic needs.

A single career actor can become dominant under certain conditions, for example, when a specific individual trait is dominant, or when certain organizations have a unique approach to careers, or when nations deal differently with the labour market. Individuals can become stronger players when technology enables few individuals who can deal with AI development to have extreme power (and income) – expanding the career ecosystem theory with the introduction of a new ‘career actor’ at the global level – AI.

Another international business perspective can focus on how de-globalization reduces the power of MNCs. The different scenarios can impose either long-run or short-term impacts. These extreme scenarios may change the career planning – for individuals, as chance events can lead to significant career upheavals. As for organizations, such scenarios may cause either great opportunities or lead to their demise. For nations, national level intervention may be required to cope with such scenarios, and these can be political, economic, legal and cultural interventions.

To expand the theoretical contribution, our thinking about the workplace under extreme scenarios reflects diverse environmental impact under significant situations, in the proximal and distal future. The ideas we present may be used as a basis for studying the effects of extreme scenarios on the world of work, in line with new career theories, like career ecosystem where various career actors interact with each other (Baruch and Rousseau, 2019).

Overall, we offer several contributions by pointing out the role of external human-made impacts on individuals, organizations and society and how management science can help mitigate their impact. While current discussions of career ecosystems tend to explore inter-dependencies between individuals and organizations, the extreme case scenarios can expand the theory to the global level. Further, the impact can be caused by a combination of such scenarios, calling for transdisciplinary research approach, due to the mutual possible impacts of the scenarios (e.g. Johnstone and McLeish, 2022; Leal Filho et al., 2021).

**Managerial implications**

Risk management will be critical at both the organizational and national level. These extreme scenarios would put at risk the viability of organizations and the livelihood of their employees and their careers. Uncertainty will continue to prevail, requiring managers to apply their soft-skills for managing the process in a humane way. Another facet of risk management is dealing with stress, anxiety and burnout, to maintain and improve employees’ well-being. While it is not possible to forecast the future, it is better to be ready for prospect changes of what the future may bring, as suggested by the happenstance learning theory (Krumboltz, 2009).

HRM practices such as Talent Management and PA will require understanding of how to evaluate collaboration with AI as a major factor in people-machine to enable fruitful augmentation in the process (Kong et al., 2024). Yet, beyond practices, HRM should plan strategically (Boselie, 2014) and prepare high-performance HR practices to be ready to deal with such scenarios and others. In particular. to counter the prospects of organizational decline due to external factors (Arogyaswamy et al., 1995).

Based on their employability, marketability, and alternatives, and with technology-induced occupational structure changes, employers should support inter- and intra- organizational moves, including occupational mobility (Rabenu, 2021).

The listed scenarios would call for adjustments in skills and training. Employers may be expected to support their employees to re-skill or up-skill. For others, the phenomenon of de-skilling might be too severe, and they will leave the workforce, either by self-opt-out or by forced redundancy.

**Limitations**

We have chosen four scenarios of extreme changes and their anticipated impact. We believe that these are some of the most prominent events to come, but we do not claim that the list is exhaustive. First, we are not ‘prophets’, we were just using our scholarly understanding and common sense – as well as feedback we received from a number of scholars and presentations in conferences. Other scenarios are also possible and will influence the shape of future workplace too. Future studies may offer alternative, possibly imaginary scenarios (Dries et al., 2024) to this new discourse. We also tried to be succinct, whereas each of the scenarios (and the intersections between them) can be developed to a full paper (or book) on its own merit. Last, we suggest expanding the study of extreme scenarios and their prospective impact on careers, to the field of human resource management and its practices in general.

**Conclusions**

We reviewed four extreme scenarios that may materialize in the future. We demonstrated their complexity while detailing the prospective consequences for general society and individual careers, with an emphasis on the workplace. While there is no single answer as to how these scenarios will affect the world of work and what the best way to handle them is, we offer expanding thinking and perspectives which allow researchers, practitioners, and policymakers to better plan for and deal with them successfully.

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**Table 1: Forecasting four extreme scenarios by likelihood, temporality and extremeness.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Likelihood | | Temporality | | Extremeness | |
|  | Likely in the near future | Likely in the far future | Rapid | Slow | Moderate | High |
| Artificial Intelligence (AI) impact (technology) | V |  | V |  |  | V |
| Wars – and refugees (political-conflict; culture and society and legal) | V |  | V |  | V |  |
| Wide range de-globalization **(**geo-economy system and nationalization) | V |  |  | V | V |  |
| Major global recession (economic). | V |  |  | V | V |  |

**Table 2: The roles of people, technology and capital over time**

|  |
| --- |
| *Historical era Human added value Technology Dominant Capital*  Hunter-gatherer Instinct Primitive Fruits, vegetables, wild animals  Agriculture Tradition Simple Land  Industry Process Heavy Finance  IT revolution Knowledge High-Tech Creativity and innovation  Industry 4 Ingenuity AI Critical thinking  Source: Baruch (2022) |

**Table 3: Communalities and distinctions between general migration, refugees’ migration, and expatriation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ***Refugee*** | ***Immigrant*** | ***Self-initiated expatriate*** | ***Corporate expatriate*** |
| ***Motive*** | External, forced | Internal, chosen | Internal, chosen | Corporate induced |
| ***Length of time*** | Unknown | Life-time | Plan-subjected | Typically, three-four years |
| ***Long-lasting impact*** | Personal mental scars. Possible return to home country in future | New and transformational process | Future career can be at host or a return to home country | Varying impact on future career |
| ***Autonomy*** | Taken away | Intact, subject to family needs | Depends on work embeddedness | Mostly with the corporate |
| ***Past, present & future*** | Past does not count; future unclear | Escape from the past, hope for positive future | Possible to return after the period | Past leads to future according to corporate plan |
| ***Emotions and stress*** | Very high, but support mechanisms for the community of refugees | Managing it on individual and family bases | Depends on success in job search | Part of normal organizational life. The corporate selects and trains the relocated worker to increase resilience |
| ***Legal & political issues*** | National level | National level | Individual level | Corporate level |
| ***Support mechanisms*** | Global NGOs\* | Other immigrants in the community | Family and friends | Corporate HRM |
| ***Earning*** | Doubtful | Hoped for | Planned for | Guaranteed |
| ***Housing, education*** | Set by national and global agencies | Set by self | Set by self | Covered by employer |
| ***Physical threat*** | Acute | Meeting the unknown | Meeting the unknown | Relatively normal work risks |
| ***Origin*** | Self-forced | Self-also value & economic based | Self-also value & economic based; temporal | Self & organizational origin |

Notes: \*Nongovernmental organization

**Table 4: Possibilities for simultaneous occurrence of scenarios**

|  |  |  |
| --- | --- | --- |
| AI Impact X Massive immigration |  |  |
| AI Impact X Widescale *de-globalization* | Massive immigration X Widescale *de-globalization* |  |
| AI Impact X *Major global recession* | Massive immigration X *Major global recession* | Widescale *de-globalization X Major global recession* |

Global

(Macro)

Interdependence between locals

(Meso)

Context

Economic crisis

Competition between superpowers

Global pandemic

Wars

Local

(Micro)

de globalization

Globalization

**Fig 1: Current forces operating de-globalization**