Future of the Workforce

During the past few weeks I have been having recurring conversations with people from different backgrounds and points in their careers. All these conversations reflected something in common: a fear towards the somewhat unpredictable or unwanted changes in the future workplace. In contrast, others showed an excitement towards said change. I could find parallelisms to the two first views expressed in Mesthene's article about "The Role of Technology in Society" (Teich, 1969). Some see it as a blessing and a motor of all progress that will "liberate the individual from the clutches of a complex and highly organized society" (p. 78), by transforming the workplace, reducing weekly schedules without salary decrease or implementing tele-working. Others, maybe the most prevalent, see it as a threat that will rob them of their jobs and become "autonomous and uncontrollable" (p. 78).

Technology and workplace through the ages

In Volti's book (2014) we are able to see an analysis of work and technology through the ages, from the production and use of tools or simple technologies in "primitive" societies (Stone Age or more current, the !Kung tribe), to the development of agriculture and farming techniques (slash-and-burn to intensive agriculture to support the supplies of food for a growing population) and the appearance of artisans and their organization of work into guilds. Another driver in the evolution of work was the measurement of time, started by the medieval monastery: being very large enterprises that contained hundreds of monks, they required regular times for prayers and divided days and nights into 12-hour intervals, a system that would lead to the value of accurate timekeeping and therefore the production of the clock (Volti, 2014). This would create a new paced

way of working, very different from the old ones, and converted most work into "routinized procedures governed by artificial time schedules" (2014, p. 180).

Technology as a threat to human workforce is not a problem of the present, but also of the past. We see several examples in Volti, from the rise of machine-smashing Luddites in England in the 17th century and the loss of economic base in Caliente, Nevada, with the introduction of the diesel-electric locomotive, to more current ones such as the unemployment in the steel industry and the drop of payrolls in the corn production in the early 2000. Nevertheless, Volti asserts that even if "available technologies were used to their utmost, there would still be plenty of work to do" (2014, p.184), such as providing basic necessities to people in need around the world. All in all, as Volti puts it, technologies may destroy existing human jobs, but they also create others that didn't exist earlier. There are jobs now that didn't exist hundreds of years ago and this is a trend we can expect to continue. This, we will see, is an argument that will be much discussed in the coming sections.

Predictions from the past

While searching for different points of view and predictions for the future, I stumbled upon a compilation of predictions that were made in the past (starting from the 1950) about today or recent years, which I thought might be interesting to share here and compare with what we expect now for our future. This article by Natasha Frost (2018) included theories such as massive improvements in "the pay, hours, attitude of the boss and physical environment" (Aldous Huxley, 1950, talking about 2000); extremely remote work, and a world where we can be in contact with each other anywhere on Earth (Arthur C. Clarke in 1964 about 2014); that machines will be producing so much, the US worker will only leisure and be very wealthy (editors of Time magazine in1966 about 2000); or that the world would be run by intellectual unions and self-managed workers (Roy Amara, head of Institute of the Future in 1982, about 2000). Some of these

predictions have come quite close to the truth. Will the ones included in this project come close also? I guess we'll have to wait and see.

Purpose of this study

Almost 50 years have passed since the publication of Mesthene's article and I'm sure there is some truth in both those views, but as with any change it probably won't be as good or as bad as any of them, and more of something in between. This clarification, or at least a deeper look into this topic, is the purpose behind this research project. By revisiting the texts by Volti and Teich, and conducting a deeper literature review, we hope to find patterns or at least a better idea of the current predictions about the future of the workplace, from deep studies such as the 2016 and 2018 *Future of Jobs Reports* by the World Economic Forum (studies focused on gathering the views of business executives), as well as other institution's reviews on the topic (Deloitte, MIT) and interviews and opinion articles by people from different backgrounds and at different levels in their careers.

In addition to the ubiquity I have experienced lately about the future of the workforce, this topic is of great interest and use for my work as well. As an educator in the sciences, I interact on a daily basis with a public that feels fear toward this change, with students at all levels (from k-16 to university) that fear unemployment and the ethical issues of progress, with scientists that are too focused on their research to think about the ethical implications of their projects, or even about their own careers and what place they'll occupy in the future. While this impending change holds great promise, I'm sure there will be many challenges and threats along the way. I feel it as a duty and responsibility to be as up-to-date with this topic as possible to inform and educate others, to make sure that they are making their right and informed decisions, and that we all move forward not with complete fear of the unknown, but with a sense of conviction and togetherness.

Findings

As described above, the following will be a compilation of findings regarding current discussions and reports about the future of the workplace through the impact of scientific and technological progress.

The Future of Jobs Reports

A first iteration of this report was created in 2016 at the World Economic Forum (WEF)[1], fueled by the concerns of policy-makers, business leaders and individual workers and to assess the reasons for these debates, from the implications of changes in the workplace for workers and their livelihoods, to the transformation of global markets and shaping it to benefit economies and societies. These reports were a first step to becoming specific about these changes, by tapping into the knowledge of those who, according to the WEF, are best placed to observe the dynamics of the workforce: chief executive officers, chiefs of Human Resources and strategy officers (WEF, 2016). Among the questions asked were the meaning of current shifts for employment, skill development and recruitment. An effort to quantify the gender dynamics that these changes will entail was also included. According to WEF, they put their efforts in conducting this report to prevent worst-case scenarios (such as technological change equaling to mass unemployment or inequality growth) and to make sure that the current technological revolution doesn't become "a race between humans and machines but rather an opportunity for work to truly become a channel through which people recognize their full potential" (WEF, 2016, p.vi). The first report from 2016 seems to provide an overview of possible changes (but mainly of what potential drivers would

[1] Established in 1971, the World Economic Forum (WEF) is a non-profit foundation and international organization for public-private cooperation, focused on engaging leaders from different fields in our society to shape global, regional and industry agendas (from Our Mission, WEF, 2018).

create them) until 2020 with a smaller sample size (companies representing over 13 million employees). However, all the discussions, articles and research that these findings generated led to an increased need for more in-depth and tangible evidence. Thus, for the 2018 report they decided to conduct more in-depth questions and developed several trends, future scenarios and drivers of change by interviewing stakeholders (CHROs, CEOs and HR Managers) from companies that represented over 15 million employees and from diverse industry groups (Automotive & Aerospace, Tourism, Chemistry, Consumer, Energy, IT and Healthcare, among others). Given this more in-depth and detail, this project will focus more on the latter.

The 2018 report acknowledges the "instability" of the future of technology and the workforce, and that although new algorithms and machines can improve the quality of jobs and life, if managed poorly it could also turn to "greater inequality and broader polarization" (WEF, 2018, p.vii).

The key findings reported by this 2018 survey according to WEF are (summarized):

- *Drivers of change:* dominated by ubiquitous high-speed mobile internet, AI, big data analytics and cloud tech which are set to *positively* impact economic growth, expansion of education (especially for middle class and developing economies), as well as new greener energy technologies.
- *Accelerated technology adoption:* large portions of respondents affirmed they would invest in expanding their adoption of big data analytics (85%), make extensive use of cloud computing and augmented/virtual reality.
- *Trends in robotization:* different industries are more likely to adopt different kinds of robots; for Oil & Gas there's interest in all of them (humanoid, aerial and underwater),

for Financial the adoption of humanoid robots, and across all industries the use of stationary seems prevalent (37% to 23% reported an interest of investment in robotization, depending on industry).

- *Changing geography of production, distribution and value chains:* 59% of employers reported they will significantly modify production and distribution, and almost half expect to have modified geographical base of operations by 2022 (prioritizing the availability of skilled local talent).
- *Changing employment types:* almost 50% expect reduction of their full-time workforce due to automation, but 38% expect to extend their workforce for productivity-enhancement roles and over 25% expect automation to create new roles.
- *New human-machine frontier within existing tasks:* currently humans perform 71% of task hours, compared to 29% by machines. Expected for 2022 is a shift of 58% by humans and 42% by machines. Even tasks that are predominantly human, such as coordinating, developing, advising, will begin to be automated.
- *Net positive outlook for jobs:* their current estimate suggests a decline of 0.98 million jobs and a gain of 1.74 million jobs by 2022.
- *Emerging in-demand roles:* based and enhanced by the use of technology such as Data Analyst/Scientist, Social Media Specialist, Software Developer, etc. Roles with "human" skills such as customer service, training and development are also expected to grow, as well as new specialist roles such as AI, Blockchain and Big Data specialists, among others.
- *Growing skills instability:* due to the use of new technologies and the changing division of labor (between workers and machines), as seen in some examples from **Table 1**.

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Active learning and learning strategies	Manual dexterity, endurance and precision
Critical thinking and analysis	Creativity, originality and initiative	Memory, verbal, auditory and spatial abilities
Active learning and learning strategies	Technology design and programming	Management of financial, material resources
Creativity, originality and initiative	Critical thinking and analysis	Technology installation and maintenance
Emotional intelligence	Complex problem-solving	Management of personnel
Reasoning, problem-solving and ideation	Leadership and social influence	Quality control and safety awareness
Leadership and social influence	Emotional intelligence	
	Systems analysis and evaluation	

Table 1. Comparing skills demand, 2018 vs. 2022, from Future of Jobs Survey 2018, World Economic Forum.

- *Reskilling imperative:* with trainings ranging from 6 to over 12 months, to increase skills on technology design and programming. Nevertheless, leadership, creativity and emotional intelligence skills are expected to retain or increase their value.
- *Current strategies for addressing skill gaps:* include hiring wholly new staff (that possess the skills needed), automating tasks, retraining existing employees. However, the first seems to be the most prevalent, by hiring external contractors, temporary staff or freelancers that address these skill gaps.
- *Insufficient reskilling/upskilling:* the reported priorities by employers are to focus on employees performing high-value roles, meaning that those in most need of reskilling (at-risk employees) are least likely to receive the needed training.

Trends set to positively impact business growth up to 2022	Trends set to negatively impact business growth up to 2022
Increasing adoption of new technology	Increasing protectionism

Increasing availability of big data	Increase of cyber threats
Advances in mobile internet	Shifts in government policy
Advances in artificial intelligence	Effects of climate change
Advances in cloud technology	Increasingly ageing societies
Shifts in national economic growth	Shifts in legislation on talent migration
Expansion of affluence in developing economies	Shifts in national economic growth
Expansion of education	Shifts of mindset among the new generation
Advances in new energy supplies and technologies	Shifts in global macroeconomic growth
Expansion of the middle classes	Advances in artificial intelligence

Table 2. Top Ten Trends set to impact business growth positively/negatively up to 2022, from Future of Jobs Survey 2018, World Economic Forum.

Some of the conclusions drawn by the WEF from this somewhat lengthy report (147 pages) include that we are in the wake of a fourth Industrial Revolution and that the 2018-2022 period will genuinely bring a window of opportunity to leverage new technologies, improve job quality and enhance worker's skills, among others (2018, p. 22). They also call for the need of an "augmentation strategy", or in other words, that machines should enhance the worker's labor instead of replacing it. They also offer several trends (as seen in **Table 2**), pointers and recommendations for **governments**, such as the need to upgrade education policies and help stimulate job creation; for **workers**, to take personal responsibility on lifelong learning and career development; and for **industries** to support the upskilling of their workforce at all levels and create schemes to improve corporate training programs. In addition to this, the report also mentions the need to ensure that jobs are remunerated fairly and finally raises several questions regarding the shift of employment relationships, as freelancing and temporary work becomes more common.

The Rise of the Social Enterprise

During the *EmTech Next* conference in March 2018 (produced by MIT Technology Review), MIT and Deloitte partnered to conduct a global survey of more than 11,000 business and HR

leaders, as well as interviews with executives from leading organizations, to develop the 2018 Deloitte *Global Human Capital Trends* by Agarwal, et al. This report asserts a profound shift in business leaders worldwide and a rapid rise of the "social enterprise", meaning that companies are no longer assessed based on financial performance or on the quality of their products, but that they are judged, more and more, by their relationships with their workers, customers and communities (Agarwal, et al., 2018). Through the report, there are several trends predicted about the future of the workforce and the workplace. Given the extension of this report, several of these trends have been selected by relevance and their key points summarized as follows:

- *The workforce ecosystem:* the workforce has become much more dynamic, as shown in the responses to this survey, where only 42% of the respondents said their organizations were primarily made up of salaried employees. According to Agarwal, et al. "this new workforce model is redefining the employer-worker relationships" and "new strategies should be developed to help organizations take advantage of this new breath of workforce options" (2018, p. 28). They also mention the importance of exploring what the lives of these alternative workers look like and remarks the importance of providing healthcare and insurance benefits to freelancers, gig and crowd workers.
- *From careers to experiences:* according to this report, careers are no longer defined by jobs, but rather by experiences and learning agility. This transformation of work will demand new approaches to learning and designing jobs and a call for "reinvention within organizations" (Agarwal, et al., 2018, p. 44). It will be imperative for organizations to understand and develop 21st century careers, as well as develop their L&D offerings to retain their talent.

- *Work in an era of 100-year lives:* with the rise of life expectancy and an aging global workforce unprecedented challenges will rise, but also opportunities. Only 18% of respondents viewed age as an advantage in their organization, but there is a trend to focus on this talent pool, as valuable resources for training, sources of institutional knowledge, and serve as mentors, coaches or experts. Proactive strategies by some organizations are the development of new paths, new roles and changes in the workplace to accommodate workers in their 50s-70s. As an example of the latter strategy, BMW increased production by 7% in just three months by providing cushioned floors and adjustable work benches to an assembly line staffed with older workers. That being said, age discrimination is already becoming a main-stream diversity issue and liability concern: during 2016 there were over 21,000 age discrimination complaints filed with the US Equal Employment Commission. Also, 20% of respondents to the survey reported their organization had *nothing* to help older workers find new careers and 15% believed older employees to be an "impediment to rising talent" (Agarwal, et al., 2018, p. 52).
- *Well-being as a strategy and a responsibility:* the report states that the line between work and life is blurring, and that companies have a responsibility to provide well-being programs focused on physical, mental and financial health to increase employee productivity and retention. However, there is still a gap between what companies offer and what employees want (as depicted in **Figure 1**). According to the report, wellness is no longer an optional element, but a business imperative for companies and to actively boost performance as well as employee social and emotional well-being.

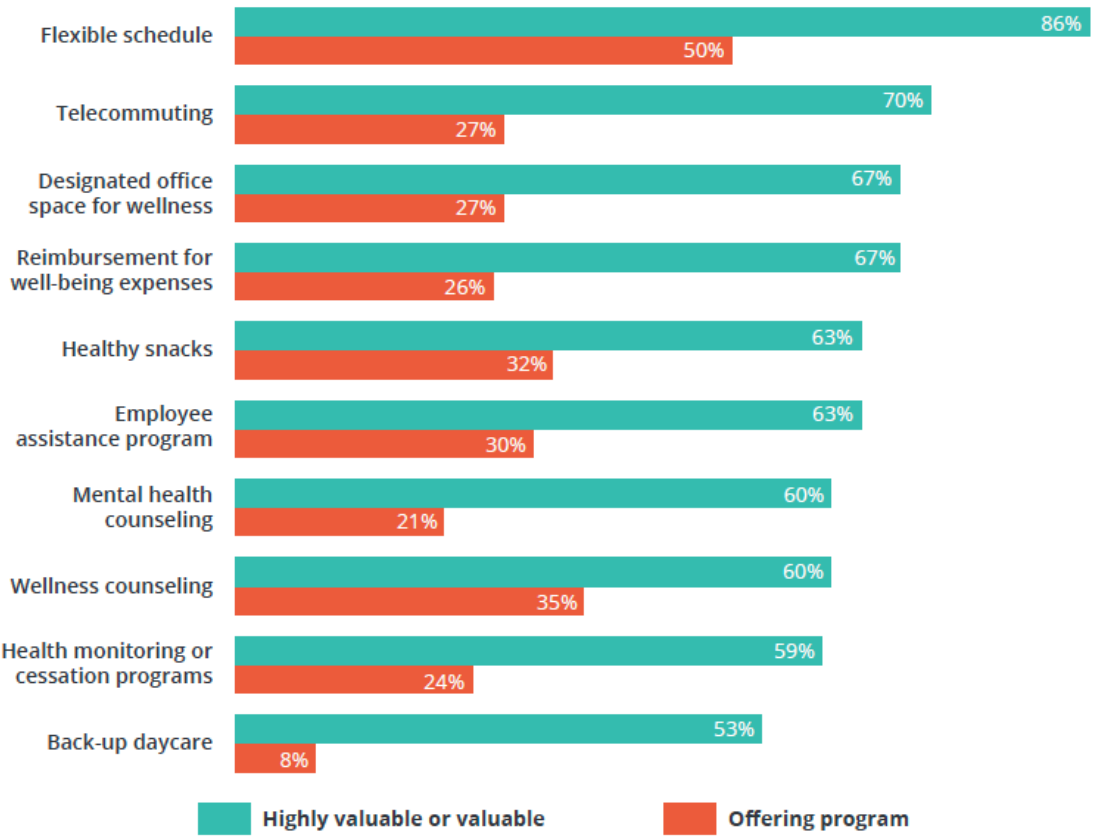

Figure 1. Well-being: what employees want vs. what employers offer, from Deloitte *Global Human Capital Trends Survey*, 2018, p. 66. N=11,070.

- *AI, robotics and automation:* almost half of respondents (47%) reported deep involvement in automation projects in their organizations and 42% believed that AI will be widely deployed in their organizations within three to five years. But while organizations are increasingly using new technologies, there's a need of reconciliation with human counterparts by rethinking the work architecture to maximize both their values. The report supports that companies are increasingly recognizing that technologies work best when they *complement* humans, instead of replacing them. There is also a growing recognition that AI tools, for example, *require* human oversight, by watching, training and improving algorithms. Also, the implementation of new technologies is not limited to technological

> companies. As an example, Morgan Stanley, equipped 16,000 financial advisers "with machine learning algorithms that automated rote tasks, freeing up advisers to focus on client service" (Agarwal et al., 2018, p. 74). Despite this increase in technological use, apart from a strong demand in technical skills (creation, installation and maintenance of machines), the survey reported a surge in demand for "human skills" such as complex problem-solving, social skills and cognitive abilities.

The MIT Technology Review complemented this report with an article of their own, where they discuss and reinforce the need to find a balance between technology and human skills and how machines will not (or should not) replace humans completely. They also conducted a survey with thought leaders that weighed in the conversation, while talking about the totality of changes: some showed preparedness, while others still had ways to be ready for the future (51% of respondents reported they have done little or nothing at all to prepare) (MIT Technology Review, 2018). In addition, 43% reported that if they could focus on one thing to meet the challenges of the future of work it would be upskilling/reskilling of employees and 36% reported that adapting to a new mindset in the digital world will be the top challenge for their organization (MIT Technology Review, 2018).

The Workplace, On-demand

Approaching this topic from a different perspective is Ryan Simonetti, co-founder and CEO of Convene[2], who has developed a book about his "Five Predictions for the Future of Work" (2017) focusing on the change of the workplace itself. All of his predictions gather around the topic of

[2] Founded in 2009, Convene LLC is a company that has created a network of tech-enabled meeting, event and flexible workspaces for other companies such as Facebook, Google and Microsoft, and that provides a workplace-as-a-service platform.

evolution of commercial real estate industry (such as the average commercial lease term approaching one year and that the majority of Fortune 500 companies won't hold long-term leases), but there are several points made along the book that I found relevant to the topic of this research project. Simonetti asserts that even if the way we worked has changed dramatically in the past 50 years, with the automation and use of technology in most industries, the transformation of the workplace is going to experience a dramatic change in the next few years through workplace design and smart building technology (2017). This will be, among other reasons, due to the incorporation of millennials to the workforce, who according to a survey conducted by the consulting company PwC (PricewaterhouseCoopers) will make up 50% of the global workforce by 2020 and value above all else choice, flexibility and experience (PwC, 2012) (Simonetti, 2017). Simonetti also mentions the evolution of the sharing economy or how "goods and resources are no longer defined by ownership or hierarchy, but rather by technology's ability to link demand and supply" (2017, p. 5), as is the case with sharing-based technology platforms such as Uber or AirBnB. He also predicts that "Third Places" (meaning community gathering spaces that are not work or home, such as co-working spaces) will increase majorly, although he also mentions that companies will need to develop new policies to support new ways of working. Finally, he also predicts a trend towards work-life integration, rather than work-life balance, with office buildings providing a focus on human-experience and designed like a "full-service lifestyle hotel or luxury residential tower" (Simonetti, 2018, p. 15).

Other thoughts on the future of work

Given the relevance of this topic, there are many articles, reviews and reports on what the future holds regarding workforce and the workplace. Following are several different points of view

and predictions from CEOs, to journalists and economists that support or add onto the previously discussed reports and book.

According to *Stephane Kasriel*, CEO of freelancing website *Upwork*, he can draw four predictions for the future of work from his own experiences and research:

1. AI will create more jobs and not mass unemployment: he considers Elon Musk's fear of "the rise of the machines" to be part of science fiction, not supported by history or data. He recognizes that some jobs will go away but that many others will be generated or in high demand. According to him, it is "no longer a matter of human vs. the machine, but rather of human *and* machine working in tandem" (Kasriel, 2017).
2. Cities will compete against each other for talent: such as was the case of cities in the U.S. trying to "woo" Jeff Bezos to establish Amazon's new headquarters there (Bowles, 2017). This talent war will no longer be between companies, but rather cities that will offer attractive living options and have a certain "vibe".
3. The majority of US workforce will be freelancers by 2027: mainly due to millennials leading the freelancing way and companies utilizing freelancers to fill skill/talent gaps.
4. Education breaks out the silo: Kasriel asserts that the current US education system is broken and not preparing future generations for the skills and jobs that will be needed (even in the present). He predicts education to become a lot more flexible to suit 21st Century needs, such as with project-based schools, which, according to him, set the stage for what the future will look like.

According to *Howie Liu*, CEO and co-founder of *Airtable*, an all-in-one collaboration platform (for task management, databases and more), there are similarities between the rapid advancement of machine learning and that of the steam and electricity-powered machines during the Industrial

Revolution, that left many people without access to work. Nevertheless, he believes that with the lowering of capital costs (instead of having to work with machines that were extremely costly for workers, they only need access to a computer which is much cheaper), this could theoretically "allow the entire populace to participate in this renaissance", even if there are certain barriers such as steep learning curves. He concludes that there needs to be a proactive and intentional design of systems by policy-makers, non-profits and for-profits to narrow these gaps, such as with the inclusion of computer science and software engineering in public education curriculums, crowdfunding platforms for entrepreneurial and artistic projects, as well as investing in skillset expansion for workers.

Finally, according to *Andy Oram*, economist and editor at O'Reilly Media, specialized in open source technologies and software engineering, there are several things were the report by WEF stopped short. He argues that the report overlooks the impact of new companies (especially in other fields than the ones reported) and fails to address public education, as well as other factors that can disrupt the economy such as wars or climate change. In his article, Oram (2018) foresees a major job growth through start-ups, agrees that there will be a quality of life at work in general, but that not all job producers will be able to afford it (such as employers in education, health care, the arts and non-profits in general) and will need to be subsidized, and that much more than a "modest amount of reskilling" is needed; to reap the benefit of automation, he affirms, our global change must be presented as a "social movement" (Oram, 2018).

Discussion

Through this literature review, I have been able to find several arguments that seemed robust enough to share with my students and scientists. We can see a very pronounced trend on all predictions: a major increase in the use of Artificial Intelligence and other technological elements (such as cloud-based and quantum computing) to conduct a wide range of tasks, even organizational ones. I'm sure that if I were to share this with any of my colleagues and friends, they would probably say it only reinforces their fears of losing their jobs. However, as Volti says, the "effects of technological change are complex, and it is easy to fix upon one particular result and ignore others […] but it is essential to consider the larger picture" (2014, p.184).

As we have seen in the reports by WEF and Deloitte, even with the introduction of a more mechanized workforce, jobs are expected to increase (and others to "*augment"* (WEF, 2018, p.v)), not decrease, although there will probably be a shift in the competencies of these jobs (at a smaller or higher rate) and will definitely require workers to reskill. We can already see this prediction in Volti's analysis, where he mentions that as new technology advances, new opportunities are created and "technological advances will not lead to job losses if the demand for products and services increases at the same pace as increases productivity", continuing with "in turn [this] may motivate an employer to take on more workers so that the increased demand can be met" (2014, p.185). I think with this last point, Volti was thinking more in the line of production of goods, but in my opinion the increase on productivity will probably come from machines doing work more efficiently, especially in providing services, than humans (and goods as well of course). We will see that technological change will not only improve the way we work, but our way of living. After all, technology also generates problems and as demonstrated in this project, it requires review and optimization of algorithms, among others, but there are so many other problems (that we have

created ourselves), such as climate change that will inevitably require us to work on them and therefore create a substantial number of jobs (hopefully, sooner rather than later).

Even with all this change and fear around the loss of jobs, I, for one, am not worried about it (for myself AND others). I wholeheartedly believe that humans are (at least one of) the most adaptable species on Earth, and I think we will not disappoint in this case. That being said, certain questions arise, especially given the responses in the surveys conducted by WEF and Deloitte: are companies ready? About that, I'm not so sure. I was happy to read the companies' expectations to increase roles with new technological issues and to adapt some of the existing ones for productivity, but will they invest what's needed to reskill/upskill their workers? Who will they focus their efforts on? Everybody or only leaders and people they decide have potential, leaving those at high-risk behind, as WEF suggests? As Oram said, we should battle this as a social issue and with much more than "modest reskilling".

Another one of the trends I noticed was the change in the structure of work as we know it, from working remotely and reduction of schedules, to the increase of freelancing and "employer-free" options without owning a company (such as AirBnB). I was extremely surprised to learn from Kasriel that by 2027 the *majority* of U.S. workers will be freelancing. But as the WEF put it, we must think about the long term for these kinds of workers. Companies will definitely see it as a plus, given that they will not have to pay for these employee's benefits, but who will? In my opinion, policies must be put into place by governments and companies, and freelancers must make it a priority to ask for it as well. Otherwise, in my opinion, we'll have one-sided winning relationships and social issues when retirement comes.

Something that came as a great concern to me was another trend that both the Deloitte report and Ryan Simonetti touch upon: the work-life *integration*, rather than balance. As a European, this

is something I struggle a lot here with in the U.S. I'm lucky enough to have paid days off and a reasonable schedule, but there's this general feeling (at least from my opinion) of always having to work, of work always coming first, even when off. To me, my "free time" or the time I spend with family comes above all else. I think it's great that businesses focus on the wellbeing of workers and provide yoga classes, and malls and so on. Nevertheless, I can't help but think of all this as a double strategy to get us to work more and be at home with our loved ones less. If staying at work becomes so appealing that we spend less time with our families, what will be the social implications? What will happen to family structures? Will it have negative consequences to marriages, friendships, etc.? I think so. What can we do to make sure this underhand doesn't happen? This reminds me of the Spanish factory-cities and factory-houses during the Industrial Revolution, such as the "Casa Fàbrica de Turull" (Factory House of Turull) a building in Sabadell (outskirts of Barcelona) equipped with working rooms and housing, where over 100 workers (men, women and children) lived and produced textiles during the mid 1800 (Casañas Riera, n.d.). These really didn't end up well.

Something about the demand of skills caught my attention: the increase of "human" skills demand, such as creativity, social skills, etc. According to the Deloitte report (2018, p.96) most companies are struggling to recruit people with these skills because (other) companies don't cultivate them. But is it just companies? In a recent talk with middle and high school teachers I came across the "Chromebook model" of teaching. Apparently prevalent in my district, kids arrive in class and have a Chromebook on their table that they use throughout their school day.

Through it they get their lectures (via videos and recordings of every topic) and even interact with other students through instant messaging (there's a teacher in the class, but only for support). I found this utterly appalling and so did the teachers. Their problem now is not so much kids not

getting a topic or returning homework, but their complete inability to interact with others and little to no problem-solving skills and creativity. This makes my heart heavy. I liked Kasriel's assertion that education would break the silo and "project-based schools" would grow, but this is too much. Hopefully, this model is just a "technocrat's delusion" as Volti (2014) said, and this model that takes over our kids' brains will go away.

All in all, I, like Volti, feel quite optimistic about the future of work and of the world in general. I'm extremely excited about what's to come, but I can also acknowledge and foresee that on the way to the future of work we will face many challenges, from assuring that social rights are met at all times, to battling between profit and ethical implications (especially with AI and automation). I think all of these issues need to be addressed and discussed between experts but also, and especially for our field, between all stakeholders (from policymakers, to teachers and parents). These ethical concerns and the objective of doing what's right for all, rather than what's convenient or efficient needs to also be shared with our learners, especially the younger ones, who will surely be more affected by these changes than us. Nevertheless, I will keep on being positive by keeping in mind Carl Sagan's words: "Somewhere, something incredible is waiting to be known". And I cannot wait to learn about it!

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