

1. Introduction

In the last few years there has been an increasing focus on the future of jobs. The trends suggest improvement in technology, obsolescence of jobs and tasks, new areas and industries appearing. At the same time, old struggles continue to be reality for a high portion of the global population (especially young people).

The UN estimates that roughly half the world's population still lives on the equivalent of about US\$2 a day, and in too many places, having a job doesn't guarantee the ability to escape from poverty. New initiatives are using technology to connect, support and take action regarding working conditions in the collaborative economy, but still a large proportion of young workers earn about 20% less than the generation before them, despite of attending college at a much higher rate. At the same time global unemployment increased from 170 million in 2007 to nearly 202 million in 2012, of which about 75 million are young women and men. New and atypical employment is at high risk of being informal.

According to the Euromonitor international, half of the population in the world is under 30 years old, 89.7% of them living in emerging and developing economies, particularly in the Middle East and Africa². There are more young people in the world than ever before, creating unprecedented potential for economic and social progress. The right policies and incentives to promote a future of work embracing new possibilities and solving old challenges are crucial to accomplish it.

How are we going to cope with dramatic changes in labour? What are the trends that are shaping the labour market? What other strategies to foster young employment could be implemented? How does youth understand and participate in the development of these strategies? What kind of strategies can be implemented to upgrade employees digital skills taking into account enterprises' needs? What are the policies needed to provide protection for workers?

What should we do today to ensure a better future of work?

1. 1. Objectives

The Future of Work Task Force will focus on the most pressing issues and trends in today's labour market and its interactions with other sectors and areas of human development. We aim to trigger the dialogue and information exchange for young

² Euromonitor International (2012) Special Reports: The world's youngest populations. Link: <https://blog.euromonitor.com/2012/02/special-report-the-worlds-youngest-populations.html>

delegates to generate informed and relevant policy suggestions, as well as promote public and social innovation projects on the matter.

Policy suggestions and projects that address the future of work should include the perspective of today's workers and the ones that are trying to join the workforce. This also means considering how the workplace of the 21st century should look like when productivity and well being are the key, and how many hours should the working day last.

During the Y20 process we expect to:

1. Reach a common understanding of the main trends in today's labour market and the possible result in the future.
2. Understand the connections between human and machine labour, and the training and skilling needs related to it.
3. Identify the role of the different stakeholders involved in the 21st century world of work.
4. Propose a series of public policies based on the goals defined and design a theory of action to bridge the gap between policy and practice.
5. Propose a series of social and public innovation projects that can be carried out by individuals, organisations and communities to face the challenges and trends related to the future of work.
6. Provide information to the governments to complement traditional labor market data by leveraging alternative data sources for labor market intelligence, adapted to the 21st century needs.

2. Current Trends, Challenges and Opportunities

2.1. Digitalisation, retraining and reskilling

Following the McKinsey Global Institute Report (2017), towards the year 2030 up to 375 millions of people worldwide will need to switch occupations and upgrade skills; automation will bring big shifts to the world of work where 60 percent of occupations are having at least 30 percent of constituent work activities that could be automated. The risk of automation by early 2030s appear highest in sectors such as transportation and storage (56%), manufacturing (46%) and wholesale and retail (44%) but lower in sectors like health and social work (17%) (Pwc, 2018). In contrast, the research of Arntz, Gregory and Zierahn (2016) taking into account the heterogeneity of workers' tasks within occupations found that on average across the 21 OECD countries, only 9% of jobs are automatable. Until now, there has been job concentration in both very high and very low skill, with those in the middle taking the brunt on the impact. McKinsey scenarios show that wage polarization could be

exacerbated in advanced economies -low-wage occupations will increase and middle-income occupations will have the largest employment declines- meanwhile in developing countries with a growing middle class (India & China) middle-wage jobs will grow quickly as these economies develop.

According to the World Economic Forum (WEF), the risk of job losses is equal between men and women, but given that women have fewer opportunities to transition to more high-skilled occupations or the fastest growing areas of job-creation related to STEM, current trends seem to widen the gender gap excluding, underpaying, overlooking and exploiting half of the world's population.

Recent debates about the future of jobs have mainly focused on whether or not they are at risk of automation (Arntz, Gregory and Zierahn, 2016; Frey and Osborne, 2013; McKinsey Global Institute, 2017;) generally minimising the potential effects of technological change on job creation, and the complexities that arise between other relevant trends including, globalization, demographic change, environmental sustainability, urbanization, increasing inequality, and political uncertainty³.

³ **Technological Change:** “History shows that technology optimism can slide into determinism, though there is a mirror image of this logic: people tend to underestimate the huge effects of technology over the long term (...) new materials and processes, leveraging digital tools that allow improved real-time measurement, experimentation and replication, are inherently complementary such that advances in one domain may feed back into new technologies in a virtuous cycle”. **Globalization:** “Over the past three decades, labour markets around the world have become increasingly integrated. Emerging markets face various obstacles in sustaining their historic growth rates, ranging from the prospect of premature deindustrialisation to the task of building high-quality institutions. Sluggish world trade growth since the financial crisis and stiffening protectionist sentiment have challenged the decades-old rule of thumb that trade grows faster than GDP, raising concerns that globalisation has structurally ‘peaked’”. **Demographic Change:** “The global economy has passed an important demographic threshold: dependency ratios – the ratio of non-working age population to working age population – have begun to rise after nearly half a century of declines. With labour inputs slowing in advanced economies, the importance of productivity in driving overall growth and policy in boosting labour force participation has increased”. **Environmental Sustainability:** “Climate change has wide-ranging consequences for many industries. Agriculture, tourism, insurance, forestry, water, infrastructure and energy will all be directly affected, though linkages with socio-economic and technological systems mean that risks can accumulate, propagate and culminate in even larger impacts (...) Structural changes associated with the green economy are fundamentally dependent on government policy. The number of supportive regulations has grown across the world. Although initiatives are likely to be set nationally rather than multilaterally, remain tied to specific sectors and technologies and are vulnerable to political reversals”. **Urbanization:** “Today, over half of the world’s population live in cities, a number that is expected to grow to 70% by 2050. Cities are magnets for high-value, knowledge-intensive industries, where physical proximity enables collaboration and firms and workers benefit from enhanced labour pooling and matching. However, in many advanced economies infrastructure investment as a proportion of total government expenditure has been trending downwards for decades, with serious questions around the quality of existing infrastructure”. **Increasing Inequality:** “Countries with higher levels of income inequality tend to have lower levels of mobility between generations. A number of factors have driven higher inequality, including the impact of technology and globalisation, failings of the educational system, anticompetitive practices, weaknesses in corporate governance, the decline in union membership and the progressivity of the tax system”. **Political Uncertainty:** “The trend towards policy uncertainty is a function of structural changes in political systems – above all, the rise in

Findings about skills and automation suggest that occupation redesign coupled with workforce retraining could promote growth and reduce loss of jobs (Bakhshi, Downing, Osborne and Schneider, 2017). They also found an increasing demand for interpersonal skills (teaching, social perceptiveness and coordination), higher-order cognitive skills (originality, fluency of ideas and active learning) and systems skills considering the occupation trends in the UK and the US.

Moreover, automation may lead to lower unit costs and prices which stimulate higher demand for products, where the surplus income from innovation can be converted into additional spending, so generating demand for extra jobs in more automation-resistant sectors (Gregory, Salomons and Zierahn, 2016). However, structural changes disrupt employment levels and occupational patterns, affecting jobs that are the cornerstone of people economic and social lives (World Bank, 2012) generating technology anxiety. Although the jobs can be re-defined as machines perform routine tasks and workers perform the rest. It fails to harness the complementarities between technical and interpersonal skills, with a high potential for job creation in tasks and occupations complemented by automation; while amplifying the comparative advantage of workers in supplying problem-solving skills, adaptability, and creativity (Autor, 2015). As well also, for example in the case of an ageing population, where industrial robots may be required to maintain economic growth in response to lower labour force participation (Acemoglu and Restrepo, 2017). Furthermore, with the availability of big data and specific algorithms, AI is disrupting jobs through a wide range of non-routine cognitive tasks that are becoming computerized -fraud detection, healthcare diagnostics, legal and “white-collar” financial services (Frey and Osborne, 2013; EY, 2016).

Digitalisation has opened the ground for new forms of work organisation. Though the “platform economy” may bring efficiency in matching workers to jobs and tasks, it also raises several questions about wages, labour rights and access to social protection for workers involved (OECD, 2016). The World Economic Forum "The future of Jobs" states that two job types stood out as important new and emerging job categories and functions: **data analysts, specialized sales representatives**, organizational development specialists, engineering specialties such as materials, bio-chemicals, nanotech and robotics, regulatory and government relations specialists, geospatial information systems experts and commercial and industrial designers.

Actually, 56% of the adult population have no ICT skills to fulfill the simplest set of task in a technology-rich environment. In 2016, The United States, had 600,000 open computing jobs but produced only 40,000 new four-year computer science

partisanship which has impeded compromise and effective negotiation, reinforced by the growth in the scale and complexity of government regulation”. (Bakhshi, Downing, Osborne and Schneider, 2017)

graduates. In Brazil, 67% of companies identified the lack of qualifications in the current labor force as a key roadblock to higher productivity. 59% of employers in Argentina said that they faced difficulty in finding skilled labour for open positions. (Ivanschitz & Korn, 2018). Young people, however, are much more ICT proficient than older generations (OECD, 2016a). But, a slow job creation environment is likely to increase the risk that vulnerable youth -such as early school leavers who are neither employed nor in education or training (NEETs)- will be permanently left behind in the labour market (OECD, 2016b). Educational systems have not kept pace with the changing nature of work, resulting in many employers saying they cannot find enough workers with the skills they need. 40% of employers said lack of skills was the main reason for entry-level job vacancies. 60% said that new graduates were not adequately prepared for the world of work⁴.

On the other hand, it's highlighted the growth of the "dependency ratio": an increasing proportion of senior citizens will depend on a decreasing proportion of young people for their standard of living and their pension income, with accompanying financial pressure on social protection systems. On average young net wealth is half as much as old generations with a 20 percent declined wages. And education attainment still an individual's best pathway to financial security (Allison, 2017).

The digital transformation can also open a new opportunity for promoting gender equality. The current gender inequalities prevent most women from engaging in higher education and STEM fields and put them at risk of missing some of the better paid or most promising jobs of the digital age⁵. Social and cultural norms can have direct effects on women's access to and use of technology: they are 14% less likely to own a mobile phone than men (GSMA 2015). However, the characteristics of the digital labour market and the social skills often associated to women are expected to increase rewards on labor markets in the digital age. Initiatives that promote complementarity of social, cognitive and digital skills can lead the way for women into better-paying management and leadership type of jobs⁶.

The changes and shifts are going to take place in the next 20 years, which means that employees that are currently active are going to be the ones covering the gaps. **Re-skilling and re-training are key to enable thousands of workers to remain in the job market, contributing in a relevant way to the development and economic growth.** Education is not a phase prior entering to the world of work: is a lifelong

⁴ McKinsey Global Institute (2017) "A Future that Works: Automation, Employment and Productivity. Executive summary". McKinsey&Company, Link: <https://www.mckinsey.com/~media/McKinsey/Global%20Themes/Digital%20Disruption/Harnessing%20Automation%20for%20a%20future%20that%20works/MGI-A-future-that-works-Executive-summary.ashx>

⁵ Sorgner, A.; Krieger-Boden, C.(15/01/2018) Empowering Women in the Digital Age. G20 Insights. Link http://www.g20-insights.org/policy_briefs/empowering-women-digital-age/

⁶ Ídem.

commitment. In the knowledge-based economy, the lack of opportunities for re-skilling can translate into exclusion, poverty and inequality. Considering the impact for development, it is important to think which role every actor has to play: is it responsibility of individuals to keep their own training? Or should be provided by the employers? Or is it a public duty? How universities adapt to the challenge?

2.2. New Rules, Regulations and Digital Transformations

The World Economic Forum "Future of Jobs" (2016) report identifies "Changing work environments" and "Flexible working arrangements" as major trends in the labour market, which means that "organizations are likely to have an ever-smaller pool of core full-time employees for fixed functions, backed up by colleagues in other countries and external consultants and contractors for specific projects". According to the Accenture Workforce Marketplace report (2017), technology is not just changing workplace tools, it's also radically reinventing the way business are designed, built and run.

We are in presence of a management model evolution, from legacy models (with a traditional structure where individuals are hired for a single position and engaged in fixed business functions) to orchestrated talent marketplaces (with people being dynamically teamed by project, based on skills, knowledge, and staffing needs) where business will set a path to become built-for-change companies. In that sense, there are two main aspects that are driving the digital transformation of labor: the online management of work and the on-demand labor force. In the words of Tim O'Reilly: "We have to stop thinking about people working for companies and start making companies work for people". This implies that companies are re-writing the social contract (the relationships and responsibilities that organizations, governments, and society have with workers). Several questions emerge: Who provides worker training for non-traditional employees? Who pays for benefits if someone is a fluid worker, moving between different companies? If freelance workers are between assignments, are they unemployed? (Accenture, 2017).

In general, startups disrupting work argue that existing regulations were designed for another era and do not apply to the gig economy (a labor market characterized by the prevalence of short-term contracts or freelance work as opposed to permanent jobs). However, regulations have a purpose, such as protecting consumers and workers in important ways. Governments need to find the right balance, creating regulatory regimes designed for the future and powered by big data and smart technologies. It's very important pay attention to that income inequality could be greatly exacerbated by wholesale labor displacement and by the dismantling of key elements of the social safety net -such as health care benefits and retirement savings, which are often

provided through the employer-employee relationship (EY, 2016; OECD, 2017). An alternative way to manage the transition of workers, would be to replace the lost income with an “universal basic income”, or a dividend generated by the growth of the economy -proposals that are not intrinsically linked to the challenges presented by automation.

The big challenge for societies, in order to smooth the looming workforce transitions will be a joint combination between maintaining robust economic growth to support job creation, scaling and reimagining job re-training and workforce skills development, improving business and labor market dynamism, and providing income and transition support to workers. According to Tirole (2017), to protect jobs instead of workers will be a bad solution, because jobs will change very quickly in the future; so the strategy to mitigate the loss of jobs, should be achieve good unemployment insurance, together with a big improvement of mass' education. Unemployment and inactivity are more likely to be associated with a loss of human capital in the form of skills depreciation which can translate into a sustained loss of earnings potential for the individual as well as an efficiency loss for the economy as a whole. Following the World Bank report (2012), protecting workers should have primacy if the employment dislocation is limited and if turnover continues to be the norm.

For both the ILO (2017) and the WEF (2018), some youth are in the position to embrace globalization and new technologies, while others are not yet able to take advantage of increase in opportunities. Inclusive education that incorporates a lifelong learning approach was identified as a good strategy in order to address the adaptability to a fast-changing world of work. Moreover, paid internships or other types of work-based learning could also help to improve the employability of youth and assist them in transitioning into the labour market. Knowing that a lack of opportunities for re-skilling can translate into exclusion, poverty and inequality. Is it the responsibility of the individuals to keep their own training? Or should be provided by the employers? Or is it a public duty? How universities adapt to the challenge? How do workers get protection for their rights and benefits? What is the future of Unions?

2.3. The Future of Workers: trends and scenarios

The future of work is ultimately about development and quality of life. With the flexibility of contracts and the low wages, the welfare state comes back to the center of the discussion. How will workers and citizens be motivated in the machine economy? How will governments adapt to remain relevant for the future of work? How we could build a better working world in a world with less work? With massive labor displacement ahead, how will we address income inequality?

Young workers are increasingly worried about health and retirement benefits for flexible workforces. New initiatives are using technology to connect, support and take action regarding working conditions in the collaborative economy⁷, but still a large proportion of young workers earn about 20% less than the generation before them, despite of attending college at a much higher rate.

On top of that, the gender gap is another major debt. According to the Global Gender Gap Report 2017, only 58% of the gender gap in economic participation has been closed worldwide, meaning that many women are still excluded from job opportunities. Recent estimates by the World Economic Forum suggest that "economic gender parity could add an additional US\$250 billion to the GDP of the United Kingdom, US\$1,750 billion to that of the United States, US\$550 billion to Japan's, US\$320 billion to France's and US\$310 billion to the GDP of Germany. Other recent estimates suggest that China could see a US\$2.5 trillion GDP increase from gender parity and that the world as a whole could increase global GDP by US\$5.3 trillion by 2025 by closing the gender gap in economic participation by 25% over the same period"⁸.

EY (2016) see the future of work evolving in two stages: the gig economy (the rise of platforms such as Airbnb, Deliveroo, Didi Kuaidi, Etsy, TaskRabbit and Uber) and the machine economy (driven by AI and Robotics); where these start-ups are already challenging regulations governing the operation of hotels, restaurants, taxis and more. And the rights that have become commonplace -such as collective bargaining, paid time off and insurance against workplace injuries and unemployment- are actually under threat. Meanwhile, the machine economy promises to deliver a "leisure dividend" unlike anything we have seen before. These trends suggest the need of re-thinking how the workplace of the 21st century should look like, how many hours should the working day last, and what happens when the focus is both in productivity⁹ and well being.

For its part, Accenture (2017) predicts that by 2022 compared to traditional full-time employment, talent marketplaces will provide workers with improved earning

⁷ Alice Casey and Peter Baeck: In 2018 collaborative economy workers will start truly collaborative organisations to disrupt the marketplace once again.

<https://www.nesta.org.uk/2018-predictions/collaborative-economy-changes-direction>

⁸ WEF. Global Gender Gap Report 2017. Key Findings.

<http://reports.weforum.org/global-gender-gap-report-2017/key-findings/>

⁹ "According to a 2012 study from McKinsey Global Institute, the average knowledge economy worker spends 28% of his or her time just reading and answering e-mail. Another study found that the typical office worker goes only 11 minutes without being interrupted, and that, once interrupted, it takes an average of 25 minutes to return to the original task".

https://www.weforum.org/agenda/2017/01/your-workplace-is-terrible-for-your-brain-5-ways-to-change-that?utm_content=bufferf2403&utm_medium=social&utm_source=facebook.com&utm_campaign=buffer

opportunities, more rewarding work, secure benefits, and respected credentials; all industries will have new, dominant leaders with business structures based on small cores and powerful ecosystems; on-demand labor platforms will emerge as a primary driver of economic growth in developed and emerging economies worldwide; and management models will be replaced, having been displaced by digitally connected marketplaces.

Deloitte Review (2017), highlights other aspect that is very important, that cognitive technologies perform tasks and not jobs or entire processes; but a human worker within a business process can typically perform a variety of tasks. So, this suggests that cognitive work redesign efforts within companies should focus on how specific tasks that are supported with cognitive tools fit within broader processes, as a good method to think about how humans can be redeployed to activities and tasks within processes that make the best use of their capabilities. In this case, Augmented Reality (AR) can offer more realistic training, speed up repetitive tasks, and even introduce entirely new forms of work.

Megatrends provide the context for future worlds (rapid advances in technological innovation; the changing size, distribution and age profile of the world's population; significant increase in the world's population moving to live in cities; power shifting between developed and developing countries; and depleted fossil fuels, extreme weather, rising sea levels and water shortages) but they don't dictate their shape or features at a specific point in time. In that sense, how societies respond to the challenges and opportunities which the megatrends bring will determine the worlds (and different scenarios) in which the future of work plays out¹⁰ (UKCES, 2014; Salazar-Xirinachs, 2016; WEF 2016; PwC, 2017).

Related to the new enterprise models and forms of contracting, Salazar-Xirinachs (2016) mentions two options: (a) establish a new category of "independent workers" and protect them with special legislation; or (b) recognize that they are de facto employees and protect them under existing legislation¹¹.

The future of work, is not only about finding creative ways to deal with unemployment, it is mainly about human development. Therefore, there are global commitments organized based on the Sustainable Development Goals (SDGs), which should guide

¹⁰ Collectivism versus individualism: Will 'me first' prevail, or will societies work together through a sense of collective responsibility? What is the role of government in balancing a strong economy with the interests of its people? Regions and countries – and even cities – will inevitably take a different view on the level of state intervention needed". Integration versus fragmentation: Will digital technology inevitably mark the end for large companies? Technology has allowed tiny businesses to tap into a vast reservoir of information, skills and financing that used to be available only to large organisations. Through the use of technology, small has become powerful. Government actions can incentivise or penalise larger businesses, or encourage small business and start-ups". PwC (2017)

¹¹ "The risks and conditions of the collaborative economy (low income, lack of social security, health insurance and pensions) lead to different questions: how to expand coverage and make it easier for all workers to contribute to social security and to be insured against disability and illness? How to ensure that health and pension benefits belong to the worker and are not linked with the employer? What financial and legal mechanisms can be established so those benefits follow the worker throughout his or her working life, regardless of employment status (portability of benefits)? How to achieve representation, freedom to organize and freedom to bargain collectively for workers in the "collaborative economy"? How those workers can advance their interests?" (Salazar-Xirinachs, 2016)

decisions and actions. For example, the sustainable development goal 8¹² (“Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”). According to ILO (2017) “Policy-makers need to understand the challenges that young people face in the labour market, to capture their voices and amplify them (...) young people are the future drivers of our governments, economies and societies. There is also a need to address the representation of youth in trade union movements, taking into consideration the new reality in the world of work, as an increasing number of youth are

This generation has the opportunity to rethink how workers engage with their jobs and how digital labor platforms can better connect individuals, teams, and projects. To make it successfully and not painful, governments, NGOs and private companies must take an active role to prioritize, incentivize, and drive new programs to empower workers to have the skills they need for new occupations.

#Employment, #Education, #Economy, #Development #Technology

¹² “Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services”. “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value”. “By 2020, substantially reduce the proportion of youth not in employment, education or training”. “Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment”. “By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization”. Link: <https://sustainabledevelopment.un.org/sdg8>

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