The asymmetrical and different impacts of the pandemics on the labour market

The pandemics has affected significantly the labour market. According to the International Labour Organization (ILO) it is estimated that 114 million of people were affected. Moreover, the world registered a loss of 8.8% of working hours or 255 million of full-time jobs as compared to the last quarter of 2020. The IOL predicts a decline in global income of 4.4 % of the global gross domestic product. Data suggests that during the pandemics, women were more affected than men – their job loss is estimated at 5% of jobs while for men this figure is at a 3.9%.

Food services and accommodation are pointed out as the most affected economic sectors. The reduction in jobs is over 20%. On the contrary the information and communication technology sector, as well as the finance/insurance businesses registered growth in the number of job opportunities in the second and third quarter of 2020.

An international outlook also brings forward how some critical aspects are crosscutting issues in all the world economies.

According to the Catho Institute, the State of São Paulo in Brazil registered an increase in the volume of job opportunities in several business sectors including 671% for the role of Data scientist, 517% for .NET developer, 460% to devOps, 97% to web developer and 60% to ADVPL programmer. These numbers reflect the acceleration in digital transformation that is largely attributed to the pandemics.

The UK also presents a scenario of growth. Data from Tech Nation and from Government's Digital Economy Council showed a rise of 50% on jobs available for the technological sector after July of 2020, which was considered the worst period. Since the last August a monthly growth of 2.6% was registered, reaching 75.353 job vacancies.

According to Eurostat data, the European Union registered a growth of 6.6% in employment opportunities in the domains of information/communication, finance/insurance and real estate. Furthermore, the major percentage (20.3 %) of the total of workers belong to sciences, engineering and information/communication technology sectors. In this context, it was observed a decline of 23% in the available positions considered "hard to fill" due the required skills. However, this reduction were less significant in Portugal, Germany and Belgium which still have difficulties to fill these technology job vacancies.

Technological trends anticipated by COVID-19

The COVID-19 pandemics led to deep changes in society, economy and labour market, but also anticipated the adoption of some key technology trends which were only forecasted for the upcoming years. This fact may be explained by the need for companies to respond and adapt to the consumers faster demands due sanitary issues and restrictions, that were imposed by the pandemic context.

During this time, it is estimated that many companies have anticipated their digitalization in three to four years in order to improve their relationship with the costumers, as well as their supply chain operations and their internal processes.

The lockdown period and the quarantine made people resort to online platforms many of their daily activities, including the purchase of food products and clothes, as well as for entertainment purposes. This led to an improvement in the logistics systems to support the e-commerce. The boost in research on robotics was impressive, as well as the growth in the use of drones and robots for activities such as disinfection or for home delivery.

Supply chains became more vulnerable due to factors such as the disruption in production systems, their dependency on paper-based records, their lack of flexibility or even the different levels of export bans on some items, such as individual protection equipment. Several technologies associated with the Fourth Industrial Revolution, including: Big Data, cloud computing, Internet-of-Things ("IoT") and blockchain, were essential in order to adapt the supply chain to respond to consumers' needs.

Likewise, remote work was enabled by the increase in use of technologies such as: virtual private networks (VPNs), voice over internet protocols (VoIPs), platforms for virtual meetings, cloud technology, work collaboration tools and facial recognition. Similar technologies were used to turn distant learning possible, as well as other including virtual reality, augmented reality, 3D printing and artificial-intelligence.

Interesting advances were recorded in the use of 3D printing to mitigate supply chain shocks and export bans, such as those applied to personal protective equipment. 3D printing offers flexibility in production. Several companies mentioned the adoption of these technologies, and referred several factors they considered important for success in this context, such as: the overcoming to the lack of technological talents, the use of more advanced technologies and the acceleration on experimentation and innovation.

In this context, a survey conducted by the Aveiro Labour Observatory, between May and July of 2020, allowed for the identification of 10 key skills for the business in the ICET sector, that were hard to find in the local market. Therefore, the Observatory continues its activities in order to identify the necessary skills and qualifications to anticipate these technology trends in companies, and keeping their competitiveness in the market and attracting talents to Aveiro.

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01	Statistics competences for Big Data and Data Mining
02	Development of machine learning algoritms
03	Development and programmins of embedded systems with IoT network connection capacity
04	Development of planning systems (Dynamic Programme)
05	Redundant systems design
06	Development of non-deterministics systems (Fuzzy logic)
07	Computer programming
08	Development/assembling of eletronic systems
09	Software test
10	3D object design and rendering

Did you know that...

The COVID-19 pandemics has created approximately 800.000 new opportunities in computer programming occupations and other related services in the EU, the US, the UK, Japan and Australia, according to data from the Organisation for Economic Co-operation and Development (OECD). Likewise new opportunities in information technology and telecommunications activities also registered growth..Traditionally, these positions are employed, in majority, by men. The OECD highlighted recently that the pandemics contributed to wider the gender gap, both in what concerns the occupied job vacancies and salary levels. On this line of concern, the research team from the University of Aveiro, has recently kick-started a new international project focused on mitigating gender bias in the access to job opportunities and recruitment processes. The project O'Bias – Overcoming Gender Bias in Careeer Opportunities (http://obiasproject.eu/) will develop tools to Support the mitigation of bias in the dissemination and access to job positions that in many sectors such as this are still strongly imbalanced.

According to the Commission's 2020 Women in Digital (WiD) women have a lack of digital skills to work in this sector. Only 18% of the information and communication technology specialists in European Union are women. This fact may also help to explain the disparities aggravated by the pandemics, despite the reduction of the lack of elementary digital skills.
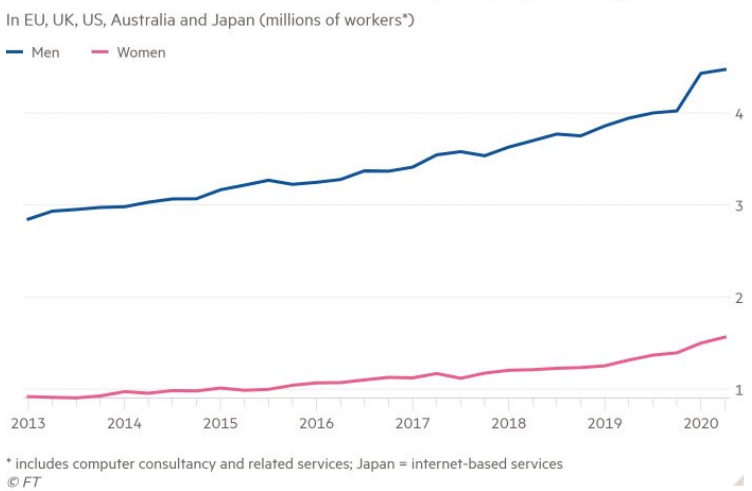
Job evolution in computer programming, in million, by gender . Source: Financial Times. https://www.ft.com/content/21ae50e1-56e6-43d4-acc2-d6fc45dba447

Comparative evolution of the total employed women ICT specialists in Portugal and in the European Union. Source: Eurostat - Labour force survey. https://digital-agenda-data.eu/datasets/
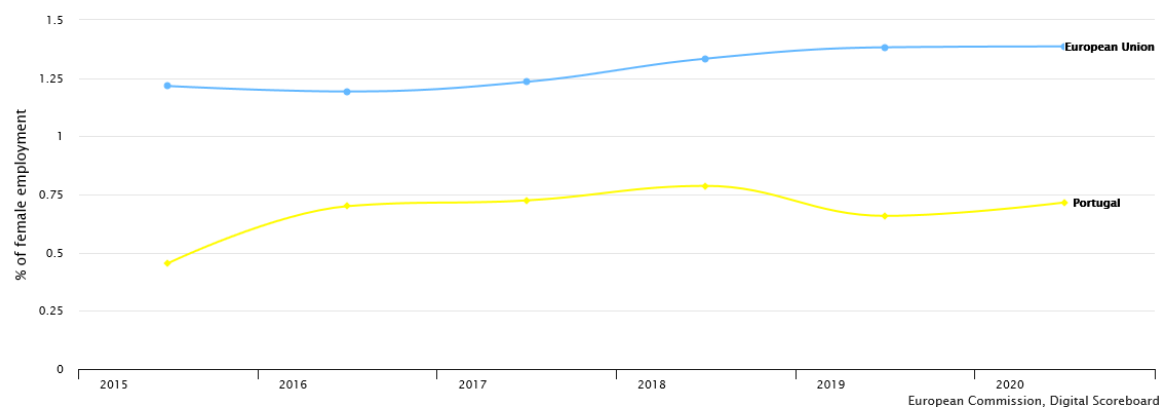
The University of Aveiro leads the international project O'Bias - Overcoming Gender Bias in Career Opportunities which aims to contribute to a more balanced access, for both genders, to the professional opportunities. The expected results include a Guide to Mitigating Gender Inequalities in Job Market Access, online tools for dissemination of information and self-assessment on equality in a professional context, and materials to support skills development for employers stakeholders involved in selection and recruitment processes.

https://www.facebook.com/Obiasproject
https://www.linkedin.com/company/o-bias/
http://obiasproject.eu/

Risk to the job sectors

The solution for many companies, in order to address the pandemics' restrictions, was to invest in the digitalisation and increased automation of their processes.

The European Centre for the Development of Vocational Training (CEDEFOP) analysed how the digital transformation triggered by the pandemics may affect the qualification needs, as well as what are the implications for occupations and the employment trends. The results showed that highly skilled occupations, that can easily adjust to conditions imposed by the pandemic, such as remote work, do not have a significant risk of suffering with the advance of automation.

Information and Communication	Future job openings	Changing Occupational Importance	Risk of Automation
ICT Professionals	Average	Positive	Low
ICT Technicians	Low	Neutral	Low

Table: Impacts of COVID-19 on sectors and the future of jobs. Source: Adapted from CEDEFOP. https://www.cedefop.europa.eu/en/news-and-press/news/coronavirus-automation-and-future-work

In another review, the CEDEFOP identified the 292 skills that were strongly demanded in European online job ads, and developed a classification takin into account their dependence on social interaction, how essential they were in context of public health crisis and how they provided basic services, and their potential for remote work. 44 skill groups were considered the most resilient to social distancing due their high potential for work remotely, here included the skills related to ICT. ICT, energy supply and financial services, were classified as having the lowest risk of disruption in their activities due the their remote work and the digitalisation potential that make them more resilient to the effects of the coronavirus pandemics.
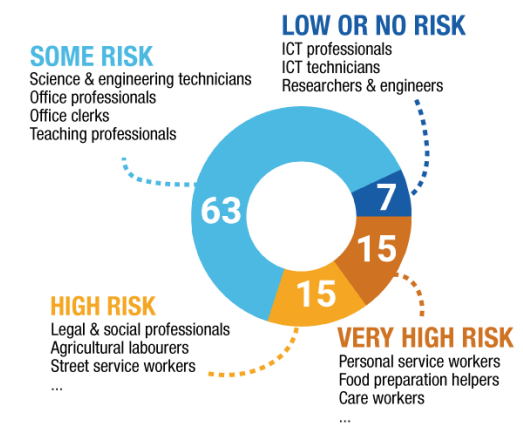
Analyse of most requested skills in European online job ads and European Labour Force Survey (EU LFS) data. Source: Adapted from Cedefop https://www.cedefop.europa.eu/en/news-and-press/news/coronavirus-which-jobs-and-sectors-will-suffer-most

To learn more about the Aveiro Labour Observatory: http://observatoriodoemprego.web.ua.pt/

To learn more about the Urban Innovative Actions: https://www.uia-initiative.eu/en/uia-cities/aveiro

To learn more about the project: https://www.aveirotechcity.pt/pt/atividades/observatorio-do-emprego