

NEWS

PROJECT

AVEIRO STEAM CITY - Urban Network for Upgrading STEAM Skills and Increasing Jobs Added-Value through Digital Transformation in a new economic context

📍 Aveiro, Portugal

TOPIC

Jobs and skills in the local economy

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AVEIRO'S LABOUR OBSERVATORY: THE POST-GENERATIONAL WORKFORCE LOOKS BEYOND THE COVID-19 PANDEMIC

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The OECD (Organization for Economic Cooperation and Development) states that there is a real danger that the Covid-19 crisis will increase poverty and widen inequalities, with the impact felt for years to come. Countries now need to do everything they can for reconstructing a better and more resilient labour market for future generations.

The ILO (International Labour Organization) has used real-time economic and financial data to investigate the impact of the crisis on output by sectors of economic activity. Given that output is the major determinant of employment trends, it is possible to make a first assessment of how the pandemic may affect future skill needs and what the implications for occupations are. The dominant occupations in the sectors affected the most can be examined to gauge the impact of coronavirus on employment and the impact of automation and technology.

Given this scenario, the Aveiro Labour Observatory is an innovative initiative developed under the scope of the project Aveiro STEAM City, whose importance is much more crucial, considered the challenge just outlined.

As the digital transformation of Aveiro pass through the development of quality jobs, the Observatory aims to contribute to the development of skills and to the retention of human talent in Aveiro, identifying training needs and developing training programs to meet the challenges of the local business environment. The Labour Observatory conducts multiple activities aimed at diagnosing what are the qualification and requalification's needs in Aveiro, in a tight dialogue with companies and local stakeholders in the business domains of ICT, Industry, Tourism and Services.

The Observatory provides information about the demands for skills and competences in the current labour market, and this information will support the development of short-term training programs. The activities of the Labour Observatory are developed by a multidisciplinary team that brings together researchers across the different scientific domains from the University of Aveiro. It builds also on the collaboration of other partners of the Aveiro STEAM City project, including Inova-Ria and the Municipality of Aveiro.

To learn more read the full article and watch the video: <https://www.youtube.com/watch?v=KGI0r3SvMs8&feature=youtu.be>

Labour observatory's activities

"If there is any positive outcome from the Covid-19 outbreak, it is surely its impact on relaunching the debate about what kind of economy and society we would like to have".

This statement by Pedro Roseiro, executive board member tice.pt, opens a recently published e-book "DIGITAL

TRANSFORMATION: TECHNOLOGIES AND COMPETENCES FOR THE FUTURE OF WORK AND PROFESSIONS” (http://observatoriodoemprego.web.ua.pt/wp-content/uploads/2020/07/ebook_final_7828.pdf) curated by the University of Aveiro (UA).

According to the forecasts advanced in the Future of Jobs Report, prepared by the World Economic Forum, by 2022 the emerging jobs of 2018 are set to grow between 16% and 27%, building on the trends of large worldwide companies, while other job roles, that involve technological skills are set to decrease from 31% to 21%.

Overall, 75 million of the current jobs may be replaced due to a profound transformation on the division of work between individuals, systems, equipment and algorithms. On the other hand, 133 millions of new jobs may emerge from this transformation (World Economic Forum, 2018).

The University of Aveiro is partner in the Aveiro STEAM City project and responsible for the implementation of the Labour Observatory (LO), whose mission is to identify the priority areas of qualification necessary for the digital transformation of Aveiro, and to contribute to the development of short-term training offers.

The scope of the university research team is to give a contribution so that Aveiro continues to build solid foundations to attract and retain the people and talent essential for a sustainable digital transformation. In 2019, the LO held workshops and seminars to collect data and information from institutions in the various economic sectors and is continuing this work now in 2020.

ACTIVITIES

The main activities carried out by the LO are:

1. Research activities, including the data collection and discussion with companies and other local stakeholders, with the purpose of building a valid and updated diagnosis of priorities for qualification to meet the digital transformation in Aveiro.
2. Workshops, on which research activities strongly rely on. Workshops are carried out together with interviews and questionnaires addressing local companies and entities across the target sectors identified in the project (ICT, Industry, Tourism and Services). Workshops and interviews allow the collection of data and the discussion with local stakeholders about the digital transformation challenges that local businesses are facing, in particular, regarding the qualification and requalification of human resources. The results and insights gained in the workshops are the basis to develop innovative and semi-automated tools that will complement the diagnosis exercise.
3. Participation at events, meetings and debates across the domains of technology, industry and services, as well as education and training.
4. Management and development of a pilot Training Program: according to the current execution of the project, these training are now being subcontracted and soon will be launched.

These activities are continuously disclosed also thorough the Instagram and Facebook channels, via @observatoriodoemprego, and through a periodic newsletter (subscribe by contacting the team at observatoriodoemprego@ua.pt !).

The Labour Observatory at the Aveiro Tech Week

During the latest edition of the Aveiro Tech Week – October 2020 – researchers from the University of Aveiro (UA) presented the development of an innovative Dashboard that integrates and analyzes job offers from different sources of recruitment, thus being an agile way to aggregate information in real time on the dynamics of job offer and competences demand.

So, while the diagnosis and data collection activities, run in year 1 of Aveiro Steam City project, were based on questionnaires administered regularly to companies, this activity is being now complemented with an automated approach (online advertises, job posting, LinkedIn job offers) through the new Dashboard.

The Dashboard extracts info from the web on job offers and, on the skills required in the posts. The dashboard currently captures data coming from the Aveiro Region but it is designed as so it can be easily scaled up.

The changes we are currently facing in the contexts of life and work are strongly marked by an accelerated step in the adoption of technologies, and the production of large volumes of information. In this way, the digital transformation will increasingly go hand in hand with the increasing need for retraining professionals and citizens.

According to a recent report by the OECD, it is estimated that, **over the next 15 to 20 years, 14% of the professional occupations we know today will disappear as a result of increasing automation.** Similarly, some 32% of current occupations will change radically, requiring new qualifications and skills.

It is in this context, studies on the future of work are multiplying, suggesting new professions and guessing the demand for new qualifications.

The results of a recent UA's survey among ICT companies, highlight a number of priority areas for digital transformation in the region of Aveiro. The results indicate the different fundamental technical skills that should be the focus on a short-term basis. The development of electronic systems comes first, accompanied by 10 other technical areas closely linked to programming, analysis and data processing.

Among those:

- development of machine learning algorithms
- development of embedded systems
- large data storage systems
- analytics competence for big data and data mining

On the other hand, among the "Behavioral areas" of priority we find:

- ethical judgment
- critical thinking
- solving complex problems
- time management
- entrepreneurial vocation

The importance of these behavioral skills was underlined by the survey's participants as being fundamental to complement and leverage technical training.

In the list of the 25 professions of the future, presented last October at the Aveiro Tech Week we find:

- 3D/4D printing specialist
- Synthetic biology engineer
- E-commerce and social media specialist
- UX and human-machine interaction designer

Finally, the 5 professions considered the most relevant for the future Aveiro's labour market are:

1. AI and machine learning specialist
2. Software and App developer
3. Client information and customer service professional
4. Process automation specialist
5. UX and human-machine interaction designer

3D/4D Printing Specialist	Cryptocurrency Specialist	Digital Transformation Specialist	Legal Specialist for Cyber Space	Software and Application Developers
Artificial Intelligence and Machine Learning Specialist	Customer Service Professional	Drone Traffic Management Specialist	Manager of Automated Processes and Teams	Synthetic Biology Engineer
Augmented Reality Developer	Cyber City Analyst/Consultant	E-commerce and Social Media Specialist	Online Community Manager	Technical Maintenance Professional
Big Data and Blockchain Specialist	Cybersecurity Specialist	Edge Computing Architect/Developer	Process Automation Specialist	Tourism Development Professional
Data Broker	Digital Marketing and Content Developer	Interpreter, Translator and Cultural Facilitator	Robotics Specialist/Engineer	User Experience and Human-Machine Interaction Designer

List of 25 Professions of the Future presented at the Techdays of Aveiro. Source: DIGITAL TRANSFORMATION: TECHNOLOGIES AND COMPETENCES FOR THE FUTURE OF WORK AND PROFESSIONS – e-book 2020

In 2019 the Municipality of Aveiro, in parallel with the work developed within the LO, run a research and concluded that the ICT companies of the Aveiro Region were lacking talents; hence the City decided to launch a brand-new

initiative called “tech bootcamps”, that is performing particularly well in terms of job creation and talent attraction.

In partnership with Academia de Código, the Municipality launched 2 editions of **TECH BOOTCAMPS** in Java and JavaScript, consisting of a 14 weeks training program in classroom environment and 14 weeks training on the job, in ICT local companies.

This activity is synergic with the LO and it seeks to promote job opportunities for unemployed people, students or professionals going through a career change (click here to discover more: <https://www.ua-initiative.eu/en/news/coding-skills-nongeeks-only-smart-strategy-train-human-resources-and-retain-talents-aveiro>).

The results from the first edition, so far, are very encouraging: on a total of 19 trainees, almost 80% were actually hired after the training; half of these trainees were hired by the same companies that provided them the on-the-job training, so proving continuity and effectiveness of the 14 weeks spent there. Almost all the job contracts signed are properly full-time contracts (so no internships or apprenticeships).

Embracing perspectives during Covid-19

Experts note that the ongoing coronavirus crisis may further accelerate job polarisation by hollowing out jobs in the middle who seem to be most vulnerable to the uses of technology.

The coronavirus crisis has given new rise to concerns about automation in labour markets, with social distancing measures driving companies and societies to adopt new digital and data-driven technologies. Early predictions that Covid-19 will have a positive automation effect may, however, be overstated. Firms’ automation incentives may be partially offset by the lower aggregate demand in economies following the pandemic disruption, while higher uncertainty and credit constraints hold back their investment decisions. Occupations identified as ‘high-risk’ due to coronavirus exposure and social distancing have also been found to correlate weakly with those facing higher automation risk. Many of the occupations and sectors mostly affected by Covid-19 are typically in the service sector (hospitality, leisure, retail) and are heavily reliant on interpersonal skills, which are less susceptible to replacement by AI technologies (Artificial intelligence in a post-pandemic world of work and skills, CEDEFOP 2020).

Because of Covid-19 most of the companies analysed by the Aveiro LO shifted to remote work and this is not going to change, even when the pandemic will be over, according to UA’s researchers. Of course, the time percentage allocated to smart working could vary, but this “option” will be a permanent change in companies. Hence, specific training on smart working tools would be needed.

In particular, Covid-19 acted as an accelerator for a number of processes: technology adoption, digital transformation, AI’s tools adoption, project management and videocall platforms inclusion among the work routines.

Given these premises, a new scope for the LO is helping companies adapting to the current situation.

This kind of help won’t solve the problem of the economic and financial crisis companies are facing, obviously, but it’s propaedeutic in order to face the transition to new scenarios.

UA’s researchers suggest that in the post pandemic era the type of jobs requested, on the demand-side will be pretty the same to the ones they have identified so far. Though, the concentration will be much more evident on specific sectors. In other words, the competencies requested on the labour market will be the same, but the companies that will hire people will be concentrated in some sectors in particular.


For example, logistics companies will be among those with a boost in demand for highly tech-oriented professions. On the other hand, many people working in the tourism sector will need to be reskilled and probably change sector.

As highlighted in a recently published Deloitte’s report called “Returning to work in the future of work”, organizations have now “an opportunity to push the envelope in the ways they integrate teams of humans and technology. Organizations should evolve their thinking about technology from taking a purely substitution view (replacing humans with technology) to using technology as an augmentation or collaboration strategy. The latter view can allow organizations to not only streamline costs, but to also create value and ultimately, provide meaning to the workforce as a whole”.

“Aveiro Labour Observatory is now consolidating its local role as a territorial intelligence unit, that brings together the voices of local companies, and local education and training entities, to make sense of the challenges offered by digitalization to the sustainability of the local economic system. The Observatory

promotes a consistent dialogue between local stakeholders, developing a robust and timely knowledge base to support the definition of priorities for the development for quality jobs and adequate qualification strategies.” Marlene Amorim, Assistant Professor and Researcher @ University of Aveiro

Coronavirus impact on sectors and the future of occupations

 CEDEFOP	FUTURE JOB OPENINGS	CHANGING OCCUPATIONAL IMPORTANCE	RISK OF AUTOMATION
MANUFACTURING			
Metal, machinery and related trades workers	Low	Strong negative	Very high
Stationary plant and machine operators	Low	Negative	Very high
Science and engineering associate professionals	Medium	Neutral	Average
WHOLESALE & RETAIL TRADE, REPAIR OF MOTOR VEHICLES & MOTORCYCLES			
Sales workers	Medium/Low	Neutral/Negative	Average
Metal, machinery and related trades workers	Low	Strong negative	Very high
Business and administration associate professionals	Medium/High	Strong positive	Low
ACCOMODATION & FOOD SERVICE ACTIVITIES			
Personal service workers	Medium	Negative	Very low
Food preparation assistants	Medium	Negative	High
Hospitality and retail managers	Medium/High	Neutral/Negative	Very low
REAL ESTATE, PROFESSIONAL, SCIENTIFIC & TECHNICAL ACTIVITIES			
Business and administration associate professionals	Medium/High	Positive	Low
Business and administration professionals	Medium/High	Strong positive	Average
Science and engineering professionals	High	Neutral	Average
TRANSPORTATION & STORAGE			
Drivers and mobile plant operators	Medium	Negative	High
Numerical and material recording clerks	Low	Strong negative	Low
Clerical support workers	Low	Strong negative	Low
INFORMATION & COMMUNICATION			
ICT professionals	Medium	Positive	Low
ICT technicians	Low	Neutral	Low
Legal, social and cultural professionals	High	Positive	Below average
high coronavirus impact		medium-high coronavirus impact	

Conclusions

The activities run by the LO were impacted by the pandemic only in part; interviews to companies were moved to Zoom, but the research activity went on business as usual. Interviews were closed around the summer break and since September the LO's team started to work in order to prepare the public call with the aim of finding a provider for the pilot Training Courses, to be developed according to the needs and guidelines identified by UA's researchers.

To the question: "Considering the activity that the University of Aveiro have and would have carried out in relation to data collection and training on future jobs, what was the added value deriving from the Aveiro Steam City project?" the LO's team highlighted the huge benefits coming from the collaboration with Inova-ria, an Association of companies that creates today a strong Innovation Network. Inova-Ria was established in 2003 and until today this association has grown and evolved, playing an active role in promoting and creating value especially in the telecommunications sector, particularly through research and development, new technologies dissemination, knowledge and people scouting.

With more than 60 associated members, it was a precious collaboration as the vision coming from Inova-Ria added value to the research team giving many concrete inputs, helping to fill the gap among Academia and Companies.

The collaboration was a sort of peer-to-peer one, and was effective in building mutual trust.

In addition to the value coming from the partnership, researchers recognized a great value coming from the dissemination opportunities and the great visibility of the project, in the Region and beyond. So, they felt that their efforts were not just an internal exercise, as sometimes might happen sadly for some academic activities, but the echo produced was significant and this was consolidated through the relationship with businesses.

This work appears all the more significant now, given the serious context of the labour market crisis already underway, but which experts predict will worsen a lot starting from 2021, when in many European countries the prohibition on dismissals will cease.

So, if during the pandemic employers have experienced accelerations and technological advances that we could define almost "heroic", the real key to recovery will lie in testing the sustainability of these actions and these accelerations. Companies will find themselves having to choose between restoring a vision of yesterday, or building a new vision, marked by sustainability, for tomorrow. In this sense, the Aveiro Labour Observatory will be, among other things, a place for discussion where research can lead to innovative solutions to help the fabric of small and medium-sized enterprises to build this new vision. And, above all, to contribute in the debate in order to help all those groups of workers at risk of dismissal.



Labour Observatory's meeting

[See on UIA website](#)

