Aveiro Labour Observatory

Technological needs for Aveiro

Technology is already present in our lives. This new reality is accompanied by several advantages. The Internet of things, together with Big Data, are and will continue to be the most used form of intelligent system in the near future. With these technologies, health, education, politics, the labour market, and other sectors of our lives will benefit greatly.

A 2019 study conducted by the company Ernst & Young SA on digitization in Portugal, points out that, globally, the Portuguese assess the impact of digital in their lives as very positive, with 75% recognizing advantages in terms of communication with the family and friends and 73% with the same opinion regarding professional communication.

Despite the benefits pointed out, the same survey highlighted that the Portuguese are skeptical about the degree of modernity of the digital economy, with 45% believing that we are slightly or very behind towards other developed countries. Women and young people are those who have a less optimistic outlook regarding the degree of modernity of the economy.

However, it is a mistake to think that there are no technological opportunities in Portugal. The technological sector does not discriminate against age or gender. It is expanding the role of women in which several companies encourage programmers through specific programs. Young people are also privileged, since in the country there are several centers of excellence in technological training, in addition to specific (rapid) training programs that facilitate their insertion in the labour market. Aveiro is a pioneer region when it comes to technological opportunities. The Professional Insertion Office (GIP) of the Municipality of Aveiro, whose mission is to provide support to unemployed youth and adults in their path of insertion or reintegration into the labour market, discloses the vacancies available in the region on a weekly basis. In 2020, approximately 22.5% of the advertisements published were in the TICE (Information Technology, Communication and Electronics) areas, with special emphasis on opportunities in the areas of programming, data, software development and testing.

The areas with the greatest demand by companies in the region coincide with the study on the competences gaps in the region carried out by the Labour Observatory, where programming, machine learning, big data, software testing appeared as the areas identified by companies as where there is a greater need of professionals.

What is observed is a scenario of lack of specialized labour where many companies have difficulty finding specialists to fill the positions offered.

For the future, the emphasis will continue to be on finding specialized professions in the use of digital data, focusing on professionals still scarce in the market, namely the case of data scientists.

Refusing training in new technologies will make the professional out of step with the offer of opportunities and pose an even more relevant problems in the context of digitalization, where some professions will be extinct and others will be reformulated.   .

Why does education need to reinvent itself?

The digital transformation brings about the disruption of patterns and the emergence of new social, economic and cultural paradigms that will reshape the way we live, consume, work and learn. Consequently, new models for offering products or services are expected. As such, organizations from different sectors of activity are pressured to reinvent themselves.

The education sector is well aware of this transformation. This sector is probably one of the most pressured to reformulate itself, according to the World Economic Forum, one of the main consequences of the digitization of processes is the need to review what competences are necessary for meeting the requirements of new work contexts.

The emerging digital world requires a quick re-examination of the workforce to keep up with technological changes.

Thus, it is urgent to review the guidelines and bases of support for the educational mission. This is particularly relevant because the labour market it already demanding for qualified professionals that are capable of meeting the dynamism of the digital transformation. Therefore the new education and training models must go beyond technical scope and prioritize as well the development of transversal competences.

Education systems need to be aligned with emerging competencies that are demanded by employers, that increasingly have a focus on transversal competencies, as well as on the qualification for technical competences. The table 1 shows some of the technological trends that are transforming traditional education.

Table 1 - Technological trends for education.

Technological trends	Description
Virtual and Augmented Reality	Virtual and augmented reality is a major trend in education. Virtual reality apps allow students to travel, explore, create and even experiment in virtual environments from the comfort of their chair. Some promising examples include: InMind, Apolli 11 VR, Anatomy 4D, Unimersiv, etc.
Artificial intelligence	Through Artificial Intelligence it is possible to anticipate difficulties that students and trainees may have in different contents and diagnose more serious learning problems. In addition, the technologies allow for virtual tutors, and for answering questions and having a more individualized monitoring. Some promising examples include: Chatbot, BRÖ, Aipoly Vision, etc.
Gamification	The potential of gamification in education is immense. The use of game resources helps to arouse interest, increase participation, develop creativity and autonomy, promote dialogue and solve problem situations. Some dominant examples include: Ballons, Minecraft, etc.

In the labour market, companies and organizations are constantly looking for professionals who can have a technical and relational performance corresponding to their needs so that their business remains sustainable. The educational institutions must train professionals to work in the new digital reality. The role of educational institutions should always be to build viable solutions that are capable of generating competitive advantage through the construction of sustainable educational programs focused on training students , but also on students success.

In addition, the educational institutions lead the social and economic transformation through education by enabling new ways to fulfill their primary mission: to train professionals for the new reality of the world of work.

"Thus, together with a digital age, a new era in the educational system begins."

Sources:
Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial Intelligence trends in education: a narrative overview. *Procedia Computer Science*, *136*, 16-24.

Brown, A. H. (1999). Simulated classrooms and artificial students: The potential effects of new technologies on teacher education. *Journal of Research on Computing in Education*, *32*(2), 307-318

Did you Now?

According to the 2017 OECD Digital Economy Perspective study, ICT (Information and Communication Technology) specialists are defined as those employed in tasks related to the development, maintenance and operation of ICT systems and where ICTs are the main part of work.

In 2016, ICT specialists represented 3.6% of all workers in OECD countries for which data were available. In the few countries where data are available between 2003-2016, although the participation of ICT specialists in the labor market has increased moderately - from about 4% to 4.7% in Canada, from 3.2% to 4%, 1% in the United States and 3.6% to 3.8% in Australia, the demand for these professionals is expected to grow more rapidly in the near future.

Graphic 1 – Employment of ICT specialists across the economy, 2016
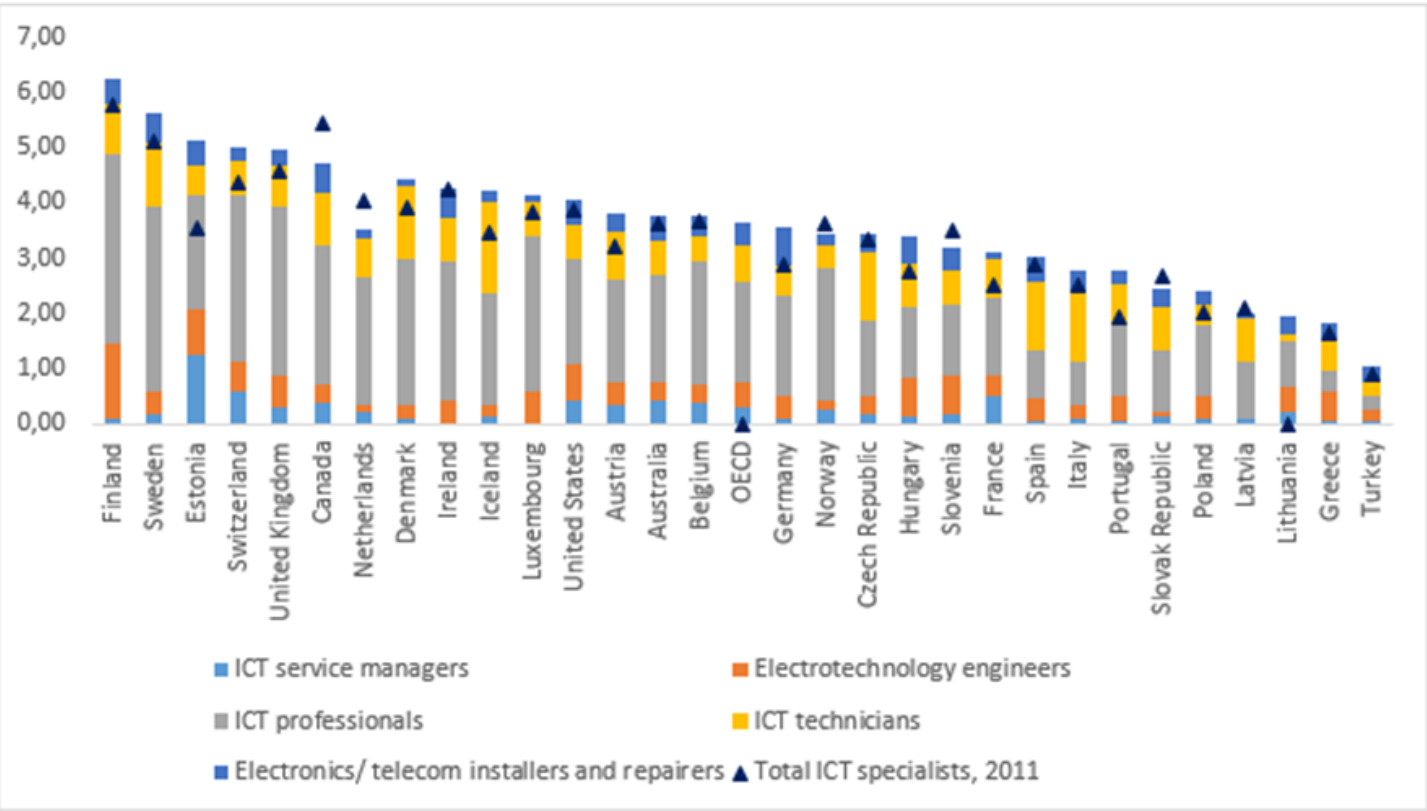
Source: OECD Digital Economy Outlook 2017

Visit our website!

The Aveiro Labour Observatory enters a new phase of digital communication! As of this month, in addition to instagram and facebook, the Observatory's content and services can also be consulted on the website, which aims to allow the access to a more dense and detailed repository of the results of this project's work.

The Aveiro Labour Observatory website was designed to offer easy, fast and efficient navigation. The website aims to be another step in the constant improvement of the Observatory's communication with the community.

The portal was designed to bring information about the Observatory's activities, where you can already find topics on digital competences for the future. As well as some results of workshops held with the sectors of TICE, Industry and Tourism / Services, where several companies representatives from the region were invited to communicate their vision about the needs for qualification and requalification for the sustainability of the digital transformation of the Aveiro region.

You can also access monthly newsletters, publications and participation in conferences, dissemination of the Observatory's results, in addition to indicators on the region's labour market.

More information at http://observatoriodoemprego.web.ua.pt/

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