

**Digital Trends / Global Economy**

# Human capital in the era of digital disruption

Vozpópuli (Spain)

**Javier Andrés (Universidad de Valencia) and Rafael Doménech (BBVA Research and Universidad de Valencia)**

Recently, the OECD (Organisation for Economic Co-operation and Development) and the Fundación Santillana presented the “OECD Skills Strategy 2019” [report](#), drafted under the supervision of Montserrat Gomendio, Head of the OECD’s Centre for Skills. This report analyzes the strategies that can be used to face mega-trends such as globalization, digitalization, aging and migration, and take advantage of the opportunities they offer to improve the prosperity of society as a whole. Its recommendations are built around three areas: developing the skills that are going to be needed over the course of a lifetime, using these skills efficiently at work and in society, and strengthening the governance of the skill system.

The effects of the digital revolution on employment, productivity, polarization, inequality, and social well-being are ultimately going to depend on our societies’ capacity to articulate policies that can adequately respond to challenges and navigate change: long-term measures that promote the positive effects of technical and digital progress, and which simultaneously reduce the individual and social transition costs to new production processes and organizations.

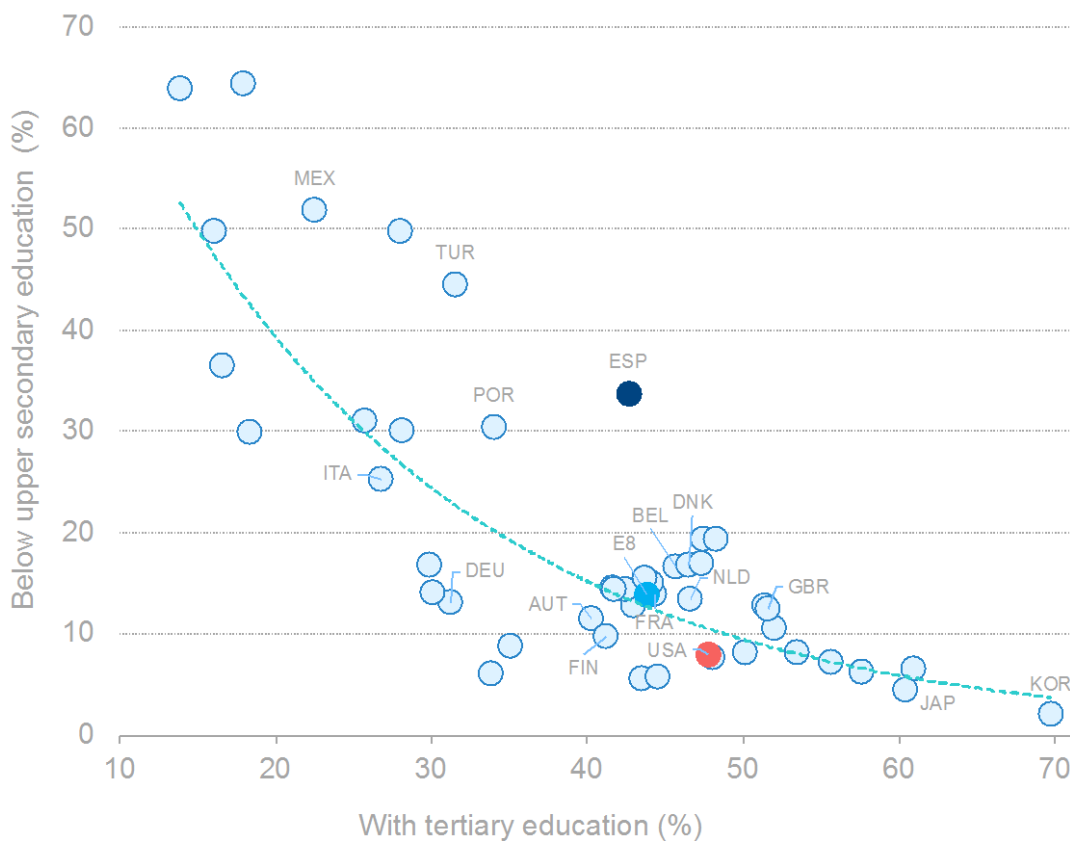
The process of technological and digital transformation, along with globalization and world production chains, make it essential to develop comprehensive, long-term strategies that are consistent with each other and have a global perspective, given our societies’ growing interdependence. But we need more than wise policies, we need swift action. If the adoption times for new technologies is shorter than in the past and their effects are more immediate, responses must be sufficient, effective, and agile in their anticipation of change.

The digital revolution strengthens some skills and capacities to the detriment of others. In the race between education and technology (excellently analyzed by Claudia Goldin and Lawrence F. Katz, [2009](#)), evidence suggests that technical progress skews toward better skills and higher education, increasing the salaries of the most-qualified workers to a greater extent than their less-qualified counterparts. The routine nature of many occupations makes it easier for them to be automated, while employees working on more abstract tasks or in management and team-coordination roles, which require more soft skills, see the demand for their services increase. Most of the occupations created by new technology require higher levels of training than those of the jobs they destroy, as a consequence of automation and the deployment of artificial intelligence. If investment in human capital was already the best individual and collective decision, this reality is all the clearer in the wake of the digital revolution. It is increasingly important to acquire the skills that will be complemented, rather than replaced, by robots and artificial intelligence, even for less-qualified tasks. Education and continuous training are basic ingredients and necessary for any person to be able to make the most of the opportunities that the digital revolution affords.

That said, there are major differences between countries in the qualifications and capacities of the adult population in the face of the digital revolution. In Japan and Korea, over 60% of young adults between the ages of 25 and 34 have some kind of higher education, and less than 5% left school before entering the upper level of secondary school. In other countries, there is a large percentage of young adults who leave the educational system too early to guaranteeing their success in the digital transformation. In Italy, 25% of adults between ages 25 and 34 have not completed the upper level of secondary school. In [Spain](#), that percentage increases to 34%, three times the levels

observed in other European countries. It is true that, at the other extreme, 43% of Spanish young adults have some kind of higher education, a rate that is similar to the most advanced countries. This duality reflects the current inequality in the human capital with which the population is entering the labor market, a huge vulnerability when it comes to facing the future.

**PERCENTAGE OF 25-34 YEAR-OLDS WITH TERTIARY EDUCATION AND BELOW UPPER SECONDARY EDUCATION, 2017**



Source: own elaboration based on OECD (2018), Education at a Glance.

But besides years of education, there are also differences in the quality of education received during those years of schooling, as is clear from the results of the OECD's Program for International Student Assessment (PISA), which tests 15-year-olds' skills in mathematics, reading comprehension, and science. In 2015, Japan had the best results (529 points), ahead of Spain (491), the US (488) and Italy (485). These differences are equivalent to approximately one year of schooling at the age of 15. And they tend to expand, because the probability of engaging in continuous learning and training programs over the course of their professional careers is much higher among individuals who already have a higher level of education than among those who have only completed the lower level of secondary education. The OECD has shown that from 2012 to 2015, around three quarters of adults with higher education in the most advanced European countries, the US, and Spain had participated in some kind of training activity. However, these percentages fell to between 28% and 33% among adults who had only completed the lower level of secondary education. Regrettably, the people most in need of continuing training are those who participate least

in these training programs. This means that, from 2012 to 2015, in the Program for the International Assessment of Adult Competencies (PIAAC) Japan had the best results, closely followed by the most advanced European countries. The US had worse results, though they were higher than those in Spain and Italy. Additionally, there is a high degree of heterogeneity in the distribution of these capacities. While just 26.6% of Japanese adults do not reach the OECD's average skill levels, in Spain that percentage is 66.6%.

These indicators demonstrate the huge disparities in the initial conditions for populations to attempt to make the most of the digital revolution's opportunities. There are major differences in how future generations are being prepared, in the share of adults with basic skills and training, in how many people have daily digital exposure at work, in the percentage of workers whose jobs are at risk of disappearing or significantly changing as a consequence of automation, in the integration of ICT in the education system, in teacher training, and in continuous training systems.

The positive reading of these differences is that countries like Spain can do much more to improve productivity, investment, innovation, employment, and their ability to capitalize on the digital revolution through improvements in their education and training policies. Portugal is achieving that kind of educational improvement and is on its way to becoming the "Finland of the South". The negative reading is that reducing these differences will take a long time due to demographic inertia. Getting the young people who join the labor market with the same level of education as more prosperous countries will take us at least two decades. And we would need another two decades to replace half of the active population and cut the human-capital gap with other countries in half.

To conclude, only the best educational and training strategies, on the individual level as well as the firms and government levels, will achieve better results in the process of digital transformation. Besides reducing the differences that exist in human capital initial conditions, we must be prepared to cover the new capacities and skills that a future society will require. Given the speed of digital disruption, we have every reason to believe that the time required to carry out these measures will be shorter than in the past. Fortunately, we have an important ally: technological innovation itself. When used well, technology can help identify training needs, design solutions, implement new measures quickly and efficiently, streamline processes, reduce costs, improve services, evaluate results, and select beneficiaries who most need to improve their capabilities.

## DISCLAIMER

This document has been prepared by BBVA Research Department. It is provided for information purposes only and expresses data, opinions or estimations regarding the date of issue of the report, prepared by BBVA or obtained from or based on sources we consider to be reliable, and have not been independently verified by BBVA. Therefore, BBVA offers no warranty, either express or implicit, regarding its accuracy, integrity or correctness.

Any estimations this document may contain have been undertaken according to generally accepted methodologies and should be considered as forecasts or projections. Results obtained in the past, either positive or negative, are no guarantee of future performance.

This document and its contents are subject to changes without prior notice depending on variables such as the economic context or market fluctuations. BBVA is not responsible for updating these contents or for giving notice of such changes.

BBVA accepts no liability for any loss, direct or indirect, that may result from the use of this document or its contents.

This document and its contents do not constitute an offer, invitation or solicitation to purchase, divest or enter into any interest in financial assets or instruments. Neither shall this document nor its contents form the basis of any contract, commitment or decision of any kind.

With regard to investment in financial assets related to economic variables this document may cover, readers should be aware that under no circumstances should they base their investment decisions on the information contained in this document. Those persons or entities offering investment products to these potential investors are legally required to provide the information needed for them to take an appropriate investment decision.

The content of this document is protected by intellectual property laws. Reproduction, transformation, distribution, public communication, making available, extraction, reuse, forwarding or use of any nature by any means or process is prohibited, except in cases where it is legally permitted or expressly authorised by BBVA.

### ENQUIRIES TO:

BBVA Research: Azul Street. 4. La Vela Building – 4th and 5th floor. 28050 Madrid (Spain).  
Tel. +34 91 374 60 00 y +34 91 537 70 00 / Fax (+34) 91 374 30 25  
bbvaresearch@bbva.com www.bbvaresearch.com

