



The Future of Jobs in the Digital World

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Abstract: The current trends in the global economy depend on the accelerated technology, the trends in robotization, a new human-machine frontier, the changing geography of production, distribution and value chains, a net positive outlook for jobs and a re-skilling imperative in a context of growing skills instability all over the world.

Current strategies for business development in the digital world seek to automate work tasks and increase the profits. The new accelerated technology determines significant changes in the employment types, leading to cost control and reduction of expenses. Most of the companies are prepared to find opportunities to use new technologies and to upgrade job quality. However, the job market is perceived differently due to mobile Internet, artificial intelligence and cloud technology. The employers are seeking workers with new skills and talents for adoption of user and entity big data analytics, cloud computing and artificial intelligence.

The future workforce must develop their skills or retrain to acquire new skills and to invest heavily in the development of new agile learners in order to perform more flexible jobs and to accept new roles due to business transformation and digital technology in the global economy.

Keywords: economy, employment, accounting, education

JEL classification: E02, E24, M40, L20

Introduction

Nowadays, governments are facing increasing expectations and greater demands from citizens about the range and quality of public services. These new expectations on governments are today driving public sector modernisation, also requiring the digital transformation of public services. Such expectations of the government are related to efficiency, effectiveness and governance of public services all over the world.

The digitisation of public services also calls for new measures in terms of infrastructure modernisation and employment of the new workforce. Thus, the new workforce must be knowledgeable about the technological advances, high-speed mobile Internet and artificial intelligence, in order to develop new capabilities and skills able to sustain a digital public sector culture.

The aim of this paper is to address the digital transformation of the governments and the future of jobs in the digital era in the context of accelerated technology adoption.

1. The Digital Government and Online Public Services

Digitisation offers opportunities for more collaborative and participatory relationships across stakeholders to actively shape political priorities, collaborate in the design of public services. According to OECD, digital technologies are transforming the public administrations all over the world and new digital technologies are changing the public sector.

The demographic composition in OECD countries is changing, modifying significantly the demand for services, and in many cases, the capacity to provide those services (OECD, 2016). Thus, Governments are facing increasing expectations from users to deliver more innovative and responsive services and the new digital environment offers opportunities for citizens. The new digital government is fundamental to serve digital societies and economies' needs (OECD, 2017a), this way delivering public services online becomes an imperative for its legitimacy as guardian of well-being and progress.

The digital government is not only about new digital technologies to modernize the existing government processes and to offer public services online, but it's also about employment, skills and human capital investment trends in the public sector, because the design and implementation processes of the public services must be rethought according to the citizen's needs.

The digital transformation of the public services results in increasingly shared infrastructures, administrative services and ICT platforms that support a reallocation of funding to frontline services as well as a reduction of overall costs in the public sector. According to OECD Comparative Study (2016), governments are facing increasing expectations and greater demands from citizens about the range and quality of public services. In order to respond to the citizen's needs, European governments have set for themselves political objectives to achieve greater trust in government, including responsiveness and transparency, in order to build confidence in the public administration. The digital transformation of the government is a slow process starting from the analogue government, with operations and transactions based on analogue procedures and a large number of public servants and continuing with E-government involving greater transparency and ICT-enabled procedures in the public administration. In order to improve public services through digital government, new digital technologies and data reuse need to be integrated in core processes and activities in the public sector. The digital government provides open and user-driven approaches, process and operational transformations in the public sector. We present in the figure below the progression towards the digital transformation of governments.

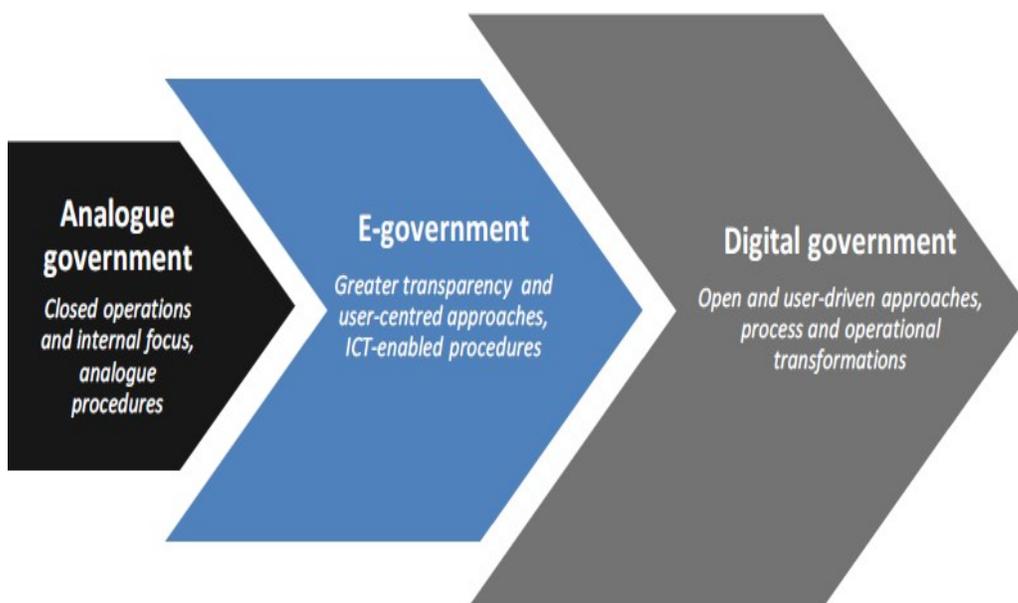


Figure 1. Progression towards the Digital Transformation of Governments

Source: OECD (2014), Recommendation of the Council on Digital Government Strategies,

<https://www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf>.

OECD recommends governments to focus on developing digital and data-related skills in the public sector, creating new profiles and career paths based on forecasted needs, and providing programs for training of public servants (OECD, 2019). In the Digital Government Framework some new main policy dimensions should be considered to create a digital government environment (OECD, 2019).

Table 1. The six dimensions of the OECD Digital Government Framework

From the digitisation of existing processes to digital by design
From an information-centred government to a data-driven public sector
From closed processes and data to open by default
From a government-led to a user-driven administration, that is, one that is focused on user needs and citizens' expectations
From government as a service provider to government as a platform for public value co-creation
From reactive to proactive policy making and service delivery

Source: OECD, 2019, Strengthening Digital Government

<https://www.oecd.org/going-digital/strengthening-digital-government.pdf>

The digital government will implement online public services in order to minimize corruption and bureaucracy in the public administration and to offer more easily accessible services to all citizens and investors. Digitisation offers opportunities for new technologies, eliminating almost entirely the bureaucratic practices in the public sector.

But digital government must be associated with a transformed and empowered civil service workforce and with new jobs in the digital world.

2. The Future of Jobs in the Digital Society

According to the Future of Jobs Report 2018 from World Economic Forum 2018, the digital society brings on innovation, and new technologies, including automation and algorithms, create new high-quality jobs and vastly improve the job quality and productivity of the existing work of human employees. But new economic models show how new technology can cause inequality and significant changes in relative wages because new technology can affect some or even all workers (Caselli, F.; Manning, A. 2019).

The fear of the impact of new technology on workers is not something new, although the technology feared has varied over time (Caselli, F.; Manning, A. 2019). However, in the near future an augmentation of existing jobs through technology is expected to create wholly new tasks—from app development to piloting drones to remotely monitoring patient health to certified care workers—opening up opportunities for an entirely new range of livelihoods for workers.

OECD² recommends all governments to promote and enforce the adoption of digital standards and guidelines to offer more coherent interoperable and resilient digital government infrastructure in order to offer public services designed with a user-driven perspective and adaptable to different user profiles. As technological breakthroughs rapidly shift the frontier between the work tasks performed by humans and those performed by machines and robots, in the last decade, the workforce transformations have accelerated by widespread adoption of big data analytics and cloud technology.

By 2022, according to the stated investment intentions of companies surveyed for Future of Jobs Report 2018, 85% of respondents are likely or very likely to have expanded their adoption of user and entity big data analytics and a new approach of human-machine frontier within existing tasks. In the near future, companies expect a significant shift on the frontier between humans and machines when it comes to existing work tasks between 2018 and 2022. Thus, by 2022 this average is expected to have shifted to 58% task hours performed by humans and 42% by machines.³

Preparing the new future workforce and encouraging their creativity, knowledge and skills became a priority for any government. The future workforce must understand and use the specific digital technology, such as: high-speed mobile Internet, artificial intelligence, widespread adoption of big data analytics, and cloud technology. According to the Future of Jobs Report 2018, policy-makers, educators, labour unions and individual workers likewise have much to gain from deeper understanding of the new labour market and proactive preparation for the changes underway. The trends of the future job market indicate that new jobs will be created and some jobs will disappear due to the digital society and new demands from the public and the business environment, as well.

Among the range of jobs to experience increasing demand in the period up to 2022 are Digital Transformation Specialists, Human-Machine Interaction Designers, Robotics Engineers and Blockchain Specialists, Data Analysts and Scientists, Software and Applications Developers, and Ecommerce and Social Media Specialists, jobs that are

² OECD (2019) Strengthening Digital Government, Available at <https://www.oecd.org/going-digital/strengthening-digital-government.pdf>

³ WEF (2018) The Future of Jobs Report, Available at <https://www.weforum.org/reports/the-future-of-jobs-report-2018>

significantly based on and enhanced by the use of technology. We present in the table below the most important new jobs in the digital world.

Table 2. The Future of Jobs in the Digital World

No.	New Jobs in the Digital World
1	Data Analysts and Scientists
2	AI and Machine Learning Specialists
3	Big Data Specialists
4	Digital Transformation Specialists
5	New Technology Specialists
6	Organizational Development Specialists
7	Software and Applications Developers and Analysts
8	Information Technology Services
9	Process Automation Specialists
10	Innovation Professionals
11	Information Security Analysts
12	Ecommerce and Social Media Specialists
13	Human-Machine Interaction Designers
14	Training and Development Specialists
15	Robotics Specialists and Engineers
16	People and Culture Specialists
17	Digital Marketing and Strategy Specialists

Source: WEF (2018) The Future of Jobs Report

<https://www.weforum.org/reports/the-future-of-jobs-report-2018>

International organizations can largely benefit from artificial intelligence. The most important gain resulting from the implementation of an artificial intelligence-powered solution consists in providing jobs with high potential for automation or significant change in daily activities (Ionescu, L, 2019), but some workers worried they might lose their job to advancing technology.

According to the Future of Jobs Report 2018, by 2022, 38% of businesses expect to extend their workforce to new productivity-enhancing roles, and more than a quarter expect automation in daily operations. Moreover, many businesses express their intention to engage workers in a more flexible manner, utilizing remote staffing beyond physical offices and decentralization of operations. Therefore, most of the jobs will be part-time or project-based by contractual arrangements.

Conclusion

This paper analyses the connection between digital government and the future of jobs in the digital world. Due to the evolution of new technology all over the world, there is a great demand of computer specialists and qualified workforce in the near future to cover the new specific digital technology, such as: high-speed mobile Internet, artificial intelligence, widespread adoption of big data analytics, and cloud technology. This new shift in the workforce underway will result in job disruption and re-skilling that will demand industry to create new jobs for the new generation.

The jobs in the future will be different by industry and sector due to automation influenced by initial starting conditions around the distribution of tasks and adoption of digital technology all over the world. For these reasons, the future of jobs cannot be precisely predicted but they can be anticipated following the evolution of digital technology and artificial intelligence.

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