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The future is now: Closing the skills gap in Europe's public sector

As the need for digital government capabilities increases during the COVID-19 pandemic, the European public sector can close the skills gap by focusing on three areas.

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The advance of digital technologies and especially artificial intelligence (AI) presents the European Union and the United Kingdom (the EU-28) with enormous opportunities for growth. A study by the McKinsey Global Institute shows that if digitally lagging sectors—such as manufacturing, mining, healthcare, and education—double their use of digital assets and increase the digitization of labor, the EU-28 could add €2.5 trillion to its GDP by 2025, boosting GDP growth by 1 percent per year until then.[1] In its 2020 European Digital Strategy, the European Commission is attempting to realize this potential through measures such as increasing investments in AI development to more than €20 billion per year through 2030, compared with €3.2 billion in 2016.[2]

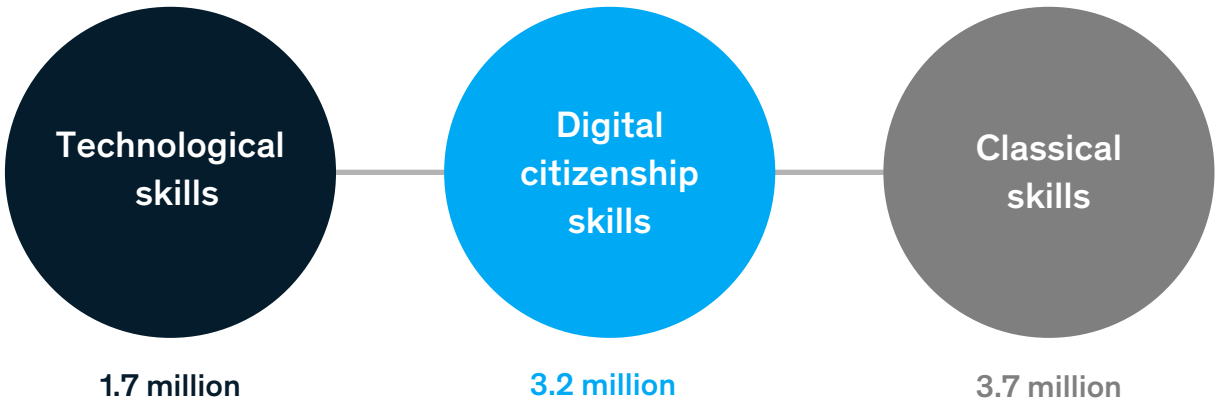
The advance of digital technologies has raised European businesses' and citizens' expectations regarding improvements in smart regulation and citizen experience—for instance, through the digital delivery of public services—as well increased funding for technological development. Today, the COVID-19 outbreak is not only intensifying the need for the digitization of a wide range of administrative services (such as unemployment benefits), but it is also making digital skills a prerequisite for employees to successfully work from home. While the pandemic poses immense challenges, the current crisis is also an impetus for governments across the EU-28 to accelerate and deliver on their digital ambitions.

Indeed, governments across the EU-28 have already launched a range of initiatives toward end-to-end e-government. However, our analysis suggests a shortage of digital and technological skills to successfully and rapidly implement these initiatives—a total of 8.6 million people across the EU-28 public sector without the necessary skills by 2023 (exhibit). As a result, opportunity exists to harness the full benefits of technology, such as improving efficiency and transparency of government operations, advancing service quality for citizens, and improving the EU-28's overall competitiveness. The public sector also faces the dual challenge of shaping how the digital revolution affects business and society while empowering its own employees, which constitute roughly 17 percent of all employees across the EU-28,[3] to learn and apply new technical and digital skills.

[1] For more information, see "Digital Europe: Pushing the frontier, capturing the benefits," McKinsey Global Institute, June 2016.
[2] "Excellence and trust in artificial intelligence: Shaping Europe's digital future," European Commission, February 2020, ec.europa.eu.
[3] "Share of government employment nearly stable," Eurostat, April 21, 2020, ec.europa.eu.

Exhibit

The EU-28 public sector has a shortage of 8.6 million people with necessary skills across three categories.



To close the skills gap and best equip the workforce to operate in an increasingly digitized and automated world, governments will need to focus on recruiting, upskilling, and reskilling efforts. And in the context of COVID-19, moving quickly in these areas is more essential than ever.

Understanding the skills gap in the EU-28 public sector

Even before the COVID-19 pandemic, many EU-28 countries were following digital pioneers such as Denmark or Estonia in the move to an end-to-end e-government in which all administrative services are provided through digital portals and platforms. Germany is currently pursuing an initiative to make all state services available online; developing digital solutions by consulting experts in the fields of law, IT, and administrative organization; and carrying out design-thinking workshops with users.[4] The EU-28 has also launched initiatives to strengthen the digital skills required for the implementation of e-government. For instance, the European Commission's Digital Europe Programme has budgeted €700 million for initiatives such as offering 160 new master's degree programs in cutting-edge digital technologies and training 80,000 digital specialists.[5]

Despite these digital ambitions and initiatives, many public administrations in the EU-28 risk falling behind by measure of the technological skills of their workforce, especially when compared with the private sector. We have categorized the critical skills (18 total) needed in the public sector across three dimensions: technological skills such as data analysis, digital citizenship skills such as digital literacy, and classic skills such as problem-solving capacity (for more, see sidebar, "Methodology"). Navigating these skills with ease will become more important as less-demanding tasks, such as data entry, become increasingly automated and make room for governments to address other challenges, such as those requiring decision making based on complex data analysis.

When looking at technological skills, our analysis shows that an additional 1.7 million employees (which represent 5.3 percent of the current 32 million public-sector employees in EU-28 countries) with technological skills will be needed across the public sector in the EU-28 by 2023, including approximately 1.1 million people with advanced and complex data analytics skills. These numbers are significant, and closing the gap will be challenging as these skills are highly specialized. The countries with the largest deficits in technological skills include France, Germany, Italy, and the United Kingdom. For complex data analysis alone, France, Germany, and the United Kingdom will each require more than 100,000 additional skilled employees in the public sector by 2023.

Furthermore, the public sector will also need to substantially increase its efforts to build digital citizenship skills. On average, 3.2 million public-sector employees across the EU-28 will lack at least one of the six digital citizenship skills by 2023. In the coming years, certain classical skills like problem-solving and creativity will maintain or increase their importance, requiring further development. Overcoming the skills gap is imperative for the public sector to succeed and to fulfill citizens' growing expectations for public-sector service delivery.

Closing the skills gap

Closing a future skills gap of this magnitude will require an array of approaches, from improving recruiting practices to upskilling and reskilling. Therefore, it is crucial that governments measure the skills gap of their existing workforce and then invest heavily in closing it. Government-sponsored educational programs for current and new employees should be expanded to include technological and digital citizenship skills. New qualification concepts need to be developed to better prepare the workforce through upskilling (further developing employees with existing basic skills in their respective area) and reskilling (equipping employees currently conducting tasks

[4] "How is the Online Access Act being implemented?," Federal Ministry of the Interior, Building, and Community, April 21, 2020, onlinezugangsgesetz.de.
[5] "Digital skills & jobs," European Commission, April 21, 2020, ec.europa.eu.

at high risk of being automated, such as data entry, with skills to fill new roles). For example, Germany's Ministry of the Interior, Building, and Community is coordinating an interagency network to identify future skill needs, up- and reskill employees, and hire new specialists in the public sector.

Recruiting

Improving existing recruiting practices within the public sector will contribute significantly to filling the future skills gap. This is especially true for highly specialized technical skills such as blockchain development and complex data analysis that drive the digital economy but are difficult to develop through upskilling or reskilling. Governments could optimize their recruiting processes by shifting the focus from reviewing a candidate's qualifications on paper to assessing concrete skills, thus widening the pool of applicants. Doing so can provide more points of contact with the applicant before full-time recruitment, through events such as hackathons or information sessions targeting those concrete skills. Governments could also establish an HR culture that improves the applicant's experience by providing regular mentoring and support through dedicated contact persons.

The public sector can make itself a more attractive destination for digital talent. Numerous interventions—including in-person and online recruitment campaigns,[6] rapid onboarding, a stimulating working environment and culture, attractive career-development options, and suitable compensation packages—can all help entice candidates.[7] Especially amid the context of COVID-19, building and expanding effective recruiting practices for digital talent will help the public sector hire urgently needed personnel for task forces that address challenges arising from the pandemic. In the current crisis, the public sector could emphasize its appeal to mission-driven digital specialists who aim to apply their skills for the common good. Lastly, it could also provide employment opportunities for those talented individuals on secondment from industries that have been hit the hardest by the pandemic.

Upskilling

All employees should receive regular training to build their digital citizenship skills and classic skills, especially in the wake of COVID-19. To make upskilling as effective as possible for people, governments should consider three things when

[6] These could include hackathons on specific technological challenges, online targeted advertising, and headhunting.
[7] Admittedly, compensation packages are tightly constrained by already negotiated collective bargaining agreements.

Methodology

To approximate the skills gap in the EU-28 public sector, we used a mixed-method approach that included workshops, expert interviews, and a representative country survey that polled more than 600 organizations, including a large share of public-sector organizations and state-owned enterprises, to identify which skills will become particularly relevant in the next decade (exhibit).

As part of the survey, these organizations were asked to estimate what share of their employees possess the relevant skills today and what share of their employees need to possess these skills by 2023. The resulting percentage difference per skill was used to calculate the overall skills gap in the EU-28. We then multiplied the resulting percentage difference for each technological skill with the total number of employees with medium to high qualification—levels five through eight of the International Standard Classification of Education (ISCED), a total of 76.5 million employees—in the EU-28. The same approach was used to calculate the skills gap for digital citizenship skills and classic skills, but this approach was based on the total number of employees with ISCED qualification levels three through eight in the EU-28 (a total of 182.9 million employees), as these skills will be required by a broader range of employees. Finally, we multiplied the resulting skills gaps with the share of public-sector employees in the EU-28, that is, public administration, defense, social security, and education (in line with codes O and P of the statistical classification of economic activities in the European Community), which is approximately 14 percent.

Methodology (continued)

Exhibit

Skills across three dimensions will be critical in the EU-28 public sector.

Complex data analysis
Efficiently examine large data volumes using analytical methods to obtain information (eg, developing AI)

Smart hardware and robotics development
Develop physical components for "intelligent" hardware-software systems such as the IoT (eg, robots)

Web development
Command programming languages for the back-end and front-end development of web applications (especially mobile)

User-centric design
Design products so they have optimized functionality and are intuitive to use, thus providing an attractive user experience

Conception and administration of networked IT systems
Compose a complex IT infrastructure (including in the cloud) with interfaces to additional IT systems; should be able to continuously manage and develop it

Blockchain technology development
Develop decentralized databases (distributed ledgers) using blockchain technology

Tech translation
Moderate between technology experts and nonexperts who are involved in a project

Digital literacy
Have a command of fundamental digital skills such as the careful handling of personal digital data, the use of popular software, and interacting with AI

Digital interaction
Have appropriate digital etiquette when interacting through online channels and behave appropriately toward others

Collaboration
Collaborate effectively and efficiently during projects irrespective of geographical proximity and different disciplines and cultures

Agile working
Work iteratively in a team responsible for the final product (rapid prototyping) to develop something that will add value to the customer

Digital learning
Develop knowledge in selected subject areas from a broad range of digital information

Digital ethics
Critically query digital information and the impact of digital activity and reach; query corresponding ethical decisions

Problem-solving capacity
Take a structured approach to solving specific assignments for which there is no ready-made solution

Creativity
Develop original ideas for improvement (eg, for existing business processes) or innovations (eg, for new products)

Entrepreneurial thinking and self-initiative
Be able to work independently on your own initiative as part of a project or an organization

Adaptability
Be able to engage with new technological developments and use them to your advantage

Grit
See tasks, such as challenging projects, through to the end by staying focused, being responsible, and dealing with resistance

designing programs: training format, the type of support offered, and possible partnerships. For instance, the UK government's Government Digital Service (GDS) Academy, launched in 2014, offers public servants a wide range of in-person courses (online learning modules are not yet available) on computer science, user-centered design, data, AI, and other in-demand disciplines.[8]

Governments could complement their existing in-person training programs with flexible and scalable e-learning formats to deliver more widely accessible training for basic digital skills, such as digital literacy and collaboration. The availability of online learning modules will be especially important as public-sector employees work from home in response to COVID-19. Governments could also encourage their employees to participate in regular trainings by granting additional paid time off or financial resources specifically for relevant training. And partnerships could be formed between governments and academic institutions or individual external experts to combine efforts in training development. The GDS Academy, for instance, partners with the UK's Office for National Statistics and Office for Science and Civil Service, as well as leading academics and industry experts. The public sector could also bring highly skilled talent into government service for a limited time to share knowledge.

Reskilling

Governments need to systematically assess which public sector jobs will be most affected by digitization and automation so they can offer retraining. For instance, Denmark applies a range of methods and tools to anticipate the occupations most affected by automation and digitization, including quantitative forecasting, sector studies, and surveys of employers, workers, and graduates.[9] Generally, at-risk public-sector employees have a clear development perspective and sufficient support. Promising employees could be put on short-term paid leave to complete reskilling in a competence area in which the government expects skill shortages before being offered a new position.

As not all activities can be completed from home, governments should take advantage of these freed-up capacities for at-home digital reskilling. Because there is more complexity in reskilling compared with upskilling, external partnerships with universities, labor agencies, and other educational institutions will be crucial for developing appropriate training platforms for employees.

Given the digital and automation revolution occurring across public institutions in the EU-28, it is imperative for governments to address the skills gap. As the ramifications of COVID-19 accelerate this digital revolution, closing the gap will become more necessary. In a post-pandemic environment, EU-28 governments could reduce unnecessary regulatory hurdles involved in digital technologies and learning and instead streamline decision-making processes. Ultimately, reaping the benefits of new technologies, process automation, and AI aimed at operational efficiency and customer satisfaction will only be possible if the government workforce has the appropriate skill set to operate in a digitized, automated world. To acquire and shape the skills for their workforce, governments must improve recruiting practices and invest substantially in preparing their existing workforce through upskilling and reskilling.

[8] "GDS Academy," Government of the United Kingdom, April 21, 2020, uk.gov.
[9] "Skills anticipation in Denmark," European Commission, April 2017, skillspanorama.cedefop.europa.eu.

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