The Digital Transformation of Italy's Public Sector: Government Cannot Be Left Behind!

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Abstract: Digital transformation is a big challenge for governments, as the speed of transformative technologies is very fast while, governments are generally slow. New ways of 'being government' need to be found to increase the pace of policy response to emerging challenges. The greatest danger of falling behind is a declining trust in policy makers, and the possible emergence of extreme policy reactions which undermine innovation. Governments should transform themselves, if they do not wish to become progressively irrelevant. What is a digital transformation?

Keywords: Digital transformation, policy making, innovation, digital transformation

1. Digital Transformation

Digital transformation is a big challenge for governments, as the speed of transformative technologies is very fast while governments are generally slow. New ways of 'being government' need to be found to increase the pace of policy response to emerging challenges. The greatest danger of falling behind is a declining trust in policy makers, and the possible emergence of extreme policy reactions which undermine innovation. Governments should transform themselves, if they do not wish to become progressively irrelevant.

What is a digital government transformation? According to the broadest definition, it is the process of implementing digital government while transforming the organisational structures and the way services are provided; it relies on the use and reuse of data analytics to simplify transactions for citizens, businesses, government agencies; it creates information from data to support and enhance decision making[1].

In the international rankings, Italy does not fare well in terms of digital government. Italy has tried a range of options to digitally transform the public sector. Throughout the years, different governments have introduced different types of governance but, unfortunately, the situation has not improved.

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[1] *Going Digital: Shaping Policies, Improving Lives* OECD: Paris (2019).

Most recently, however; there have been signs of change. The country is experiencing a new awareness; the new challenges that the digital transition is generating are becoming a policy priority. Continuity and consistency in the country's digital strategy are reasons to believe that the digital transformation of the public sector may be on the right track at last.

September 2016-December 2019: The High Commissioner for the Digital Agenda and the Digital Transformation Team

The Italian Government wished to accelerate the implementation of the digital agenda and re-launch e-government projects. On September 16, 2016 the Italian Government's High Commissioner for the Digital Agenda,Diego Piacentini,was appointed by a decree of the President of the Council of Ministers to lead and relaunch the implementation of the "Digital Agenda".

The same decree introduced the 'Digital Transformation Team' under the direction and supervision of the same commissioner. The team is composed of experts in technology, law, international relations, public administration and communication. The mandate of the first commissioner expired at the end of Sept. 2018. A new commissioner, Luca Attias,was appointed, whose mandate, together with the team's, expired at the end of Dec. 2019.

As an organisation within the Presidency of the Council of Ministers, the team was modelled on the United States Digital Service and the UK Government Digital Service. The political endorsement by the President of the Council of Ministers and a strong and centralised governance enabled the team to work expeditiously and free from excessive constraints. The commissioner had ample power in coordinating and setting the rules for the PA digital projects. Also, he was entrusted with sufficient resources for the execution. The commissioner had a dedicated budget that allowed recruitment of the best technical people for the team. The team had access to national and European funds to launch and/or re-launch projects.

The team's mission was that of making public services for citizens and businesses easily accessible, via a mobile first approach, with reliable, scalable and fault tolerant architectures, based on clearly defined APIs. Furthermore, the team supported the central and local government administrations in making the best and most data driven decisions, thanks to the adoption of big data and machine learning technologies.

The team coordinated the different stakeholders (government, public administrations) to manage existing and future digital programs in an integrated manner with an agile methodology and an open data approach, and identified new digital and technology transformation initiatives.

Furthermore, it created a community of developers and designers and a shared a wealth of tools and services which could contribute to the development of application programming interfaces and digital services.

The "Three-Year Plan for Digital Transformation in Public Administration" and the "EU eGovernment Action Plan 2016-2020"

In order to outline their digital transformation plan, the Commissioner and the team needed a framework, which was provided by the EU eGovernment Action Plan 2016-2020 and which is one of the pillars of the EU Digital Single Market.

The *Three-Year Plan for Digital Transformation in Public Administration*[2] guides the digital transformation of the Italian Public Administration and is consistent with the EU's objectives and the OECD policy recommendations. It is the reference document for digital policies, and identifies, for a specific time horizon, the principle objectives and the most innovative technological solutions necessary to accompany and accelerate the pace of Italy's digital development. The Plan's first release is dated March 2017; the Plan is updated yearly. With the Three Year Plan, Italy has developed a shared vision and goals, since the plan provides for a strong national/local level collaboration, and requires that local administrations draw up strategic plans, consistent with the European and national vision.

The country's operating system

The Team has introduced a new model for digitising the public administration sector to build the "operating system" of the country as a series of building blocks, upon which digital services for citizens and enterprises are developed. It helps to reorganise IT projects to provide citizens with a richer service experience (eg. for taxpayers, transportation, digital documents/dematerialisation).

The Team relaunched some projects that were stuck: ANPR (National Resident Population Register), PagoPA (a central node of payments for all public administrations, SPID (Digital identity for easy access to digital public services) and launched new projects such as the API ecosystem (an API management system, standards and guidelines to allow the public administration to communicate via API), Designers Italia (the open design platform for the community of designers of digital public services), Developers Italia (the open development platform for the community of developers of digital public services), the project "IO" (a simpler way for central and local public administrations to communicate with citizens, notarise documents and remember deadlines), the Data & Analytics Framework (DAF) and open data.

The Team provides building blocks e.g. "enabling platforms" like SPID, PagoPA and ANPR to help third parties create better services, as these components are meant to be reused by local agencies or the public sector. For example, the "IO" project allows services to communicate with citizens based on his/her contact preferences. PagoPA enables users to pay fees or taxes via a wallet of payment methods. SPID leverages certified companies to act as identity providers for authenticating citizens on government platforms.[3]

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[2] https://teamdigitale.governo.it/en/

[3] For a complete overview of the projects see   https://teamdigitale.governo.it/en/report.htm; https://teamdigitale.governo.it/assets/pdf/Report_DigitalTransformationTeam_09_30_2018.pdf

2. Looking at the Future

On the expiration of his mandate (Sept. 2018), the first High Commissioner Piacentini published a white paper which, besides offering a deep analysis of the accomplishments, the failures and what was left to be done, provides *specific recommendations[4]* to foster and hasten the transformation of the Italian public sector into an actual digital government.

Main Recommendations
1) Update the Three-year Plan Strategy and Advance the Execution Phases;
2) Continue on the path traced out by the Three-Year Plan for Digital Transformation by completing the implementation of the "operating system" component;
3) Implement the large-scale adoption of the tools needed for the development, design, collaboration and sharing partners: Developers Italia and Designers Italia, Docs Italia, Forum Italia and the National Digital Data Platform;
4) Complete the development and deployment of the project IO to allow citizens to communicate digitally with the entire public administration;
5) Create a permanent body that sits within a Department of the Presidency of the Council of Ministers with a strong mandate and a significant spending budget, in order to guide and supervise the Digital Transformation of the Public Administration;
6) Create the role of Chief Technology Officer within each Ministry and main body of the central Public Administrations; the CTOs will be in charge of the digital transformation and the implementation of the Three-Year Plan;
7) Invest in central in-house and in public bodies that have a critical role to play in the development of enabling technologies and in the provision of major public services;
8) Create programs to attract talented young graduates with modern technological skills to the PA such as a "digital civil service," to work closely with high-level administration executives on digital transformation projects;
9) Implement initiatives for the "digital" training of PA executives and officials by introducing specific mandatory courses, focusing on digital skills, for all public employees;
10) Involve students through work experience programs with the dual objective of bringing them closer to the world of public administration and using them to explain digital services to citizens.

And… Beyond

Some of the most significant recommendations were indeed applied.

In particular, art. 8 of Decree Law 135/2018 (Official Journal February 12, 2019) extended the Commissioner structure up to 31/12/2019 (Article 1-bis).

Art. 1-ter provides that from 1 January 2020, in order to ensure the implementation of the objectives of the Italian Digital Agenda, also in line with the Digital Agenda for Europe, the functions,

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[4] https://teamdigitale.governo.it/en/future.htm

tasks and powers conferred to the Commissioner (..) are assigned to the President of the Council of Ministers or to the Minister delegate who exercises them through the structures of the Presidency of the Council of Ministers identified by the latter, together with the Ministry of Economy and Finance … (DPCM June 19, 2019).

The decree brings significant innovations in the governance of the digitalisation process, since it assigns to the President of the Council of Ministers the direction and coordination of public sector digital projects, and provides for a new state-owned company, under the supervision of the Presidency of the Council of Ministers, which will implement and manage: pagoPA; the IO Project and the NDPD (National Digital Data Platform Project, formerly known as Data & Analytics framework).

3. A new Governance: the new Minister for technological innovation and Digitization and the new Department of Digital Transformation

The Minister for Technological Innovation and Digitization, Paola Pisano, was appointed on Sept. 5, 2019.

The Minister's portfolio includes the definition of the Government's strategic guidelines, coordination, promotion, guidance, and control over the implementation and use of policy instruments, funds, and resources for the development, dissemination, and use of digital technologies in all sectors.

Furthermore, in order to attract new companies and enhance the innovation ecosystem, the Minister is in charge of researching, disseminating, and promoting access to innovative and emerging technologies. The Minister is also entrusted with the development and fostering of digital skills.

The Minister is working to establish new governance to address all the assigned tasks.

After the formation of its cabinet and the establishment of the Department for Digital Transformation, the Minister has been working on the integration of the Digital Transformation Team with the Department and the establishment of a Taskforce for the coordination of the strategy on digital transformation and innovation, together with the representatives of Ministries, local authorities, stakeholders, and think tanks focused on technological, social and ethical innovation.

The execution phase is right on track and the large-scale deployment of the strategy building blocks is accelerating.[5]

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[5] https://innovazione.gov.it/

4. Government in slow motion, still! Big challenges still remain, when it comes to modernising and digitising administrations

Citizen-driven service delivery and policy-making can only be unlocked if public sector operations and decision-making processes are transformed to overcome the legacy of analogue structures and systems, and functional silos become digitally integrated.

The current status of the public digital infrastructure shows the consequence of the lack of agile central coordination. Much has been done in the recent past, but most of the programs are not aligned and many systems and websites were built with outdated technology, insufficient attention to user experience, poor integration and, often, a lack of interoperability.

Italy, like many other countries, is faced with old technological systems that don't talk to each other (are not interoperable) and that have, until today, limited themselves to translating processes created for an analogue bureaucracy. When these processes are digitalised the inefficiencies are not solved, but remain, as digitalisation is not an assemblage of technological projects.

In the last few years, some inefficiencies were addressed but what is missing is a clear execution and the reengineering of processes.

It is not just about solving Italian problems. This type of problem exists everywhere when it comes to public administrations, although at different levels of digital maturity. It exists in the EU, the United States and Australia, as well as in the wider global community.

Furthermore, public administration information systems must connect with each other and speak the same language, so that information can be available whenever and wherever is necessary. All applications should be required to use an application programming interface (API) and work in an integrative, collaborative and secure way, facilitating the use of existing applications upon which to build more powerful and innovative solutions. Only then, citizens will be able to enter their information into the system once and once only.

The limitation in sharing public sector data is another major challenge. Data are at the core of the digitalisation of the public sector; public information is a public good and a precious resource for the country and can be explored and mined to extract value.

As a member of the e-government Action Plan Steering Board, in May 2017 Italy volunteered to launch a survey among MS on public sector data analytics with the objective of 1) initiating the discussion about the potential of big data for public service delivery and better decision-making and 2) identifying new digital and technology transformation initiatives. Very few of the responding countries (13) have started advanced analytics or big data projects, although they all indicate data is important.

The most common difficulties that were pointed out are: data availability; data silos; lack of skills; privacy framework. Some regulatory adjustments are needed to facilitate the exchange of data between PAs. Ironically, the private sector is not bound by the same strict rules as PA are; yet, PAs would use data to offer more efficient and more customised public services.

The potential of public procurement as a driver of innovation in public services has not yet been sufficiently utilised. In the push to develop a structured approach to ICT procurement and investment, governments have established centralised units or bodies in charge of ICT procurement policy; however, too much centralisation should be avoided, otherwise it risksmaking digitization slow, rigid and inefficient. Many current problems depend on how the procurement process is carried out and its effect on the products and services purchased: typical public tenders are designed to contract mostly large vendors, for a period of time of 5-7 years and with budgets of several hundred million euros.

This approach, which privileges an *old waterfall development process*, is not in line with a modern public procurement that should boost instead agile and iterative software development by small and very innovative SMEs and startups.

5. Digital divide and digital services uptake

Italy is characterised by a strong digital divide, and a high level of digital illiteracy.

Digital illiteracy discourages and hampers users to comprehend the full potential of the digital world.

According to the European Commission's *Digital Economy and Society Index (DESI) 2019*[6], Italy ranks 24th out of the 28 EU Member States.
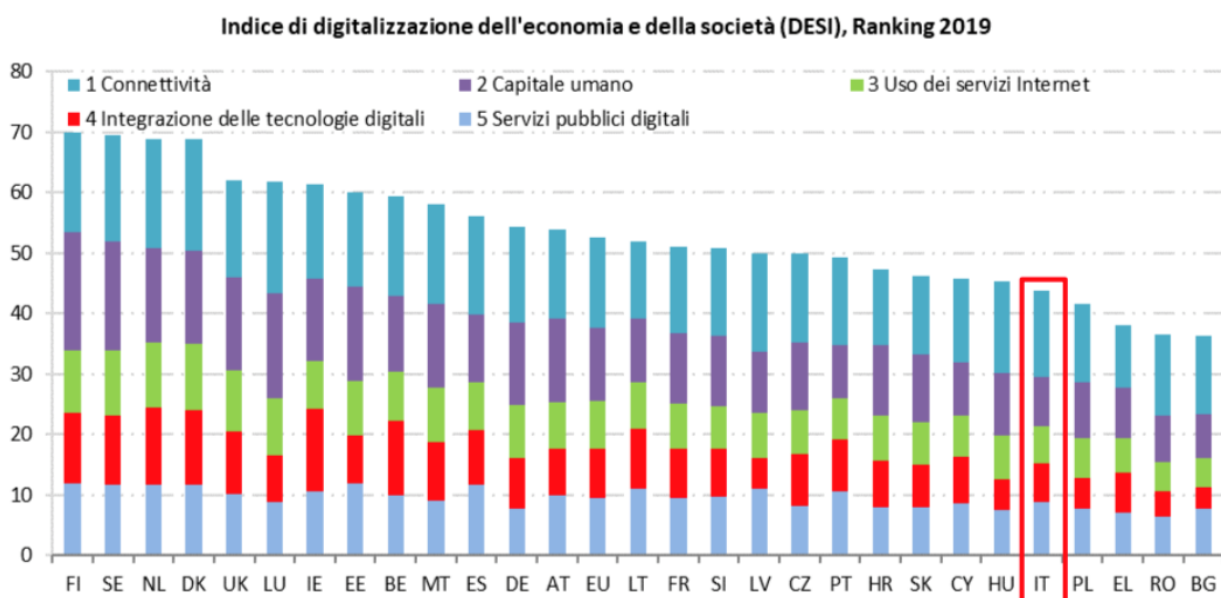
Italy performs relatively well, although still below the EU average, as regards connectivity and availability of digital public services. Online public services and open data are readily available, and
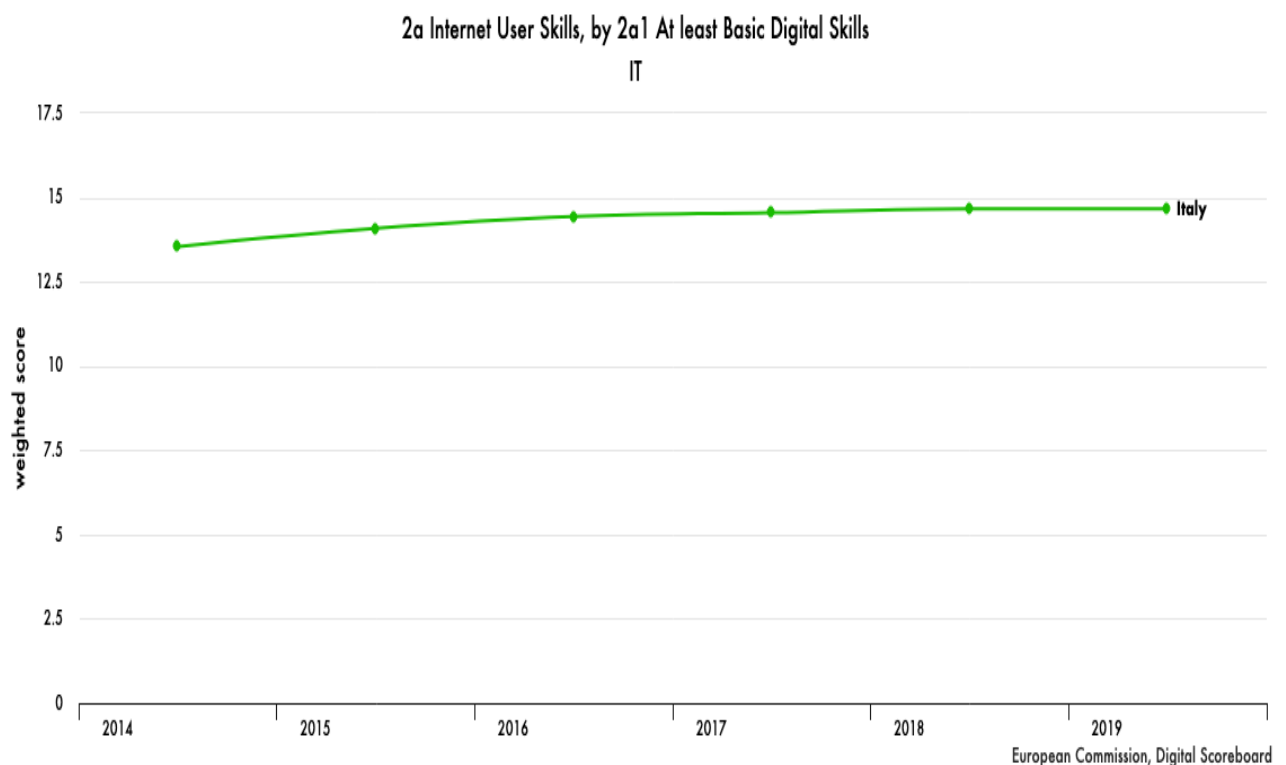
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[6] https://ec.europa.eu/digital-single-market/en/desi

take-up of e-health services is good. Fast broadband coverage and take-up are progressing well (although the latter remains below average), while ultrafast connectivity is progressing far more slowly. Italy is advanced in the assignments of 5G spectrum.
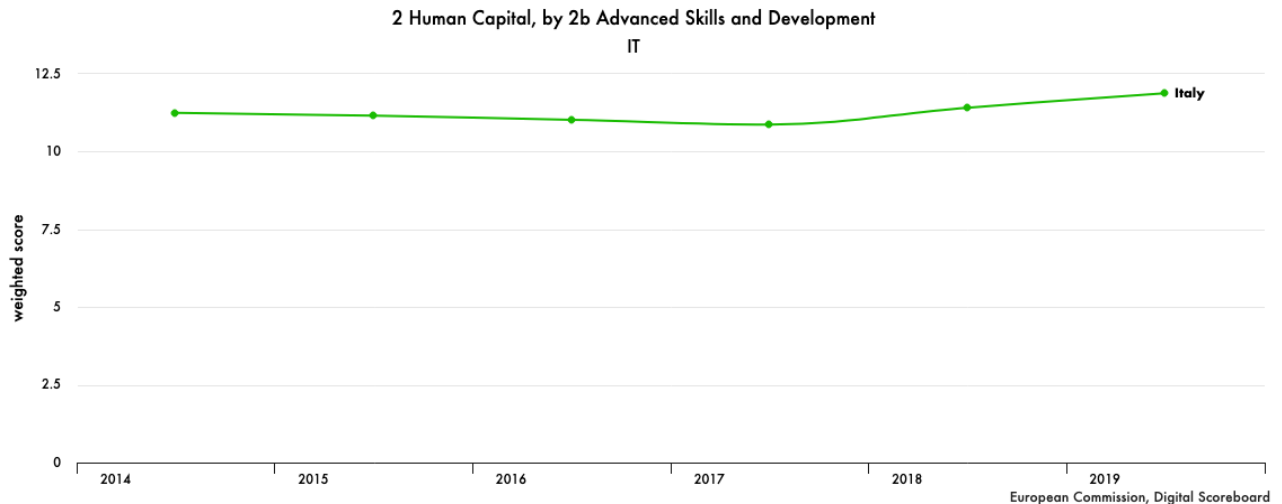
However, three out of ten people are not regular internet users yet, and more than half of the population still lacks basic digital skills. This shortfall in digital skills is also reflected in low use of online services, with which little progress has been made. Low demand also affects supply, with fewer Italian SMEs selling online than their EU peers. However, Italian enterprises score better on the use of electronic information-sharing software and social media.

5.1. Human Capital

Regarding the Human Capital dimension, the *DESI 2019*[7] shows Italy in the 26th position out of 28 member states, confirming that our country is facing a severe lackof digital skills.

2a Internet User Skills, by 2a1 At least Basic Digital Skills
IT

European Commission, Digital Scoreboard

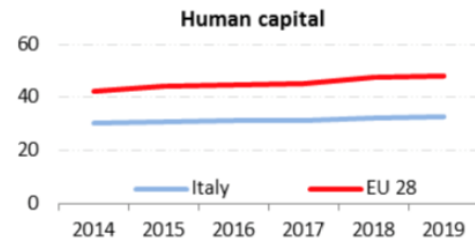[7] https://ec.europa.eu/digital-single-market/en/desi

The basic and advanced digital skills levels of Italians are below the EU average. Only 44 % of people aged 16-74 years have basic digital skills (57 % in the EU as a whole). The percentage of ICT specialists has remained stable. ICT specialists still account for a lower proportion of the workforce compared with the EU as a whole (2.6 % compared with an EU average of 3.7 %). When it comes to graduates holding an ICT degree, Italy performs well below the EU average with only 1 % of ICT graduates. Only 1 % of female workers are ICT specialists.

Italy has no national digital skills and jobs coalition, but a wide range of private enterprises, NGOs and public organisations have made 56 pledges for specific measures such as training digital experts, re-skilling and up-skilling the labour force, and equipping people with the digital skills they need for their lives.

Only 92 % of 16-24-year-olds are regular internet users, which puts Italy last in the EU28 (the EU28 average being 97 % of people in this age group).

2 Human capital	Italy		EU
	rank	score	score
DESI 2019	26	32.6	48.0
DESI 2018	25	32.2	47.6
DESI 2017	26	31.1	45.4

Human capital

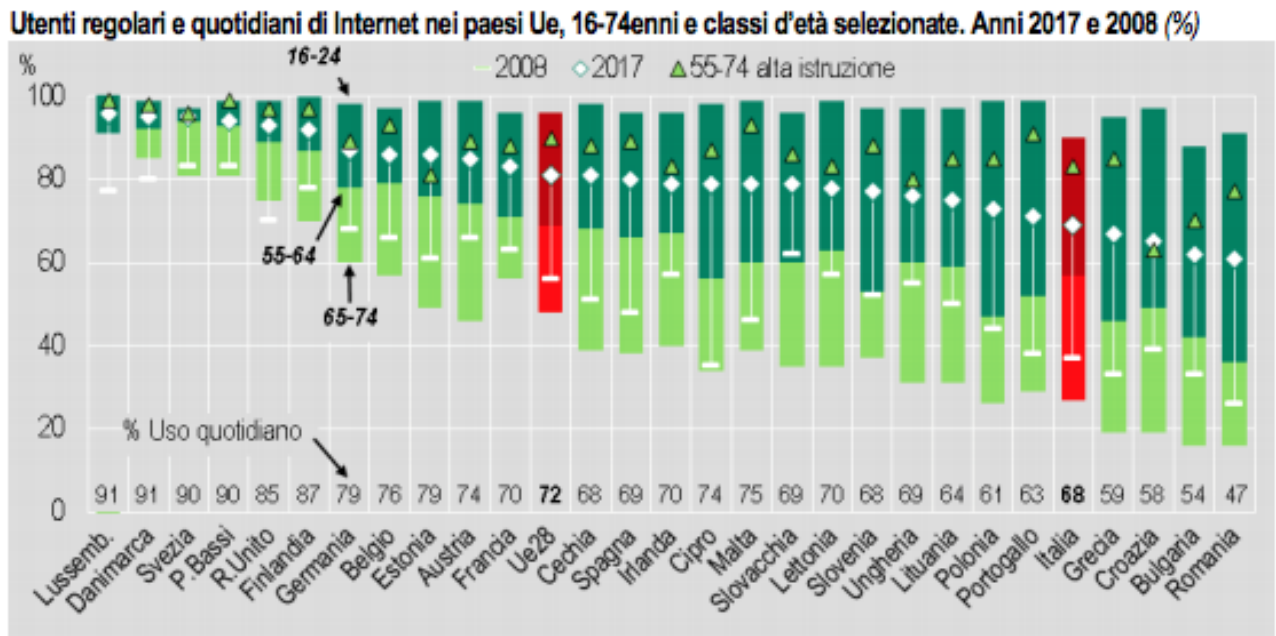|	Italy			EU
	DESI 2017	**DESI 2018**	**DESI 2019**		**DESI 2019**
	value	value	value	rank	value
2a1 At least basic digital skills	44%	NA	NA		57%
% individuals	2016	2017	2017		2017
2a2 Above basic digital skills	19%	NA	NA		31%
% individuals	2016	2017	2017		2017
2a3 At least basic software skills	48%	NA	NA		60%
% individuals	2016	2017	2017		2017
2b1 ICT specialists	2.5%	2.6%	2.6%	22	3.7%
% total employment	2015	2016	2017		2017
2b2 Female ICT specialists	0.8%	0.9%	1.0%	20	1.4%
% female employment	2015	2016	2017		2017
2b3 ICT graduates	0.9%	NA	1.0%	28	3.5%
% graduates	2014	2015	2016		2015

5.2. The most affected segments

Certain brackets of the Italian population are more at a disadvantage than others. The National Institute for Statistics - *Rapporto sulla conoscenza in Italia*[8] highlights a positive correlation between the use of the Internet and the skill of the population. This correlation sharpens if specific age brackets are considered. In particular, there is a huge gap in the use of Internet in the age bracket 65-74. Within this category, only the 27% of people with a low level of education declare they use the Internet frequently, while individuals with tertiary education use it quite often (73,3%).

The OECD's *Going Digital Toolkit*[9] highlights a similar gap in the age bracket 55-74. Within this category, only 35% of people with a low level of education declare they use the Internet daily, compared to 83% of people with a high level of education.

Among the younger generations there are similar difference even if a lower gap is displayed. Similarly, the *Going Digital Toolkit* shows that only the 90% of individuals aged between 16-24, with a low level of education, use the Internet frequently, against 94% of individuals of the same category, but with a high level of education.

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[8] https://www.istat.it/storage/rapporti-tematici/conoscenza2018/Rapportoconoscenza2018.pdf
[9] https://goingdigital.oecd.org/en/

Utenti regolari e quotidiani di Internet nei paesi Ue, 16-74enni e classi d'età selezionate. Anni 2017 e 2008 *(%)*

Fonte: Eurostat, ICT usage in households and by individuals. Vedi note

Doi.org/10.1481/Istat.Rapportoconoscenza.2018.4.2.2

5.3. Digital Public Services - Digitisation

In terms of eGovernment, Italy is progressing slowly and remains underperforming compared to certain European countries. According to the *eGovernment Benchmark 2019[10]*, Italy reaches a value of 67%, almost matching the EU average of 68%.

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[10] https://ec.europa.eu/digital-single-market/en/news/egovernment-benchmark-2019-trust-government-increasingly-important-people
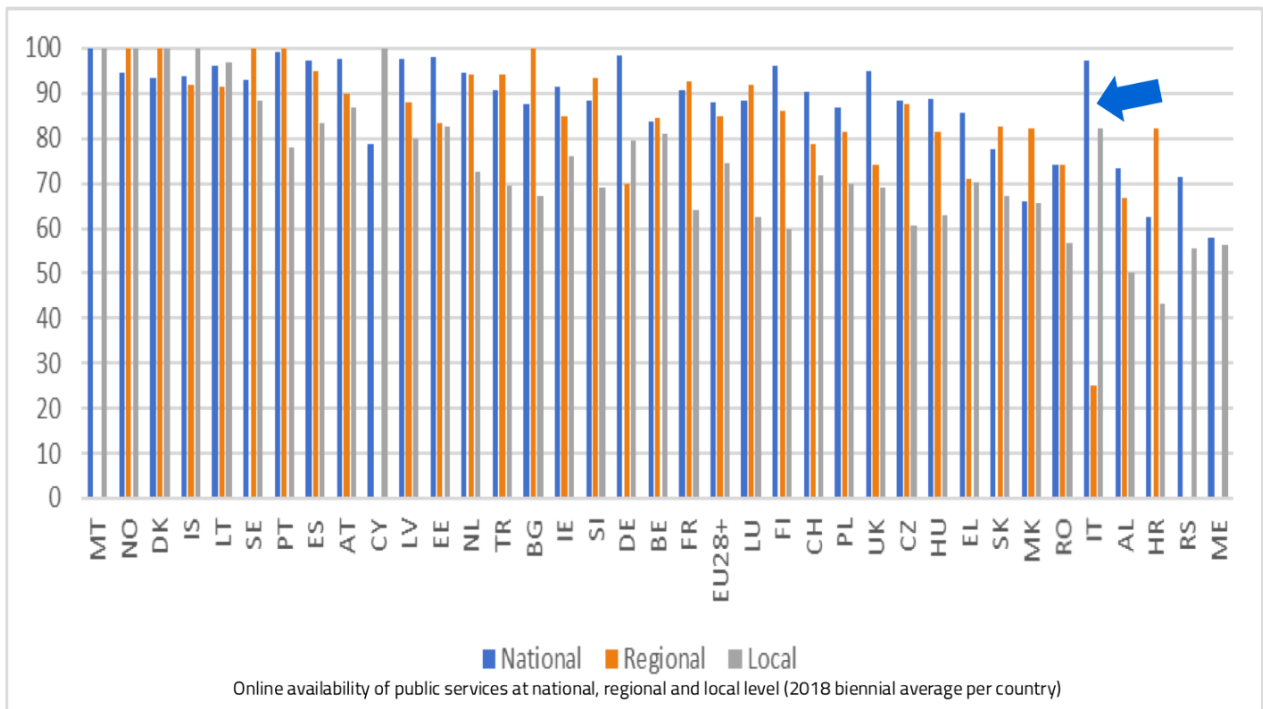
Digitisation Index
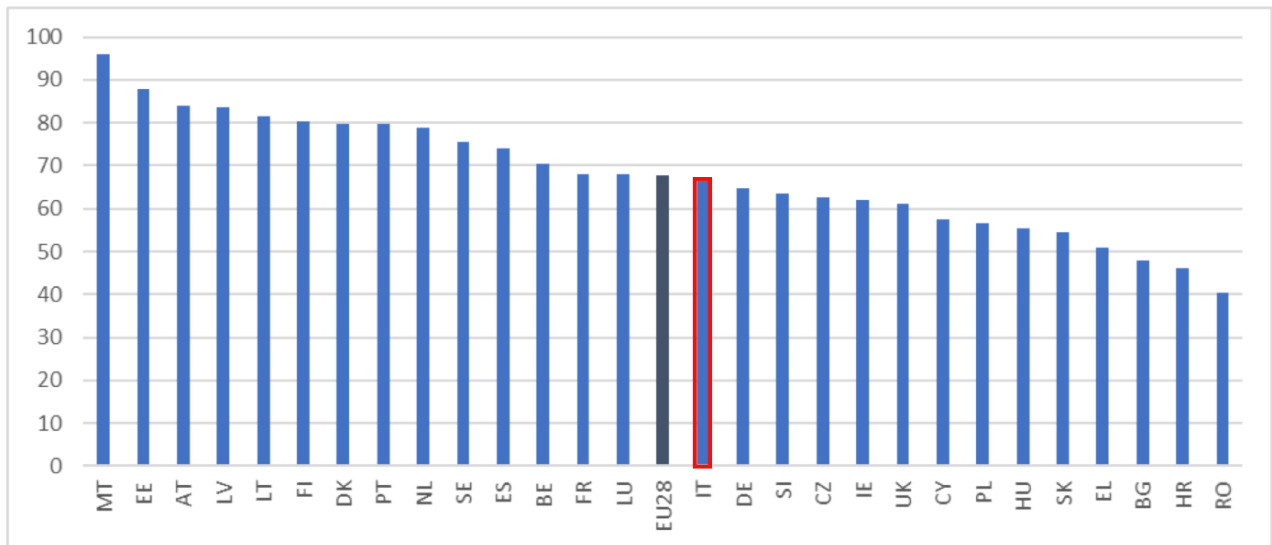

5.4.   Digital Public Services - Penetration

However, despite this constant progress at the national level, there are still severe disparities at the local level with a dramatic gap in terms of penetration (the effective use of online public services). According to the *eGovernment Benchmark 2019*[11] sub-indicator of online availability of public services at national, regional and local level, in Italy there is a substantial performance gap between the national, regional and local level. Indeed, this indicator evaluates the availability of online public services for citizens and companies, and shows how despite a good performance at the national level, severe shortages are present at the regional and local level, creating a disruption in the delivery of services. The following chart shows how in Italy, in particular at regional level, the gap is significant.

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[11] https://ec.europa.eu/digital-single-market/en/news/egovernment-benchmark-2019-trust-government-increasingly-important-people

Online availability of public services at national, regional and local level (2018 biennial average per country)

In fact, as mentioned above, the penetration level (the effective use of online public services by the citizens) is very low compared to the EU average, 28% against 57%.

Penetration Index
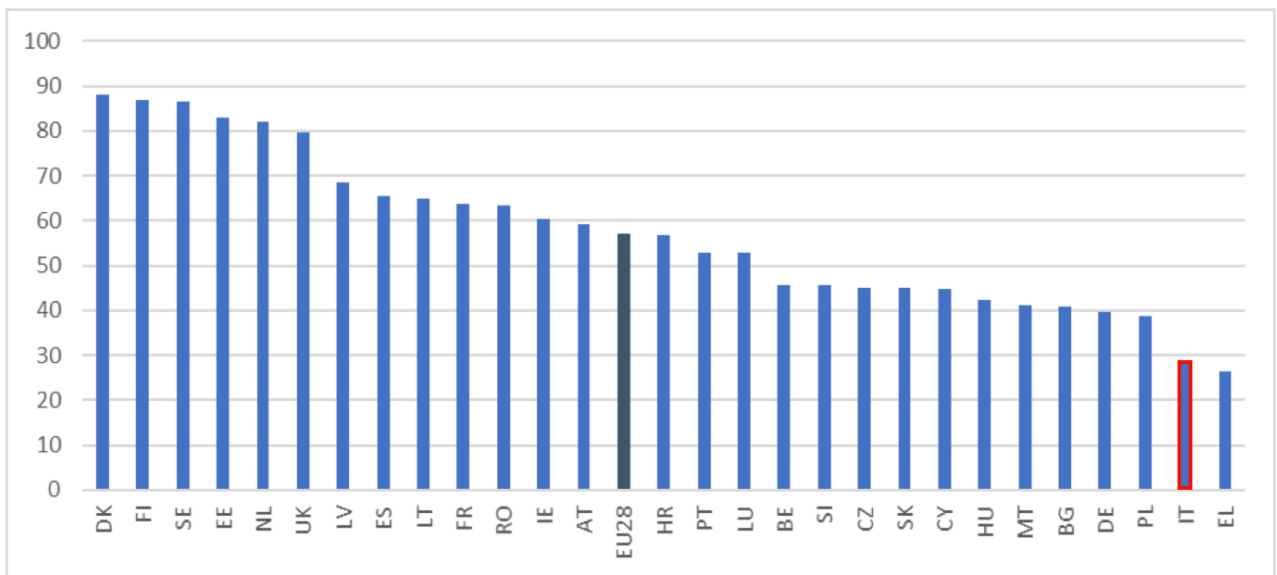
The OECD *Going Digital Toolkit*[12] shows similar data: in Italy only 24.3% of individuals use the Internet with the purpose of contacting the public authorities, compared to an OECD average of 56.8%.

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[12] https://goingdigital.oecd.org/en/

This lack of coherent approach also has a negative impact on the eGovernment users, which ranks last among EU countries. This is even lower than the rank registered for the use of other online services which could signal issues of usability of public services.

Furthermore, in Italy, skill mismatch is pervasive. Around 6% of workers in Italy are under-skilled while 21% are underqualified. Surprisingly, despite the low average level of skills proficiency, skills surpluses are also present, reflecting the low demand for skills in Italy. Over-skilled (11.7%) and over-qualified (18%) workers represent a substantial part of the Italian workforce. In addition, around 35% of workers are working in fields that are unrelated to their studies.

Hence, skills policies need to be well-aligned with industrial and innovation policies, so that employers can access the skills they need to move their firms to higher value-added and innovation-intensive activities. Innovation and industrial policies can also be designed to encourage skills development through training and knowledge transfer. Innovation requires strong STEM skills, as well as soft and entrepreneurial skills. Investing in research and development (R&D), helps to develop knowledge and skills, spurs innovation and enhances a firm's ability to absorb and exploit the available knowledge base, particularly in Italy, where current levels are below the average of other OECD countries.

Italy has already put in place a set of policy initiatives to promote innovation, support R&D investments and facilitate the transition to innovative skills and digital technologies, such as with Industry 4.0 initiative (which is also fostering innovation and competence creation through Digital Innovation Hubs and Competence centres).

More actions are needed, in particular, to reduce the skill mismatch, increase higher skills mobility, and generate the expertise required for the future in technology, AI, etc. by introducing appropriate measures for the enrichment of the education system, for instance through coding courses, and create the ecosystem for innovative skills development, leveraging better relationships across big corporations, SMEs and the public sector. [13]

6. Conclusion

To conclude, it is not enough to have a national digital strategy, if all policies through different ministries/agencies are not mutually reinforcing and aligned with one coherent vision. There is a need for a whole-government effort and significant inter-institutional coordination; the digital transformation will only work if the entire public sector is ready to adopt a more strategic approach to strengthen interactions, linkages and collaborations within it, and understand that it should be conceived as a whole system.

In Italy, after two extraordinary Commissioners, the digital transformation of the public sector is becoming the new normal. The Minister for Technological Innovation and Digitalization is fully committed to make the digital government happen.

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[13] See OECD *Skills Strategy Diagnostic Report*: *Italy*. OECD: Paris (2017).

About the Author

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works as the chair for public sector and business informatics at … Germany. After her Bachelor's degree in Marketing Management from the … She speaks all the respective languages and strives to achieve the same in Arabic.