

## CHAPTER 29

### Italian Digital Transformation Team: the relevance of the digital awareness

**Carla Morrone<sup>1</sup>, Luca Attias<sup>2</sup>, Daniela Battisti<sup>3</sup>,  
Giuseppe Iacono<sup>4</sup>**

#### **Abstract**

*Our research is aimed at highlighting some key elements of the successful path designed by the Italian Digital Transformation Team. With this goal, we propose a qualitative study.*

*The Italian Digital Transformation Team, appointed in September 2016, is made of professionals with specific technical expertise and important managerial skills. Indeed, a proper approach to the digital transformation cannot be based only on the development of technology but it needs the right competencies. As noted by Nadkarni and Prügl (2021), technology and actor are the two aggregate dimensions of digital transformation.*

*Through the analysis of our case study, we emphasize the relevance of the human capital within the digital transformation that, as already pointed out in the literature, is a phenomenon that interests IT evolution as well as processes, people, policies, and leadership of all organizations around the world, regardless type, size, area of business. In order to implement a suitable digital transformation is essential to develop a proper digital awareness: the boundary between opportunity and abyss of digital transformation*

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- 1 PhD candidate, University of Naples 'Parthenope', Department of Business and Economics, via Generale Parisi 13, 80132 Naples, Italy. Phone: +39 3398629395. E-mail: carlamorrone@hotmail.it.
  - 2 CIO, Corte dei Conti, via Antonio Baiamonti 6, 00195, Rome, Italy. E-mail: luca.attias@corteconti.it.
  - 3 Head of International relations, Dept. Digital Transformation - Minister for Technological Innovation and Digital Transition, Largo Pietro Di Brazzà 86, 00187, Rome, Italy. E-mail: daniela@teamdigitale.governo.it.
  - 4 Expert, Dept. Digital Transformation - Minister for Technological Innovation and Digital Transition, Largo Pietro Di Brazzà 86, 00187, Rome, Italy. E-mail: nello@teamdigitale.governo.it

*passes through the digital awareness that is a key element not yet in-depth considered.*

**Key words:** *digital awareness, digital transformation, human capital, skills, public sector*

**JEL classification:** *O32, O33, O38, M15*

## 1. Introduction

As widely accepted and overwhelmingly proved by the Covid-19 crisis, digitalization is pervasive and transversal, and it is strongly affecting business and work (Cantoni and Mangia, 2018; Caputo et al., 2021; Gabryelczyk, 2020; Garzella et al., 2021; Kudyba, 2020; Lombardi et al., 2020). At a time when the planet is fighting against a major viral pandemic, we undertake the goal of to demonstrate the potentiality of another viral, yet positive, contamination: the digital contamination.

At this stage, there is a double hybridation: the digital dimension contaminates and is contaminated by all the other disciplines. Being the most pervasive and innovative phenomenon of all time, it must be interpreted almost like languages, algebra or universal music. In both the public - on which we will come back more extensively, later in the case study- and private sectors, on one side, managers, lawyers, economists, computer scientists and decision makers must work together in order to leverage the digital technology opportunities and achieve concrete results, especially in complex areas, while on the other side, they must continue to do their job by exploiting their specific skills. Thus, it is essential to mature and acquire an overall digital awareness.

As argued by Švarc et al. (2020), digitalization increases the relevance of intangibles, forcing to invest huge efforts into digital transformation e.g. the economic and societal effects of digitization and digitalization (OECD, 2019). Capurro et al. (2018) state that, in this era, the indispensable entrepreneurial insight must be combined with strategic management of data and information systems, highlighting that the sum of these elements becomes the linchpin of the strategy generation process.

Whether we accept it or not, all individuals are impacted by the digitalization's effects (Morrone et al., 2020; Švarc et al., 2020) even though society, as a whole, is not yet fully aware. Based on these premises, Attias and Cristofari (2015) developed the theory of the digital philosopher: *“as everyone is able to understand, since the existence of humans, fundamental concepts related to food, health, transport and what moves around these topics, today must be the same for information technology, even without necessarily being an insider”*.

In fact, digital transformation represents a challenge for individuals, firms and national economies with an impact on technological, social and cultural changes as well as on business models (Attias, 2015; Mancini et al., 2017; Smit et al., 2016). It is not a case that the Italian Recovery Plan (PNRR) that provides investments for more than 200 billion euros, earmarks about 50 billion for the first mission on Digitization and Innovation.

Unfortunately, in Europe, not all countries can boast good results concerning digital skills. For example, the Digital Scoreboard, that illustrate some key dimensions of the European information society allowing the comparison of progress across countries, over time, points out that the Cypriot, Italian, Latvian, Romanian and Bulgarian labour force (employed and unemployed)

with at least basic digital skills represents less than 50% against the European average of 66.2%; good percentages refer only to Iceland, Norway, Netherlands, Finland and the United Kingdom that record an active labour force with at least basic digital skills higher than 80% (European Commission, 2019a). Concerning the indicator “above basic level of digital skills” of employed and unemployed, the European average is 38.7%, with the maximum value recorded by Icelanders (65.7%) and the minimum by Bulgarians (12.1%) (European Commission, 2019b). Moreover, it is worth noting that the Digital Scoreboard (European Commission, 2019c) shows that ICT professionals with at least basic digital skills represent 100% of individuals only in few countries e.g. Norway, Slovenia, Greece, Croatia, Iceland and Spain; the average value of the European Union is 82.2%. In no country, ICT professionals with above basic digital skills represent the whole (European Commission 2019d).

Nevertheless, in 2020 Western Europe gets on the podium (with North America and Eastern Asia) in the ranking of digital competitiveness factors that are knowledge, technology and future readiness (WDCR, 2020).

Recommendation of the European Parliament and Council of 18 December 2006 (2006/962/EC) includes digital competence<sup>5</sup> among eight key competences<sup>6</sup> for lifelong learning: *those which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment*. In particular, the listed key competences are:

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5 It is defined as follows: Digital competence involves the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.

Essential knowledge, skills and attitudes related to this competence:

Digital competence requires a sound understanding and knowledge of the nature, role and opportunities of IST in everyday contexts: in personal and social life as well as at work. This includes main computer applications such as word processing, spreadsheets, databases, information storage and management, and an understanding of the opportunities and potential risks of the Internet and communication via electronic media (e-mail, network tools) for work, leisure, information sharing and collaborative networking, learning and research. Individuals should also understand how IST can support creativity and innovation, and be aware of issues around the validity and reliability of information available and of the legal and ethical principles involved in the interactive use of IST.

Skills needed include the ability to search, collect and process information and use it in a critical and systematic way, assessing relevance and distinguishing the real from the virtual while recognising the links. Individuals should have skills to use tools to produce, present and understand complex information and the ability to access, search and use internet-based services. Individuals should also be able use IST to support critical thinking, creativity, and innovation.

Use of IST requires a critical and reflective attitude towards available information and a responsible use of the interactive media. An interest in engaging in communities and networks for cultural, social and/or professional purposes also supports this competence.

6 Competences are defined here as a combination of knowledge, skills and attitudes appropriate to the context.

1. *Communication in the mother tongue;*
2. *Communication in foreign languages;*
3. *Mathematical competence and basic competences in science and technology;*
4. *Digital competence;*
5. *Learning to learn;*
6. *Social and civic competences;*
7. *Sense of initiative and entrepreneurship;*
8. *Cultural awareness and expression.*

Twelve years later, in the Recommendations n. 2018/C 189/01, the Reference Framework updated the above-mentioned key competences, leaving only the digital one in the same position and with the same label as shown below:

1. *Literacy competence;*
2. *Multilingual competence;*
3. *Mathematical competence and competence in science, technology and engineering;*
4. *Digital competence;*
5. *Personal, social and learning to learn competence;*
6. *Citizenship competence;*
7. *Entrepreneurship competence;*
8. *Cultural awareness and expression competence.*

The position of Digital in the ranking is not by chance; it is in the middle between the subject required for the literacy in a broad sense and transversal skills required to live and grow in society as it became even more evident during the Covid-19 pandemic. Indeed, digital competence is one of a kind since it is, at the same time, both an independent subject matter and a tool for learning and working. We can easily assess this distinctive characteristic in the labour market: e-competence is often a requirement in the job posting and, at the same time, it is essential for the job search process that is mostly online (Guitert et al., 2020).

The duo “pandemic-digitalization” is causing a faster than expected revolution in the private and public organizations. The World Economic Forum (2020) estimates that in the next 3 years, the global world of work will generate 133 million new employment opportunities while displacing 75 million jobs; more than 75% of Italian organizations have a similar forecast (Unioncamere, 2020). A reskilling process of human resources is thus inevitable.

This premise helps us to introduce the present research that has the goal to highlight the centrality of digital competence for the success of the organizations in a world where everything is getting digitalized.

Digital awareness and basic digital skills are indispensable for everyone, workers or just private citizens. But this is not enough. In the unavoidable digital transformation process, organizations need to consider not only e-skills but also e-leadership. Private firms as well as the public sector need e-leaders able of thinking digitally; this kind of professional figures must be involved in the design and implementation of strategy. Indeed, if organizations do not change approach - that is if managers are not able to combine the opportunities of digital technology with the ability to change-, are doomed since in order to succeed, they need the right approach to deal with the digital transformation. However, this principle remains not so apparent as it is so not indisputable that more should be invested in digital skills. Indeed, what we wish to highlight is that digital awareness is a necessary step for a correct digital transformation and that it must be fully included in the context of strategic governance. Obviously digital skills, digital awareness and their correlation are extremely vast and constantly evolving topics but we limit to analyse only a few aspects.

This paper is organized as follows. Section 2 focuses on the literature concerning intellectual capital and digital competences. Section 3 expounds the relevance of digital competence for a successful business. Section 4 proposes a case study useful to highlight the relevance of digital awareness. Section 5 discusses the main outcome of the analysis in order to wrap up our main conclusions.

## **2. Literature review**

### **2.1. Intellectual capital**

The strong and deep innovation that characterized the XXI century affects, among the others, the importance of intellectual capital (IC) within the organizations (Lombardi et al., 2020). Indeed, academics and practitioners are increasing the study of IC (Agostini et al., 2017; Demartini and Paoloni, 2013; Guthrie et al., 2012; Kianto et al., 2014; Rastogi, 2000; Zambon et al., 2019) that is a strategic driver; even though research is still fragmented (Martín-de Castro et al. 2019), many authors agree on the potentiality played by IC in the value creation and development of competitive advantage and, more generally, in the success of national economies (Abdulaali, 2018; Cohen and Kaimenakis, 2007; Duodu and Rowlinson, 2021; Garzella, 2000; Iacuzzi et al., 2020; Iazzolino and Laise, 2016; Lerro et al., 2014; Martín-de Castro et al., 2019; Obeidat et al., 2017; Paoloni et al., 2020). Among others, the European Commission, World Bank, Japan Ministry of Economy, Trade and Industry and Australian Department of Industry, Science, Energy and Resources have highlighted the weight of IC in fostering innovation and improving organizations' competitiveness in a knowledge-intensive economy.

There is an abundance of intellectual capital's definitions (Choong, 2008), but we adopt the following definition: the integration of human capital (HC), structural capital (SC) and relational capital (RC) (Bontis, 1998; Edvinsson and Malone, 1997). The first component is made up of human resources, and refers to their explicit and tacit knowledge, competences, skills, functional

experience, education background, capabilities, aptitude, and characteristics (Asif, 2020; Hafeez and Aburawi, 2013; Nicholson and Kiel, 2004). The second one refers to resources of organizational structures and processes. Thus, it is not only the organizational and technological capital but includes management philosophy and practices, organizational culture and training processes (Keenan and Aggestam, 2001), etc. In other words, SC can be defined as the combination of the non-human knowledge, software systems and distribution networks useful for building the appropriate organizational structure. It includes, for example, databases, organizational charts, process manuals and strategies (Bontis et al., 2000). Finally, the third one is composed of intrinsic value and knowledge concerning relationships with stakeholders (Edvinsson and Malone, 1997; Inkinen, 2015).

With specific regard to the innovation, Subramaniam and Youndt (2005) found that human capital and relational capital positively influence radical innovative capabilities while structural capital positively influence the incremental innovative ones. Bontis et al. (2000) argue that *organisations with strong structural capital will have a supportive culture that allows individuals to try new things, to learn, and to fail.*

## 2.2. Digital competences

In the XXI century, the relevance of the digitalization is evident and undeniable, and digital competence becomes a fundamental factor for both personal development and creative and innovative workforce. As noted by Bilozubenko et al. (2020), *information and communication technologies have an important structural and organizational value, making a significant contribution to economic growth and social progress.* One of the main challenges of the current historical period is building up mindset and competences fit for the “digital way of working” (Maedche, 2016; Murawski and Bick, 2017). Even though the centrality of digitalization is a widely and well discussed, scrutinized and shared topic, we cannot say the same for digital awareness that is something broader and not yet properly studied.

Indeed, digital awareness is a relevant yet still largely unexplored aspect in the process of the planet’s digital transformation, firstly and foremost, from a philosophical-cultural point of view. Digital awareness should not be measured by the ability to use a device, as mistakenly done. This assumption has led to the misconception that, since they were able to use a device from an early age, digital natives had the necessary digital skills (in terms operationally defined with the DigComp framework) to use digital technologies cognitantly. The same misapprehension has led digital immigrants e.g. those who were not “born with technologies” but had to learn them, to believe that the transition consisted only in being able to use technology. If this issue is not approached with “daily humility”, companies go bankrupt, inefficiency is generated in public entities, fulfilling jobs are not found and education system cannot reach the right targets. Digital divide still persist and are actually deepening; the digitally excluded is no longer the one that does not have access to the Internet or does not have the technologies to access it (Fuggetta, 2018), but those who do not know how to consciously use neither

the network nor the technologies. Basically, the digitally excluded are those who do not have the basic digital skills (Solimine, 2014). Accordingly, Attias et al. (2017) define the digital divide as *a multidimensional, multidisciplinary and constantly evolving concept, the definition of which must be dynamic and flexible, since it should adapt to and absorb the continuous changes and numerous innovative opportunities which are offered by the enabling technologies for the digitisation [...]*. As remarked by Fuggetta (2018), digital immigrants have great responsibilities since on the one side, they should be able to embrace the novelty, the freshness, the positive and enthusiastic ingenuity of the digital natives and, on the other side, help them to develop the maturity that goes far beyond a superficial easiness in using ICT tools. Therefore, to build a widespread digital awareness, it is paramount to find a balanced win-win between digital natives and digital immigrants, by enhancing the potential and contributions of each generation.

After assuming the digital competence importance for jobs and positive development of organizations, we wish to emphasize the need to provide proper and progressive training. It would be useful to introduce coding classes as well as courses to teach computational thinking, skills and the use of digital applications starting with the primary school (Amor Almedina and Serrano Rodríguez, 2019; Morrone et al., 2020) in order to create a real and inherent digital awareness. Specialised teachers should teach digital education at all school levels, at the universities, in the business and non-profit organizations, in the private association of young and elderly and in the public sector, with a view of a lifelong learning approach (Gavrilyuk and Kuznetsov, 2018; Heinecke et al., 2019; Iacono, 2020; Martínez Heredia and Rodríguez-García, 2018). School systems should hire competent instructors of digital and, at the same time, should help traditional subject teachers to carry on their classes with the help of digital technologies.

It is important to point out that the digital competence should assist and be complementary with the teaching/learning of other key competences that are *equally important, because each of them can contribute to a successful life in a knowledge society* (European Parliament and the Council, 2006); in the digital age, it is even more necessary to develop “traditional” skills and contextualize them in the digital world.

Literature is rich of digital competences’ definitions and categorizations based on different criteria (Attias et al., 2017; Cahen and Borini, 2020; Carretero et al., 2017; Ferrari, 2012; Heinecke et al., 2019; Iacono and Marzano, 2014). Attias et al. (2017) recognize three main kinds of digital competences in a constant evolution:

- e-competence of ICT insiders;
- e-competence of those who use digital technologies in their daily job;
- e-competence of those who use digital technologies in their everyday life, without knowledge or awareness and any specific expertise.

Iacono and Marzano (2014) introduce a new framework to better understand the issue. On the one hand, there are the basic and indispensable digital



competences - which are the prerequisite for working in a modern organization and enabling all competences, not only digital-, and “use” - which is the competence required to middle management to fully carry out their activities in a digitalized organization -, on the other side, there is the transformational ability – so to speak – that managers should have to leverage digital technologies in order to pursue innovative initiatives.

When defining and classifying e-competences, a strong emphasis should have the dimension of e-leadership (Avolio et al., 2000; Li et al., 2017, 2016). A European Commission report (2015) states that *e-Leadership is of crucial importance for companies and industry to excel in their business operation. e-Leadership is key to using new digital technologies for innovation and transformation, managed in a relevant organisational context and embedded in the business strategy. e-Leadership skills are the skills required of an individual to initiate and achieve digital innovation.* It includes Strategic Leadership, Business Savvy and Digital Savvy. Avolio et al. (2000) defines e-leadership as *a social influence process mediated by Advanced Information Technology to produce a change in attitudes, feelings, thinking, behavior, and/or performance with individuals, groups, and/or organizations. E-leadership can occur at any hierarchical level in an organization and can involve one-to-one and one-to-many interactions within and across large units and organizations.*

This preliminary analysis helps us to introduce the key point: in the era of digitalization, almost all jobs and thus all organizations -not only the new ICT-based ones- are impacted and transformed by digital: this trend will be more and more persistent.

‘Thinking digital’ thus is not a nice-to-have- but is essential. The e-leader thinks and acts digitally. In this scenario, we pose the problem of how to interpret the current context in relation to a changing cultural and technological situation. The e-leader is aware that the direction of change supported by technology is neither deterministic nor neutral but choices are dictated by the vision and mission to be pursued.

Digital natives often find themselves having to face this new reality, if we do not strengthen their competences sufficiently, we risk turning the opportunity provided by the innovation into an abyss (Fuggetta, 2018). We risk having digital natives that are digitally uncognizant. Thus, the digitalization of most economic sectors requires new approaches in the education, training, formation and management of innovative human capital (Tolstykh et al., 2018).

### 2.2.1. E-leadership

In recent years, the approach to e-leadership - a skill that the European Commission strongly encourages - aims to ensure that the digital exits the niche of ICT specialists and quickly pervades all economic sectors, penetrating deeply into the processes and strategic and operational functioning of organizations.

The basic idea of the e-leadership approach is that anyone with responsibility for directing and managing teams and organisational units, in addition to the specific competences required by the sector/role (as detailed in Section 3 for ICT profiles), should possess the key competences to act with awareness in the current economic and social context where digitalization is pervasive and digital technologies are essential.

Indeed, it is not by chance that the model of e-leadership skills is built around the full integration of soft, relational and managerial skills with specific ones. The latter include a full understanding of how the digital can be used for organizational and operational objectives, and innovation, with a profound impact on production, delivery, management, communication and marketing. This expertise accompanies the irreversible phenomenon whereby every job will require digital skills, becoming necessary for companies at the two most critical moments:

- after the start-up period (3-5 years) when a flexible but evolved form of the organization becomes necessary;
- in the transformation-regeneration that may avoid the transition from the maturity stage to the decline stage (Agenda Digitale, 2014).

Yet, if e-leadership is vital for the private sector, it is even more so for the public. In fact, it is the only way for the public sector to maintain its relevance and keep fulfilling its mission of serving citizens; it is the only way to assure a successful digital transformation of the public administration, which, at this point, is not only necessary but inevitable.

The strong attitude of the e-leader to “see” the change is translated into the ability to think and implement projects that unhinge old mental schemes and innovate organizational processes (Iacono and Deplano, 2015).

In the framework for e-leadership competencies, AgID guidelines (AgID, 2018) indicate five areas of expertise:

- culture and knowledge of the digital world;
- individual interpersonal and communication skills (soft skills);
- organizational leadership: organizational skills and change management competences;
- managerial skills in the context of the organization;
- competences for the fulfilment of the organizational mission and digital processes (in the case of the public sector with regard to e.g., open government, e-government, digital citizenship).

With these skills, the e-leader ‘thinks and acts digitally’, and he is able to interpret the current evolving context.

### 3. Conception of analysis

Even though the relationship between intellectual capital and digital transformation is a young stream of research - still not fully investigated by the literature -, the relevance of human capital, structural capital and relational capital in the digital transformation, is blatantly clear. With specific regard to HC, we wish to remind that already fourteen years ago, digital competences were considered necessary for employment (European Parliament and Council, 2006). If digital competences are essential for finding a job broadly speaking, in almost every kind of organization, ICT roles are increasing in terms of number and value in any organization. Statista (2016) reports that from 2011 to 2018, in the United Kingdom, the number of employees in the IT, software and computer services economy increased of about 250.000 units. Indeed, in the digital age, almost all roles and professions (e.g., teachers, researchers, lawyers, doctors, accountants and so on) - even if not digital native - are contaminated by Information & Communication Technology (Rubino et al., 2019); thus everybody is unavoidably forced to gain digital competences in a short time (Morrone et al., 2020). Gerasimenko and Razumova (2020) noted that digital technologies are becoming a corporate key success factor and that their use requires changes in management processes and in the organization of managers' work (Tippins and Sohi, 2003). A worker without digital skills, even if he or she can find a role within an organization, will certainly have difficulty in finding a fulfilling one. To clear the way for possible misunderstanding, we do not claim that all individuals should become digital experts but that all individuals should be able to understand at least the technical terminology of digital technologies (e.g. cloud computing, blockchain, cybersecurity, artificial intelligence, machine learning, etc.) and be at least digital cognizant.

As known, business management can be divided into strategic and operational; Galeotti (1995) states that the first one concerns determining the basic characteristics of the process of iteration of the organization with the environment, as well as the material and organisational structure suitable for providing the best support, while the second concerns the proper use of the realised structural system of operating conditions. He attributes to strategic management, ideas, decisions and operations able to define, create and modify the business system; this includes investment, innovative and learning processes throughout which competences and tangible and intangible resources are accumulated, sedimented and stratified. To operating management, he attributes ideas, decisions and activities able to efficiently run the business system. Hence, if we apply this paradigm to our model, within an organisation, it is not enough developing appropriate digital skills and competences but it is essential developing a favourable environment for business survival and growth that is based on digital awareness.

In sum, we cannot ignore the "new" reality. *Lönnqvist and Mettänen (2005)* highlight the relevance of IC in most types of organizations; this includes employees' knowledge and skills, immaterial properties, organizational resources, and business processes. The World Economic Forum (2016) estimated that about *65% of children entering primary school today will*

*ultimately end up working in completely new job types that don't yet exist.*

Consequently, the roles that, until a few years ago, were relevant only in the ICT Department, are becoming more strategic and closer to the CEO. Digital and soft skills' integration - which is at the basis of the concept of e-leadership - seems to be the best practice; in the organizations, the ICT c-level jobs are increasingly strategic. The Chief Information Officer (CIO) more often coincides with the CEO and, in any case, no CEO can now ignore the understanding of the continuous digital transformation process of the managed organization. ICT jobs are now in a very high number; some examples: Chief Information Officer, Chief Digital Officer, Chief Technology Officer, Chief Security Information Officer, Chief Data Officer, Digital Architect, Cloud Computing Architect, Cloud Computing Integrator, Data Driven Decision, Business Intelligence, Data Scientist, Open Data Expert, Internet of Things, Big Data Expert, Digital Marketing Manager, Analytics Director, Web Analytics Manager, e-Reputation Manager, Artificial Intelligence, Machine Learning, Blockchain, Cyber Security, Industry 4.0.

The Chief Information Officer (CIO) does not only provide the right technology but he or she is involved in both the strategic definition of business and change management process and manage resources to assure the daily operation of information systems. Due to the increasing role of ICT within the organizations, the CIO is one of the key C-suite roles, and more often is appointed as Chief Operating Officer (COO) and Chief Executive Officer (CEO) (Babin and Grant, 2019). A survey on the "Global CIO strategic influence/executive committee membership 2017" (2018) concerning CIOs worldwide from 2005 to 2017, shows the increasing involvement in the executive committee (from 38% of 2005 to 62% of 2017). *The role of the CIO is shifting from just IT to that of a leader who can drive business performance* (IBM Institute for Business Value, 2013). Two research streams can be identified in the IT governance literature: IT governance at managerial-level, and IT governance at board of directors-level (Jewer and McKay, 2012). Yet, despite the increasing interest, a Caluwe and De Haes (2019) shows that the involvement of boards in governing digital assets is still low.

However, CIO is not the only C-level strongly related to the ICT. Other examples are:

- Chief Technology Officer (CTO) who occupies the highest position associated with technology responsibilities, monitoring technological advances, evaluating technological aspects of major strategic initiatives, and selecting profitable new technologies to apply within the organization to increase productivity and to promote competitiveness.
- Chief Information Security Officer (CISO) who has the responsibility to define and implement the best organizational model able to ensure adequate data and technology security. To do this, CISO works on risk mitigation, introducing appropriate controls and standards in compliance with the security regulations. More particularly, he or she is accountable for cybersecurity, disaster recovery and business continuity management, identity and access management, privacy, risk management, design of

security architectures.

- Chief Data Officer (CDO) who has the responsibility for data management strategy based on two pillars: data science and data analytics.

As for this last role, data is becoming more and more the key resource for the functioning of all organization, and its use is strategic. Currently, organizations are recognizing the value of data, striving to manage them efficiently, effectively and safely. No organization can survive without proper use of data, making essential data scientists, business intelligence analysts and big data experts: all jobs that are becoming increasingly common and crucial. These professionals, who are no longer confined to the research labs, should add to their technical competences, the so-called soft skills.

#### **4. Case study: Digital Transformation Team**

An interesting case study concerning digital cognizance and skills is the Digital Transformation Team (DTT).

The Digital Transformation Team was established in September 2016. It worked as an independent entity until the end of 2019, when its responsibility was transferred to the “Minister for Technological Innovation and Digitalization”, currently the “Minister for Technological Innovation and Digital Transition”. The structure was composed of about 30 experts with managerial and IT skills, mainly recruited outside the public sector, and a supporting administrative team of 1 manager and 7 civil servants with a specific expertise in procurement. The technical team consisted of the following resources: Chief Technology Officer, Chief Information Officer, Open Source Project Leader, Technical Project Manager, Program Manager, Mobile Developer, Chief Data Product Manager, Chief Data Officer, UX designer, Service Designer, Cybersecurity expert, Data scientists, Cloud & Data Center expert, Content Designer, Big Data Engineer, Full Stack Developer, Software Developer, UX/UI Developer, Data Protection Officer, Software Architect, Machine Learning Engineer, Site Reliability Engineer / DevOps Engineer, Digital Communication experts, e-payments experts, European and Italian Regulatory affairs expert. All these professionals had both specific technical expertise and strong managerial skills.

The Digital Transformation Team oversaw the creation of the Italian “operating system” e. g. building simpler and more efficient services for the citizens, the Public Administration, and businesses, through innovative digital products. With this goal, the Team mainly focused on the digital transformation of the public sector as a vehicle for simplification and transparency of the administrative processes and bureaucracy, by developing existing programs and implementing new ones. In particular, the Team:

- supported and supervised the Agency for Digital Italy (AgID), fostering and finalizing the long overdue publication of the Three-year Plan for Digital Transformation, through a structured managerial approach;
- launched the operations on the enabling platforms that were at a standstill

(e.g., the national registry, digital payments and digital identity), with rigorous actions to move forward and complete the projects, introducing structured mechanisms and processes, along with recruiting those with specific technological and managerial skills;

- worked on rethinking, designing, and launching some services which, due to their utility and frequency of use, have important repercussions on the life of citizens;
- conceived the app [io.italia.it](https://io.italia.it) that allows citizens to interact with the Public Administration, paving the way for other administrations in innovating digital services for citizens.

The mission of the Team included the goals of making public services for citizens and private and public organizations accessible in the simplest way, through mobile devices, with a secure, scalable and highly reliable architecture based on clearly-defined application interfaces (APIs) as well as to make available data easily accessible to support the definition and implementation of more effective policies and timely decisions.

The team was able to start a real transformation, introducing a new inspirational model thanks to their digital cognizance and skills. The Team achieved various results (e.g., SPID, PagoPA, IO, Repubblica Digitale) but, more important, it set in motion the cultural change.

## 5. Discussion and conclusions

The boundary between opportunity and abyss of digitalization passes through the digital awareness that is cross sectoral and affects all organizations regardless of size and sector.

As stated by the European Commission (Digital Economy and Skills, 2020), a strong digital economy is vital for innovation, growth, jobs and competitiveness. Today, organizations which are cognizant and aware of the digital dimension - for example, those that implemented an effective digital transformation or have a significant presence on the web - undoubtedly have a greater chance of success. The dramatic experience of the pandemic has forced a better understanding and has significantly contributed to increase the digital awareness, not only among digital experts, but also among the population as a whole. For this reason, at this time, when we are all trying to defend ourselves from the virus contamination, we should foster digital contamination in all sectors of the society. In the organizations, where different professionals have a constructive dialogue on digital technology, it is easier to face and overcome the new challenges, since they are better prepared.

Widespread digital awareness, and better digital skills and competences – both as an independent subject of study and a tool for learning other subject matters – combined with conscious e-leadership allow organizations to be flexible, resilient, modular, healthier, more transparent, while preventing, at the same time, the depletion and obsolescence of the human resources.

It is no coincidence that we talk about ethics, culture and philosophy. Today, the lack of adequate skills and proper 'digital awareness' does not only weaken democratic, social and economic institutions but it also reduces the ability of the society and organisations to grow, transform and adjust.

Accordingly, the advancement of the e-leaders within the organizations, were they public or private, proves the willingness to use emerging technologies in order to enable smarter internal organisation, improve the quality of skills, foster talents, promote a better work life and last but not least, contribute to sustainable development.

It is our firm conviction, and we would like to emphasise it, that in a modern and innovative country this process should start from the highest institutional levels.

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