

Digital Development: restarting with skills and innovations hubs.

An exemple from the world of sport



AWARE

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EXECUTIVE SUMMARY

The following paper investigates the issue of digital transformation in relation to the development of digital skills as a driving force to stimulate innovation and technological evolution. Starting from the Italy 2025 Strategic Plan, the Italian Government's commitment to the development of projects aimed at the digitalisation of the country was analysed. More and more, it seems fundamental to rethink the relationship between people and technologies, taking into account the impact that the latter have in everyone's daily life, in interpersonal relations, with institutions and in the world of work. The development of digital skills is therefore essential for participation in public life in all its phases. This also includes the professional aspect, both in training and in the entrepreneurial opportunities offered by the various market sectors. In order to close the gap between Italy and the other EU Member States by 2025, it is necessary to implement strategic actions aimed at enhancing and developing the digital skills of citizens, public administration employees, students and all the components of our country system. In this sense, Innovation Hubs and Competence Centres can be important places where, on the one hand, synergies can be built and different experiences from the academic, entrepreneurial and institutional worlds can be pooled in order to test the development of new technologies and, on the other hand, to enable and provide space for the application of digital skills. With the aim of further exploring the potential role of Innovation Hubs, the experience of the Wylab incubator was analysed, through which Sport Technologies, a virtuous example of technological development within the often underestimated sports sector, was valorised. Despite its young age, the hub in question has already become one of the most solid digital realities in Italy in its sector, confirming the extent to which the passion for sport, which has always distinguished our country, can also be a driver of digital transformation.

What emerges is the importance of enhancing forms of collaboration and contamination between different realities and sectors in order to stimulate innovation and experimentation, with the aim of developing and consolidating digital skills, thus building a sustainable and replicable model of growth involving all components of the country.

INTRODUCTION

Technological innovation and digitalisation in Italy will be two objectives of fundamental importance for the future of the Belpaese, in order to reduce the gap with the rest of Europe, especially with respect to the northern countries.

In order to meet this need, the Italian government has drawn up a strategic plan, Italia 2025, which identifies the objectives to be achieved to bring about the country's digital transformation. This plan, which is more general in scope, has been declined into further specific challenges, among which emerges the Repubblica Digitale project, specifically aimed at responding to the digital divide related to digital skills.

In the elaboration of the areas of expenditure of the funds coming from the Next Generation EU, for the sectors of digitalisation, innovation, competitiveness and culture, about 45.1 billion euros have been foreseen, i.e. the second largest share of the 210 billion that can be obtained by the entire Italian economic system (the first was received by the sector of the green revolution and ecological transition, for an income of 67.5 billion euros).

It is precisely in this regard that the role of the Competence Centres and Innovation Hubs, places designed to stimulate technological innovation, to which the Italian state has turned its attention in order to use their potential to relaunch the country through the development of digital skills and the birth of start-ups and SMEs, is relevant. Thanks to the collaboration between businesses, universities and institutions, it is possible to use these technological catalysts to experiment and innovate.

1. THE ITALY 2025 PLAN

In December 2019, the then newly appointed Minister for Technological Innovation and Digitisation, Paola Pisano, presented the "Italia 2025" Plan¹, a strategy based on the conception of a "structural" digital transformation, divided into three macro areas and 20 concrete actions, involving the State and all the sectors that make it up, starting with citizens and the Public Administration (PA). The Plan defines the guidelines needed to increase the many factors of digitalisation and technological innovation². The strategy is rooted in the United Nations Sustainable Development Goals (SDGs), the analysis of which has led to the identification of three main challenges: the digitisation of society; the innovation of the country; ethical and sustainable development of society.

In addition to the above-mentioned objectives, the Plan's strength and modernity lie in its total openness to the citizen and the rest of the world: in order to allow for a more decisive implementation, the strategy will be included within the Public Administration, with an update every four months, in order to verify the status of the proposed actions. It is precisely these latter actions that will be the apex of the Plan's success, the climax of Italy 2025: the twenty (plus one) actions proposed are aimed at raising the Strategic Plan to a strategy not only of a theoretical matrix, but full of concrete values. However, before moving on to the actions of Italy 2025, it is necessary to outline the three main challenges within which they are set.

1.1 Digitisation of society

The first challenge posed by the Italy 2025 Plan³ is to improve the relationship between man and technology: to make this possible, the digital services of the Public Administration will be central, and they will have to be used as guiding lights for: the creation of better digital infrastructures, the exploitation of data, the creation of digital skills, and the digitalisation of the public sector. According to the plan, citizens and businesses themselves will be able to access the various services of the Public Administration online, thus improving their own content: in addition to enhancing the Open Data of the PA itself, through the dissemination of enabling platforms and the rationalisation of data centres⁴, both citizens and businesses will have at their disposal efficient and simple services. According to Adriano Avenia, Business Analyst at the Department for Digital Transformation, the Cloud will be "the key to digital transformation, a real revolution in the way of thinking about the processes of PA delivery to citizens and businesses"⁵. Investing in the digitisation of public administrations will also stimulate the development of new skills in the private sector. Collaboration between these two sectors will provide an opportunity to put into practice the Open Innovation

¹https://innovazione.gov.it/assets/docs/MID_Book_2025.pdf

² Fedeli A., La trasformazione digitale è ora: strategie di sviluppo a confronto, AWARE, 24/03/2020

³ Cfr. Bernardini L., Italia 2025: la nuova frontiera dell'innovazione digitale, AWARE, 05/08/2020.

⁴ Cfr. Fedeli A., Cloud nazionale: una strategia ancora in fase di definizione, AWARE, 10/2020.

⁵ Bevilacqua E., Il Cloud abilita la razionalizzazione delle infrastrutture della PA, ZeroUnoWeb, 06/06/2019.

model⁶, which, to quote the economist (and coiner of the term) Henry Chesbrough, will be 'the new imperative to create and profit from technology'⁷.

1.2 Innovation in the country

'Fatti gli italiani bisogna fare l'Italia'⁸ ('Made the Italians, make Italy'): turning upside down one of the most famous phrases of the Italian peninsula introduces the second challenge of Italia 2025⁹, a challenge that finds its difficulties in the profound structural change that the Belpaese will have to implement in order to carry out this strategic plan. In this case, the subjects that come into play are the most disparate, including the mobility of the future, artificial intelligence¹⁰, cyber security and robotics, which represent just a few of the new technologies that have entered the economic, political and social landscape not only of Italy, but of the entire world. In order to make this change possible, the key words to be followed will be those of collaboration and interconnection: the objective is to collaborate with different realities, whether local or international, and to organise future actions in an interconnected manner. The success will depend on how the so-called innovation ecosystems will be created and grow, which will help to "contaminate and form" the innovation system through hubs and start-ups. In particular, the issue of DIHs, the Digital Innovation Hubs, is of considerable importance: the President of Unindustria himself, Filippo Tortoriello, when signing the deed of incorporation of Cicero, the DIH of the Lazio Region, defined it as "The gateway on 4.0 issues for all companies in the Region. Cicero will be the meeting point between supply and demand for technological innovation, the transmission belt between companies and Competence Centres, and will accompany companies in the realisation of projects for the digital transformation of their business activities"¹¹. To win the second challenge, it will also be necessary to increase technological and innovative support for small towns, villages and local authorities, which are key players in the country's growth. By following this path, it will be possible to form a secure, capillary and reliable network: the impulse of economic and technological development will reach the entire Italian territory, definitively closing a technological and digital gap that Italy is sadly lacking¹².

1.3 The ethical and sustainable development of society

⁶ Cfr. Mascaro N., Gli Hackathon come strumento per l'innovazione, AWARE, 31/01/2020.

⁷ Chesbrough H., Open. Modelli di Business per l'Innovazione, EGEA, Milano, 2013.

⁸ The phrase to which it refers, attributed to Massimo d'Azeglio, says "Made italians, make Italy". Indeed, the attribution of the same opened a debate among historians, because this phrase represents a non-completely faithful synthesis upon a d'Azeglio's opinion, expressed in *My memories* (I miei ricordi). Cfr. Gigante C., Fatta l'Italia, facciamo gli Italiani. Appunti su una massima da restituire a d'Azeglio, *Rivista europea di studi italiani*, 2011, pp. 5–15

⁹ Cfr. Bernardini L., Italia 2025: la nuova frontiera dell'innovazione digitale, AWARE, 05/08/2020.

¹⁰ V. Lubin E., L'Italia alla sfida dell'intelligenza artificiale, la prospettiva di Stefano da Empoli, AWARE, 06/02/2020; Fedeli A., Intelligenza artificiale e innovazione, le sfide del governo Conte bis, AWARE, 02/12/2020

¹¹ Porcu A., Il futuro delle industrie nel Lazio passa per le Digital Innovation Hub, *The Startupper*, 26/06/2018.

¹² Indice di Digitalizzazione dell'Economia e della Società (DESI), Italia, 2020

The third challenge, on the other hand, undertakes to address a central issue for the transformation of the industrial supply chain towards the logic of Industry 4.0: the human challenge. In order to make this change possible, innovation will have the task of increasing the well-being of society through four guiding words: ethics, inclusiveness, transparency and sustainability. Following these concepts scrupulously, it will be necessary to intervene on the improvement of citizens' digital skills, through a process of continuous training. Enrico Pisino, CEO of Cim 4.0, emphasised in an interview how the reskilling of workers is a key element of the fourth industrial transformation. "Never before has it been so important to bet on skills to accelerate the digital transition. It was in this spirit that we launched our Academy: to ensure that those skills that are still lacking in the business world were developed"¹³.

1.4 The Actions of Italy 2025

The twenty (plus one) actions proposed in the Strategic Plan represent solutions to the three challenges outlined above. The numerous theoretical points are transformed into concrete elements with strong economic, social and political implications. The Ministry for Technological Innovation and Digitisation has been entrusted with the task of coordinating all the action plans, to the implementation of which the Regions and Cities will also contribute: in other words, what is taking shape is a governance that succeeds in bringing together the many themes of innovation in an entity that will guide their implementation. The State will have to provide the services necessary for the creation of a digital identity for each citizen, which will allow an easier comparison between public and private subjects. In this regard, the creation of the IO App is important, an application that 'transforms the relationship between citizens and the public administration, putting people at the centre and eliminating complexity: a single interface to access all public services directly from a smartphone after identifying oneself with the digital identity'¹⁴.

The creation of cross-industry technological hubs will also be of great importance: starting from a comparative reasoning with other world realities, the Italian government will commit itself not to creating a new Silicon Valley, but to transforming Italy's excellence and connecting it with various reference technologies. It will be Artificial Intelligence, 5G¹⁵ and Cybersecurity that will have the role of directing the growth of Made in Italy, both through horizontal and vertical relationships. Given the importance of these three central technologies, the Ministry for Technological Innovation and Digitisation and the Ministry for Economic Development have reached an agreement to allocate an investment fund of € 60 million: the Moon Transfer Fund, hinged within ENEA, will be a combination of innovative finance instruments and not a classic venture capital fund. In this context, one of the main objectives of the Italian Government, perhaps the most important, will be to make digital public services accessible to all, leaving no citizen behind.

¹³ Volontè C., Reskilling, upskilling e la strategia del Cim 4.0 per la formazione industriale, Industria Italiana.it, 05/11/2020

¹⁴ Italia 2025, Strategia per l'innovazione tecnologica e la digitalizzazione del Paese, MID, 2019, pag.10

¹⁵ Crivellaro E., Wilegoda L., 5G: opportunità di investimento ed implicazioni geopolitiche delle reti di quinta generazione, AWARE, 11/2020.

2. A DIGITAL COUNTRY

One of the projects proposed and launched by the Minister for Technological Innovation, aimed at reducing the phenomenon of digital illiteracy and increasing the number of ICT specialists, is the Repubblica Digitale Programme. Starting from the negative data recorded for Italy in the national and European surveys¹⁶, it emerges that there is a lack of digital skills in Italy. Therefore, taking further into account the need for the diffusion of e-skills so that it is possible to spread and use private and public digital services, it was essential to plan a series of actions that can stimulate their development. The impact of e-skills can be measured not only with regard to life in the (res)public dimension, i.e. in relations with institutions and administrations, but also in terms of employment: in fact, e-skills are fundamental for the development of the economy of the future, both by taking into account the evolution of the market as a whole and by assessing the employment possibilities of individuals, especially in those sectors where the risk of automation is very high¹⁷. In this sense, the 'Digital Republic' programme is a response to the need to bridge the digital divide in our country, intervening along four axes in which to 'strengthen, integrate, and enhance the projects already underway and create the appropriate conditions to address this serious deficiency in a structured manner'¹⁸. The initiative, which is divided into a series of activities involving public and private entities, both on the organisational and application sides, brought together in the National Coalition set up ad-hoc to implement this programme¹⁹, has identified the areas of intervention thanks to the collaboration of heterogeneous stakeholders²⁰. The four axes on which the initiative's protagonists have decided to focus concern complementary sectors, with a view to intervening in training processes: "The development of the digital skills needed within the education and higher education cycle, with the coordination of the Ministry of Education and the Ministry of University and Research; the enhancement and development of the digital skills of the workforce, both in the private and public sectors, including skills for e-leadership with the coordination of the Ministry of Economic Development and the Ministry of Public Administration; the development of specialised ICT skills for new markets and new jobs, largely related to emerging technologies and the possession of key competences for the jobs of the future, coordinated by the Ministry of University and Research and the Ministry of Economic Development; the enhancement of digital competences necessary to exercise citizenship rights (including the full use of online services, which is particularly necessary in this period) and informed participation in democratic dialogue, coordinated by the Ministry for Technological Innovation and Digitisation"²¹. In addition to identifying the areas of intervention, the plan also emphasises certain characteristics that must belong to the initiatives that

¹⁶ Come il DESI.

¹⁷ An alarming data, emerged from OCSE's Skills Outlook Scoreboard, concerns high-risk automation workers: only the 20% benefits on continuing education, while 40% of the workers, engaged in low-risk automation works, have access in refresher courses.

¹⁸ <https://repubblicadigitale.innovazione.gov.it/it/il-programma/>

¹⁹ Che aderisce alla Digital Skills and Jobs Coalition della Commissione Europea.

²⁰ As stated on the dedicate website: "Ministries, regions, provinces, commons, universities, researches, companies, professional, Rai, associations and the others public sector's joints".

²¹ <https://repubblicadigitale.innovazione.gov.it/it/il-programma/>

will be undertaken, stipulating that they must be: systemic; transversal; organic with a broad impact; and agile.

2.1 The Repubblica Digitale manifesto

Taking into account the importance of technologies in the process of transforming our society, both in terms of the opportunities offered and of the social risks, the Digital Republic programme aims to create synergies between all the actors involved in the digitalisation process so that "the principles, rights and constitutional values that founded the Italian Republic"²² are respected and disseminated. Therefore, the members of the National Coalition are committed to promoting initiatives and actions that produce results on three levels: digital education; digital citizenship; ethical, human and non-discriminatory digital. It therefore seems necessary to develop solutions to reduce the widespread digital illiteracy among citizens through civic education, computational thinking and the use of the most widely used information language and digital tools, thus offering everyone, from young students to professionals, a common basis of preparation on the available technologies. With this in mind, the State, as well as committing itself to training and updating public employees, starting with teachers and educators, also supports the development and maintenance of organisations that want to promote digital culture. In this way, it will be possible to build an ecosystem of digital citizenship, based on constitutional principles and values, quality culture and information, available tools and infrastructure, and easily accessible services. In this way, digital transformation, thanks to the collaboration between public and private actors, will be the driver of Italy's evolution.

2.2 First steps and first data

The Digital Republic programme was launched in May 2019, during the Forum PA 19 event as a call to action addressed to various entities and organisations that wanted to commit to implementing digital inclusion initiatives²³. It was subsequently integrated into the Italia 2025 Plan presented about six months later, and then officially launched in February 2020 through the establishment of the inter-ministerial committee led by the Minister for Technological Innovation and Digitisation, in which several ministries²⁴ took part as well as Regions, UPI, Anci and representatives from the university, research, business and citizens' associations. This first group of experts, after having reached the first fifty members, had the objective of defining an overall strategy involving a plan of action to be directed by the government, regions and associations. A couple of months later, in the midst of the lockdown and also in response to the accelerated boost given by the pandemic to the

²² <https://repubblicadigitale.innovazione.gov.it/il-manifesto/>

²³ Scorza G., Costruiamo insieme la Repubblica digitale, ForumPA, 03/05/2019.

²⁴ Ministers involved: cultural heritage, education, welfare, agricultural policies, youth policy and sport, public administration, economic development, universities and research.

dissemination of technologies, the National Coalition was launched to coincide with the achievement of the first 100 member initiatives. In those same months, from February onwards, several specific working tables were developed and carried out, which contributed to the definition of the e-skills strategy published in July 2020, which will be analysed later.

Currently, Repubblica Digitale counts more than 160 initiatives, proposed by actors from PA, the private business sector and civil society. In particular, the greatest attention so far has been devoted to activities aimed at informal training, about 30% of the initiatives, followed in slightly lower numbers by activities aimed instead at specialised ICT training on emerging technologies.

2.3 The operational Italian plan for e-skills

As far as the e-skills plan is concerned²⁵, the Italian government has presented a very precise strategy aimed at closing the deep technological gap that Italy has with northern Europe. In addition to this, the other objective of the Plan is also to further strengthen the value of the Competence Centres and Innovation Hubs (topics to which we will return later), elements that best combine territoriality with technological innovation and digitalisation. Through 111 actions that will identify 41 lines of intervention, the Plan will provide a dashboard of over 60 indicators, given by the indices included in the DESI (Digital Economy and Society Index) and the DMI (Digital Maturity Indexes), with which it will be possible to monitor the impact on 4 different axes of intervention. Thanks to this work, the Italian government has set itself the goal of bringing about some fundamental changes in terms of digital transformation by 2025:

- Reach 70% of the population with at least basic digital skills, thus zeroing the gap that runs between Italy and Northern Europe;
- Duplicate the population with advanced digital skills;
- Tripling the number of ICT graduates, quadrupling the number of female graduates and doubling the share of companies using big data;
- Increase by 50% the share of SMEs using ICT specialists;
- Increase by five the proportion of the population using public digital services, especially by bringing Internet use to the younger sections of the population²⁶.

These objectives will be achieved by consolidating the participatory method in the experience of the Repubblica Digitale project. By replicating the multistakeholder approach, "the contributions and experiences of the individual administrations and in general of the organisations of the National Coalition for e-skills will be valorised, and the necessary systemic actions will be addressed to strengthen the impact on the lines indicated by the Strategy."²⁷ The validity of this model is confirmed by the results already achieved: the National Coalition for e-Skills during 2020 managed

²⁵ <https://repubblicadigitale.innovazione.gov.it/assets/docs/Piano-Operativo-Strategia-Nazionale-per-le-competenzedigitali.pdf>

²⁶ Iacono N., Miglietta E., Competenze digitali, cosa cambia con il Piano Operativo della strategia nazionale, Agenda digitale, 07/01/2021.

²⁷ Ibidem.

to develop initiatives involving more than 3 million citizens, including students, teachers and workers in the public and private sector²⁸.

As far as initiatives aimed at citizens are concerned, the added value so far has been offered by the ability to propose a replicable model, adopted to date in over 600 locations, of information and training on e-skills, managing the content according to the target group involved. The aim is to improve and consolidate a hybrid model involving different stakeholders who make their resources available and available in a system, with a mutual collaboration approach, in order to implement targeted actions that allow the general development of basic digital skills.

The Italian Government's commitment to promoting the development of digital skills, aimed at achieving the objectives of digital inclusion and overcoming the technological divide, is realised through the development of all the strategic actions envisaged, in an organic manner: as far as the private sector is concerned, it will be necessary to direct businesses towards the digital transformation of processes, also through investments in Competence Centres and Innovation Hubs.

²⁸ Ibidem.

3. COMPETENCE CENTER AND INNOVATION HUB

The Fourth Industrial Revolution, which officially started in 2013, has radically changed the modus operandi of industry: through the use of technology and digitisation, countries around the world have had the opportunity to evolve their economic activity, mainly thanks to two particular innovative ecosystems: Competence Centres (CC) and Innovation Hubs. Both CCs and Innovation Hubs have opened up new horizons towards technologisation, with a special focus on SMEs and start-ups, which are young and have great potential for growth. It is precisely in this regard that the Italian government, through the decree of the Ministry of Economic Development of 29/01/2018²⁹, has decided to select eight Competence Centres scattered throughout the peninsula, which will have precisely the objective of promoting the basic idea of Industry 4.0, namely, as stated above, to build an economy that enhances the Italian industrial fabric, based on SMEs, and that encourages the development of new start-ups. The aim of the Transition 4.0 Plan³⁰ is to emphasise the importance of digital skills and technological innovation for the economic growth of the business sector, by stimulating forms of constant interconnection between the main poles that make up this stratum of industry: businesses, universities and administrations, together, will have to commit to concentrating their forces in a few poles of excellence, in order to avoid the strong fragmentation that has been created in recent years (there are more than 300 innovation centres in Italy alone). This National Plan represents a strategic necessity for Italy, a way of trying, once again, to identify solutions aimed at bridging the technological gap that distinguishes Italy from northern Europe. The importance of the role of the Competence Centres was also underlined by the Undersecretary for Economic Development, Gian Paolo Manzella, who stated that "the relationship between the CCs and the Recovery Plan is central"³¹ to the country's economic recovery.

3.1 Competence Centres in Milan and Turin

A fundamental role in the process of promoting innovation will be played by the main Italian cities, which will have to become the true catalysts of the Competence Centres: Turin, Milan, Bologna, Pisa, Padua, Naples, Rome and Genoa will have the task of guiding the actors towards the technological innovation projects present in their institutions.

It is logical to specify that each city, in the development of its technological poles, has dedicated its efforts to supporting and enhancing the main characteristic activities of the place, so that the Competence Center of Turin has focused more on the automotive sector, while the CC of Milan has focused on the sector of big data and cybersecurity. As far as Piedmont's capital city is concerned, the most important Competence Centre is certainly CIM 4.0: although the acronym may be misleading, the Competence Industry Manufacturing is one of the most important and interesting projects on the national scene, since it summarises all the objectives of the Transition 4.0 Plan

²⁹ <https://www.mise.gov.it/index.php/it/normativa/decreti-direttoriali/2037665-decreto-direttoriale-29-gennaio2018-centri-di-competenza-alta-specializzazione>

³⁰ <https://www.mise.gov.it/index.php/it/transizione40>

³¹ Bussi C., La chiave? Innovation Hub e Competence Center, Il Sole 24 Ore, 19/10/2020.

outlined above. Through the collaboration of the Polytechnic and the University of Turin and the support of 23 industrial partners, the CC focuses its activity starting from a TRL³² value of 5 up to 9.

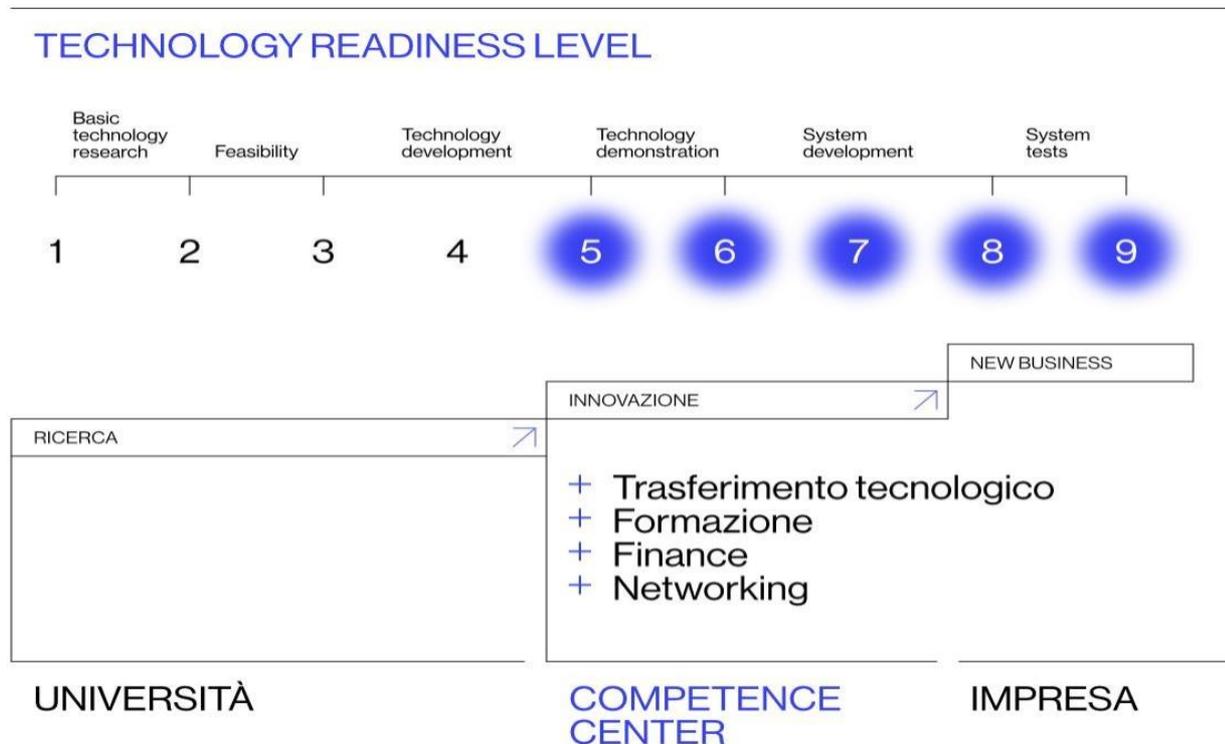


Figure 1 from cim40.com

An example that allows to enhance the role of innovation catalyst played by CIM 4.0 is the company TUC srl³³, funded by the Turin Competence Center. This company, founded by Sergio Pininfarina and Ludovico Campana, aims to create a new concept of mobility, particularly within the automotive sector. TUC.technology will further enhance the vehicle's electronic systems, thus enabling digitisation and modularity in the four-wheeled sector as well³⁴. A clear example is the TUC Plug & Play system, with which it will be possible to power and connect any component inside the vehicle, making mobility completely personal for each user. On the other hand, as far as the city of Milan is concerned, the main Competence Center is Made, presented in January 2019, led by Politecnico di Milano, to which 43 companies and the Universities of Pavia, Brescia and Bergamo contribute.

³² Acronym of Technology Readiness Level, is the technological maturity grade's yardstick of a product or a process, based on a values scale from 1 to 9.

³³ <https://www.tuc.technology/>

³⁴ <https://www.tuc.technology/industry>



Figure 2 From *made-cc.eu*

The aim is to launch a regional CC, which can also compare itself with other realities at national and international level. As Ferruccio Resta, Rector of the Milan Polytechnic, also said, "We are thinking of networking with other European competence centres on the subject of manufacturing. We will also create other satellite centres thanks to the presence of the universities of Pavia, Bergamo and Brescia"³⁵. The main objective of this Competence Centre will be to intercept as many companies as possible, involving them fully in technological innovation projects thanks to the power of digitalisation. Made's president, Marco Taisch, himself emphasised that the birth of the CC is "A real Digital and Sustainable Factory, a platform of resources to bring Italian SMEs into contact with 4.0 technologies, helping and supporting s precisely the concept of Digital Factory

that is the essential element within Made: the structure, which will be inaugurated in January 2021, will make it possible to develop new points of view towards the Factory, focusing further on the various aspects mentioned. The space will be divided into various areas of expertise, all interconnected, which will represent the real pillars of the Digital Factory: twenty demonstrators will therefore find space in this Demo-center, who will illustrate their digital-related projects.

3.2 An overview

Focusing on the projects of the other Competence Centres, one can see how the guidelines are the same for all of them but how the aims are heterogeneous. For instance, the CC of Rome, Cyber 4.0, focuses its work mainly on the cyber security sector³⁷, while the Competence Center of Naples,

³⁵ Aldoriso L., Quali sono gli 8 competence center in Italia per sviluppare l'Industria 4.0, Wired, 11/01/2019.

³⁶ Redazione, A Milano la vetrina interattiva della fabbrica digitale: il CC Made apre la sede della Bovisa, Innovation Post, 15/12/2020.

³⁷ Redazione, Industria 4.0: a Roma il nuovo Competence Center per la cyber security, Il Sole 24 Ore, 16/12/2019.

Meditech, is focusing on enabling technologies³⁸; even the CC of Pisa is already looking at Industry 5.0, thus starting to take its first steps towards an increasingly tangible collaborative industry. Moreover, the University of Pisa, together with the University of Genoa and the University of Paganì, is also part of Ericsson's Innovation Garage project, which aims to facilitate companies, institutions, employees and students, research centres and start-ups in the co-development of innovative solutions to support local communities. Each university, each specialising in a particular field (Pisa in robotics, Genoa in 5G latency and Paganì in cybersecurity) is guided by the support of Ericsson's R&D division, a company that in the two-year period 2017-2019 brought around €3 billion into the Italian economy and which, with the Innovation Garages, is committed to creating, in the words of Italian R&D director Alessandro Pane, "places for cross-fertilisation and experimentation, where there is a collaborative and open approach to innovation"³⁹.

Sharing the same goal, namely to create synergies for the implementation of technologies and digitalisation 4.0, the Competence Centres and Innovation Hubs have signed an agreement to combine the great economic capacity and strong technical specialisations of the former with the extensive network and strong digital skills of the latter. The guidelines of this agreement foresee a commitment by the Hubs with regard to the general orientation of companies on enabling technologies, while the Competence Centres will be more concerned with orientation on innovation. The pact also envisages the enhancement of territoriality, a fundamental element for the implementation of agreements and conventions both between individual Competence Centres and individual Hubs, and between individual Competence Centres and aggregations of Hubs sharing the same interest in specific technological fields. These agreements will also be the fundamental part of a third guideline, aimed at uniting the two parties in order to create a European Digital Innovation Hub to be submitted to calls for proposals under the Digital Europe Programme in the period 2021-2028.

The future of Italy and Europe thus lies in this union between Competence Centres and Innovation Hubs, a collaboration that sees the Competence Centres as a secure and highly pragmatic anchorage point and the Innovation Hubs as a young and indispensable sector for the functioning of the digitisation and innovation "mechanism".

³⁸ Bruno Franco, Meditech, il Competence Center del Sud Italia, è ufficialmente operativo, Innovation Post, 13/02/2020.

³⁹ D'Elia Dario, Dai robot all'industria 4.0, cosa si studia nei laboratori 5G di Ericsson in Italia, Wired, 17/12/2020.

4. THE COMBINATION OF SPORT AND TECHNOLOGY

Sport has always been one of society's greatest catalysts, to such an extent that, in any part of the globe, every country develops its knowledge in one or more sporting fields: for Italy, and generally for the rest of Europe, the focus has almost always been on Football, in the United States the Basketball-Football-Baseball triad reigns supreme, while the East is the great creator of martial disciplines. All too often, sport is still regarded only as a passion or a form of entertainment, devaluing the important role it plays in cultural, entrepreneurial and technological terms. In reality, the world of sport is much more complicated than it seems, and it is especially in recent years that scholars, economists, and entrepreneurs have begun a new way of thinking, a way of thinking that is committed to transforming sport, transporting it consequently into the world of technology and digitalisation.

A case of particular importance, concerning the combination of sport and innovation, is the startup incubator Wylab. Founded in 2016 in Chiavari, this Hub is now one of the most important realities for the development and incubation of startups and SMEs in the sports sector, an absolute novelty both in Italy and in the rest of Europe. Within WyLab, the main idea is therefore to create a hub for technological development related to the world of sport, with the aim of becoming the real point of reference for innovative initiatives on technology applied to sport in Italy. As stated in the two strategies reported in the first chapter, namely both Italia 2025 and Repubblica Digitale, the most important aim is to make digital knowledge and technological innovation accessible and shareable, without forgetting, however, to try to give priority to SMEs. All this is nothing but a mirror of Wylab's nature, an inclusive and innovative element for Italy. In addition, this hub sees the collaboration of another large company that was born in Italy: WyScout. This company, which has been present since 2004, was formed in the city of Chiavari, which has now become 'the Palo Alto of sports technology'⁴⁰. In just a few years, WyScout has concentrated mainly on match analysis, 'providing technological tools to clubs, federations, prosecutors and coaches for scouting and match analysis'⁴¹. Thanks to these two companies, it has become possible to create a real ecosystem, within which the continuous transfer of data and information will grow exponentially, increasing the value of the individual startups and making the big data scheme even more ramified.

4.1 A Sport-tech hub

Within the Wylab incubator, there are therefore a considerable number of start-ups related to the sports sector. In this context, it is logical to assume a disparity from the point of view of sport, as the vast majority of future entrepreneurs see football as the sector with the highest sales potential. The purpose of all this is not at all to put one sport in second place to another, but has a social aspect: as stated previously, the priority of a given sport is given exclusively by its value of

⁴⁰ Giardina B., A Chiavari con Wylab cresce la Palo Alto dello Sport-tech, Il Sole 24 Ore, 09/10/2020.

⁴¹ Riefolo V., Nasce il leader dei Big Data dello Sport: gli americani di Hudl acquisiscono Wyscout, Il Sole 24 Ore, 03/08/2019.

interaction within a given country; following this reasoning it will be easier to find a startup specialising in Rugby in a country such as New Zealand, a nation famous for being the hub of sport with the oval ball. Geographical location will therefore be a particularly important factor in the creation and subsequent development of a start-up, a sort of limitation but at the same time a potential vector for high degree specialisation. Analysing the various types of Startups present within the hub, the following categories can be considered: Club Management; eSports; Fan engagement; Performance.

For each of these four macro areas, the *modus operandi* followed is that of the actual concreteness of the digital competence. From Club Management to Performance, Wylab has decided to invest in innovative ideas that could have a strong appeal at the same time, given both deep theoretical knowledge and concrete elements. Digital skills will play a key role in the success of the startups: while on the one hand the creator will have to possess advanced knowledge for the creation of a platform of this magnitude, on the other hand it will also be necessary to consider the actual competence of the user and its relationship with information and multimedia communication systems and technologies, in addition to the even more specific technical-innovative topics.

With regard to the first sector, one of the most promising start-ups that has grown up in the hub is Sportclubby, a platform created from an idea by Biagio Bartoli and Stefano De Amici. Through its cloud, this startup offers Italian sports facilities a management system for the general organisation of their facilities, from managing subscriptions and counting tickets to booking pitches or sports courses. Sportclubby's main idea was therefore to create, through a system of big data, a real Social Network exclusive to sport, while also remembering to highlight, at the same time, both private citizens and clubs. Despite the fact that the Startup's observatory has found that, due to the outbreak of the Coronavirus pandemic, "the sports industry has already suffered a 24% drop nationally"⁴², CEO Biagio Bartoli stated in an interview with *La Stampa* that "With the newly confirmed round we will be able to accelerate the penetration of our service in the Italian market, where there is currently no platform that combines management, social and tailor-made offer for the end user on such a wide range of disciplines. At the end of 2021 we aim to open Sportclubby to the European context as well"⁴³.

From the point of view of eSports, the situation is very different: this worldwide phenomenon took off in 2011 with the creation of the multimedia livestreaming platform Twitch.tv. After its acquisition by Amazon, Justin Kan's creation became the media archetype of the moment. Newzoo itself, one of the industry's leading companies, said that by the end of 2020, eSports will reach a total revenue of over \$1.5 billion⁴⁴. Considering that in 2017 the IOC (International Olympic Committee) officially declared eSports to be a sporting activity and that they could even be included as an official discipline for the Paris 2024 Olympics, it is logical to think of a resounding surge from a business point of view as well. It is for all these reasons that Wylab has decided to host, within the

⁴² Cannarella G., Coronavirus, l'indagine di Sportclubby sulla crisi dell'industria dello Sport, *Il Corriere della Sera*, 11/03/2020

⁴³ Indemini L., Sportclubby: usare i big data per far crescere lo Sport, *La Stampa*, 30/09/2019

⁴⁴ Warman P., Esports revenues will reach \$696 million this year and grow to \$1.5 billion by 2020 as brand investment doubles, *Newzoo*, 14/02/2017.

hub, various startups that focus their ideas on this young and exponential sector: one of these is Virtual Soccer Zone, a video game created by Milan-based SME Orwell. The main innovative element of this startup lies in the use of Virtual Reality: through various peripherals, the user interacts directly with the entertainment system, being catapulted into a virtual game space, within which he can perform three modes: making saves or hitting the ball with his head or feet. After monitoring the great growth of Virtual Reality⁴⁵, AS Roma, one of the most important clubs on the Italian sports scene, decided in 2017 to join the partnership request with Virtual Soccer Zone, placing inside the Stadio Olimpico, for the entire 2017/2018 season, a fan zone composed of all the VR peripherals of the Milanese startup. Having met with considerable success, the startup began an equity crowdfunding campaign with the investment capital raising platform Opstart, subsequently expanding its partnership with other major football clubs, such as Dutch Ajax and Spanish La Liga. Fan Engagement is therefore becoming, thanks to technological innovation, the main promoter for clubs: sports brands have always grown thanks to the fundamental support of fans and supporters, and it is precisely in recent years that the focus has shifted towards all those ICT systems that are characterising life today. In this regard it is useful to consider another startup, also present in the Wylab hub, that is committed to changing the vision of the union between club and fans: Tribloom. This innovative crowdfunding platform, born in Bologna in 2014, has set itself the goal of creating an integration between innovative financial elements and the numerous social dynamics: using, for example, a Reward Based Crowdfunding system, the platform further strengthens the fan-company bond, since the more the former contributes to the growth of his club the more the latter rewards him, providing him with rewards based on a scoring system⁴⁶. This directly proportional system could play a particularly important role within the sporting world, as it would unite brands with fans even more, especially in this not very simple period, dictated, staggered and divided by the Coronavirus.

4.2 Performance in sport

In light of this exciting surge in technological innovation, Wylab has also decided to focus on various Performance systems, where the values of technology are even more pronounced. In the case of this sector, the innovative element can characterise a startup focused on physical rehabilitation or on increasing performance on the pitch: in both cases the common objectives are to increase and protect the value and qualities of the sportsman, the pure *Deus ex machina* of Sport. One of Wylab's start-ups, Restorative Technologies, aims to complete the above objectives and even combine them into a single project. Born from an idea of the University of Palermo, the company's mission is based on the process of industrialisation and technology transfer: to transform scientific discoveries, obtained in twenty years of research, into innovative tools and protocols, useful for enhancing the cognitive functions of sportsmen and women. Supporting athletes during training will thus create a basis for increasing performance results, all through the use of a new physiotherapy system,

⁴⁵ Emedia, L'irresistibile ascesa di realtà aumentata e virtuale: 209 miliardi nel 2022, Econocom, 05/09/2018.

⁴⁶ Redazione, Tribloom, per sostenere la tua squadra del cuore (e non solo), SportUp, 04/12/2019.

certified by the Ministry of Health⁴⁷, called Mindlenses Professional. This patent aims to selectively stimulate certain areas of the brain previously selected by a system of prismatic lenses, which, through a controlled deviation of the visual field, will make the physiotherapist understand which part of the brain hemisphere needs to be rehabilitated. With the help of serious games to implement the stimulation, the doctor can even enhance the patient's cognitive abilities, as in the case of the sports actor. In this case, the union between science and sport reaches the highest level of technological cooperation, since it is precisely these cutting-edge tools that implement the value of the latter, giving it new lifeblood: as Melquíades, one of the characters in *One Hundred Years of Solitude* by Marquez, said, 'Things have a life of their own, it's just a matter of awakening their soul'.

⁴⁷ <https://www.restorativeneurotechnologies.com/documents/Elenco%20dei%20dispositivi%20medici.pdf>

5. CONCLUSIONS

The data and analysis presented in this paper show how fundamental investments in people and digital skills are, as enabling factors, just like technological platforms, for the realisation of the digital transformation of our country. In order to stimulate the economic growth of the business sector, it seems necessary to imagine and plan systemic interventions that find a starting point in collaboration. Universities, businesses, institutions and social partners will play a central role in the development of a plan to bridge Italy's digital divide, starting with people and digital skills, as demonstrated by the Repubblica Digitale project. The model tested for the implementation of this programme offered a concrete example of the potential of actively involving public and private stakeholders in the implementation of regulatory measures. The challenges posed by constant technological innovation and evolution make it necessary to identify valid and replicable models for promoting digital culture in order, on the one hand, to improve the relationship between citizens-technologies-institutions and, on the other, to gain points in international surveys such as the DESI index.

The goal of 2025, set both in the Strategic Plan proposed by Minister Paola Pisano and in the Operational Plan of the Italian Strategy for Digital Competences, on the one hand to achieve the digitalisation of the country and on the other to bridge the digital divide that distinguishes us from the other members of the European Union, can be achieved, but only if synergies and partnerships are built with the aim of creating real opportunities for social and economic growth, breaking down digital illiteracy and developing a necessary path of cultural change in all sectors of society. In this context, places of direct comparison and concrete experimentation of technological innovations, such as Innovation Hubs and Competence Centres, can be solutions to stimulate economic growth, starting from the enhancement of the entrepreneurial fabric that characterises our country. SMEs and start-ups could be some of the factors that will enable a real recovery.

The funds allocated by the Next Generation EU can really offer an opportunity to invest in strategic sectors in order to promote digitalisation, innovation, competitiveness and culture in Italy. The invitation we would like to launch is to make the most of forms of collaboration, both in the policy and intervention strategy development phase, with a multi-stakeholder involvement approach, and in the application and direct experimentation phase, through the enhancement of mutual contamination between different realities and sectors.

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