

Foreword

*Maria Pia Abbraccio - Vice rettore dell'Università degli studi di Milano
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University of Milan

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This book summarizes the key points that emerged from the meeting titled: “Digital transition: what are the challenges for industrial policies (cloud and beyond)” organized on May 15, 2023 at the University of Milan by Maria Letizia Giorgetti and Lorenzo Zirulia.

The meeting focused on the key aspects of digitization in Italian industry, with the primary aim of building up a transversal and interdisciplinary network of competences and collaborations between national universities, research bodies, non-academic institutions, the Italian National Institute of Statistics, ISTAT, Confindustria (the main association representing manufacturing and service companies in *Italy*), the Italian National Federation of managers, senior staff and executive professionals (Manageritalia), MIMIT (the new Ministry of Companies and of the “made in Italy”), and companies themselves.

Specifically, the meeting focused on the digitization and redefinition of production chains within and outside companies, on the key role of cloud data storage and computing in modern manufacturing industry, and on how new industrial policies could favor the digital transition.

The meeting was also part of the ongoing and planned activities of Spoke 4, “Economic impact and sustainable finance” of the innovation ecosystem “MUSA: Multilayered Urban Sustainability Action” (of which University of Milan is part), financed by the Ministry of Education and Research (MUR) within the Piano Nazionale di Ripresa e Resilienza (the National Recovery and Resilience Plan, NRRP).

NRRP is the instrument which, by using Next Generation Europe funds, will make our country more equitable, sustainable and inclusive, and help build a new Italy - leaving behind the negative pandemic’s economic and social impacts. As early as during the design phase of the NRRP, economist Mario Pianta highlighted that Italy’s economic issues did not originate with the coronavirus pandemic. By 2020, the country was already experiencing the repercussions of a decade-long recession.

The crisis from 2011 to 2014 had already led to the closure of 200,000 firms and the loss of 800,000 jobs. By 2019, compared to 2007, the Italian economy still experienced a 5% reduction in hours worked and nearly a 20% decline in the industrial production index (Pianta, 2021). Moreover, the pandemic has

highlighted other weaknesses in the Italian economic system: the extent of precarious work, the gender salary gap and the instability of female work, the distortions of the welfare system, the high level of tax evasion, and the relatively low score on the Digital Economy and Society Index (DESI) compared to other European countries. Despite the fact that, over the past five years, Italy's DESI has increased from 28.2 to 49.3 (representing the most consistent progress among all EU countries), according to the European Commission's DESI 2022 Report. Italy still ranks 18th out of 27 EU member states, and its score remains below the European average of 52.3 and countries such as Spain, France and Germany (European Commission, 2022). Thus, the need for reconstruction would have existed even without the pandemic, and the opportunity provided by Next Generation EU is indeed crucial to fix Italy's digital divide, rebuild production capacities and start a new growth trajectory. To this aim, 25.1% of the entire National Recovery and Resilience Plan (NRRP) funds are allocated to initiatives that promote digital transformation across various sectors, including businesses and industry.

The issues of industrial cloud data storage and computing, as well as of Europe's "digital sovereignty", are equally important. There is growing concern that EU citizens, businesses and Member States are gradually losing control over their data, capacity for innovation and ability to shape and reinforce legislation in the new digital era. The coronavirus pandemic hitting the EU in spring 2020 has shown the essential role played by the high-tech sector in ensuring the continuity of social life, businesses and administrations, but, at the same time, it has highlighted the strong dependence of Europe on Big Tech, the American and Chinese Tech Giants (i.e., Alphabet, Amazon, Apple, Meta, Microsoft, and their Chinese equivalent, Baidu, Alibaba, Tencent and Xiaomi). This has accelerated the reflection on the need for sovereign digital technologies.

In this context, "digital sovereignty" is conceived as Europe's ability to act in the digital world autonomously, and should be realized by both promoting protective mechanisms and offensive tools to foster digital innovation (including in cooperation with non-EU companies), with the final aim of developing a competitive, secure, inclusive and ethical digital economy with world-class connectivity and special emphasis on data security and on artificial intelligence (AI) issues.

It follows that a radical reconsideration of European (and Italian) industrial policies is greatly needed. Public intervention to enable companies facing emerging threats and supporting business choices should no longer be seen as a "distortion" of the market to be utilized only under emergency situations. A strong political commitment and financial investments based on a long term vision going well beyond the time frame of single governments are needed, as are novel policy tools to stimulate research, investments, productions and employment. According to Mario Pianta, the latter should include a public investment

agency, a holding company concentrating public shareholdings, and a public investment bank capable of taking over and assisting declining companies and launching new ventures in priority fields (Pianta, 2021).

These new tools should be institutionalized, based on environmentally sustainable economic activities with a high content of technology and quality of work, starting from equal and inclusive access to education and knowledge sharing, according to the prerequisites of a real knowledge-based society.

Industrial policy is now reemerging on Europe's agenda. Germany and France are pushing their plans in key fields - from high technology to electric cars - aimed at strengthening industrial sovereignty and autonomy in strategic areas (Stehr et al., 2020). Italy should pursue a similar direction.

All stakeholders should work together (and not against each other) to find a common, pragmatic, constructive, and non-ideological roadmap, to face the complexity of current challenges, reduce social and territorial disparities, and ensure deeper and equitable industrial collaboration among European nations.

Again, a paramount example of how industrial policies could lead to extraordinary successful results comes from the pandemic: the anti-Covid vaccines, for which a strict collaboration between academies, companies, regulatory agencies and governments has been indispensable and instrumental to reach results in less than 9 months. In this respect, in 2021 former EU Commission President Romano Prodi commented that governments should organize and finance the production of COVID-19 vaccines in "the greatest possible number of firms" across all countries.

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