Artificial Intelligence and the Labour Market: Impacts and Issues

By Roberta Caragnano[*]

The authoress examines the impacts and issues that artificial intelligence produces on the labour market characterised by an increasing hybridisation of both the workplace and work performance. The European AI Act Regulation is analysed for issues of interest. Issues concerning monitoring systems to avoid discrimination (especially for women) as well as issues related to algorithms are reviewed. The authoress also analyses issues concerning redistributive and fiscal policies and the type of employment that AI will produce in the labour market. Finally, reflections are posed on the relationship between demographic decline and new technologies and the need for participatory industrial relations, with a central role played by collective bargaining.

Introduction

In the current economic-organisational scenario, which is characterised by an increasing hybridisation of the work world[1], the effects being produced are both on the 'workplace', understood in the narrow sense, and on job performance placed in the new scenario of digitisation[2] and artificial intelligence.

According to data released in 2024 by the International Monetary Fund, "40 percent of jobs worldwide could be affected by the rise of artificial intelligence, with high-income economies at greater risk than emerging markets and low-income countries"[3] and with effects that could generate inequality and social tensions.

The World Economic Forum's Future of Work Report 2023, for example, shows that until 2027 there will be a steady growth of job profiles including cybersecurity analysts, machine learning and artificial intelligence specialists, but also robotic engineers, to name a few.

So while we see the emergence of new job profiles, then again there is also a problem in terms of tasks. The main challenge of the digital transition is always in training to retrain the workforce.

---

[*]Professor of Law of Social Policies and Labour - LUMSA University, Roma, Italy; General Secretary of "Gli Stati Generali del Patrimonio Italiano" / "The General States of the Italian Heritage".
Email: caragnano.roberta@gmail.com
[1]On the hybridisation of labour and business organisational models see Rullani & Rullani (2018)*;* Rullani (2004); Perulli (2021).
[2]On the effects of digitisation on work organisation, see Schwab (2016); Mckinsey Global Institute (2017); Degryse (2016); Valenduc & Vendramin (2016).
[3]So in Chimenti (2024).

In the same direction are the studies the Economist's study reports on the future of work - from *The future of work: A bright future for the world of work. Robots threaten jobs less than fearmongers claim.*[4] Note this trend, which is inducing states on several fronts to put legislative actions towards innovation in place[5].

Governments, therefore, are called upon to legislate to regulate the new cases related to the employment relationship and its framing, keeping in mind the fundamental rights of legal systems in a process of change, and put policy and regulatory actions in place to better manage transitions.

In this context, it is important that the relationship between technological change and labour be observed from different perspectives, not only in terms of quantity and quality of employment but also in terms of skills, training, industrial relations, collective bargaining, and new labour organisation.

Paradigm change[6]: If up till now the digital world was considered one of the important opportunities to be seized, today it is a critical success factor at the top of the priority list of any company aiming to be competitive in the market. Labour law is intervening on several fronts to protect the demands of workers, labour (and organisational) flexibility to enable the conversion of current jobs into as many new jobs, and the demands of businesses to avoid the mismatch between skills required by the market and skills possessed by the workforce.

The European AI Act Regulation

In order to assess the impacts of artificial intelligence on various sectors, the European Parliament approved the first European regulation in the course[7] of which it analysed not only the risks but also the positive effects of artificial intelligence for the EU's economic growth.

On May 21, 2024, it was approved by the European Council (on March 13, 2024, the act had been approved by the European Parliament) of the AI Act, the European Regulation[8] that aims to provide a harmonious European framework on the world of artificial intelligence signifying by the great push of digitisation, but at the same time able to guarantee the rights of citizens, workers and consumers. On this basis, Regulation 1689/2024, published in the Official Journal of the Union on July 12, 2024, follows in the footsteps of the European Commission's White Paper on Artificial Intelligence - A European Approach to Excellence and Trust (COM(2020) 65 final), and other EU acts[9] that have

---

[4]See Report Economist (2021).

[5]For more details see Caruso & Zappalà (2021).

[6]For more details at Caragnano (2023a).

[7]Back in 2019, the European Union-with an initial investment of €20 million from the Commission-launched the AI4EU project to create a European AI on *Demand-Platform*. The goal was to develop a European artificial intelligence ecosystem, bringing together available knowledge, algorithms, tools and resources in order to develop a central European strategy that would also lead to ground rules on a topic of great interest and impact on markets, economies and people's lives.

[8]The first proposal for a European Regulation was presented by the European Commission on 21 April, 2021.

[9]Other community acts include the following: il *Digital Governance Act* 2023, il *Data Act* (DA) 2023, il *Digital Services Act* 2022, il *Digital Markets Act* 2022.

followed in recent years whose aim is to define and restrict the fields of application of digitisation in the relationship with the networked circulation of data, which is increasingly affecting the institutions.

The rationale behind the AI Act - which is divided into four risk categories (unacceptable, high, limited, and minimal) for security and people's rights - is to create a common regulatory framework for states, including implementation timeframes (in individual member states) ranging from 6 to 36 months.

The Regulation for the values that inspired the constitution of the European Union aims to - create a single market with harmonised rules for artificial intelligence in order to facilitate the free movement and recognition of AI systems in compliance and in accordance with the EU's standards. Overall, the regulations aim at building AI literacy and introducing appropriate follow-up actions to improve working conditions, to raise awareness of the benefits, risks, safeguards, rights and obligations arising from the use of AI systems. To this end, the European Committee for Artificial Intelligence, in agreement with the Commission and member states, should cooperate with stakeholders to promote the development of voluntary codes of conduct to provide adequate training and literacy to all actors in the value chain.

Findings/Results

Artificial Intelligence and effects on the Labour Market

Artificial intelligence produces impacts on the labour market. This aspect is contained in the AI Act that highlights the need for all artificial intelligence systems to be transparent, reliable and accountable while respecting ethical principles and fundamental rights. The Act also stipulates that the rules are to be "people-centred, so that people can trust that the technology will be used safely and in accordance with the law, including in terms of respecting fundamental rights" while promoting innovation and employment.

Insofar as the subject matter of labour, employment and worker safety protection is concerned, the Regulations are without prejudice to existing law and the regulatory framework (international, EU and national of individual states)[10]. The provisions of the Regulation must be read in a complementary manner to the specific regulations, it being understood that the new discipline is a corollary toward strengthening the effectiveness of the aforementioned rights

---

[10] The Regulations specify that "this Regulation should not affect national labour law and legislation on the protection of minors, i.e., persons under the age of 18, taking into account General Comment No. 25 of the Convention on the Rights of the Child (2021) on the rights of the child in relation to the digital environment, insofar as they do not specifically concern AI systems and pursue other legitimate public interest objectives" (thus in the Italian version Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence and amending Regulations (EC) No. 300/2008, (EU) No. 167/2013, (EU) No. 168/ 2013, (EU) 2018/858, (EU) 2018/1139, and (EU) 2019/2144 and Directives 2014/90/ EU, (EU) 2016/797, and (EU) 2020/1828 (Artificial Intelligence Regulation), 2021/0106(COD), Brussels, May 14, 2024.

to define specific requirements and obligations regarding transparency, technical documentation and record keeping of artificial intelligence systems.

The Regulations, moreover, highlight the need to monitor AI systems to avoid discrimination both in the management of labour relations (both subordinate and self-employed, both public and private) and in the access, selection, promotion, and termination of contractual labour relations; an area, this one, considered high risk.

One high-risk sector is social assistance for the management and delivery of essential services and benefits (public and private) and social security benefits such as sickness, accidents, maternity and leave, old-age and loss of employment pensions along with the major issue of housing assistance[11]. In these areas, it is the Public Authorities that provide the delivery of services. Even then, it is necessary to make use of compliant and secure artificial intelligence systems that are based on neutral algorithms, just as it is important not to make use of systems that invade people's rights and freedoms as well as personal security statuses and standards pertaining to the workplace.

The obligations to inform and consult workers and their representatives - referred to in Directive 2002/14/EC of the European Parliament and of the Council of March 11, 2002, establishing a general framework for informing and consulting employees [12] remain unchanged with respect to decisions that organisations intend to make regarding the use and deployment of artificial intelligence systems. These obligations are also incumbent upon deployers[13] of high-risk artificial intelligence systems, who keep logs automatically generated by such systems[14].

Discussion

Strengths and Weaknesses: New Jobs, Redistributive Policies, Algorithms

The study published in June 2023 by the European Parliament *What are the risks and benefits of artificial intelligence* showed that while the automation of jobs (amounting to 14% of current ones) in OECD countries may affect the reduction of jobs, it will also create new ones, while 32 percent of current ones will face substantial changes.

It follows that the scenarios that artificial intelligence is opening up are different than current ones. Such new scenarios force companies to review

---

[11]For an overview of the issues see Ferrera (2022); Jessoula, Raitano & Pavolini (2021); Saraceno, Benassi & Morlicchio (2020); Ferrari (2000); Giannini (1977).

[12]On the important role of Directive 2002/714/EC, which aims to provide a unified understanding of information and consultation rights, see Nogler (2008). More generally, on the rights in question and the importance of the 1989 Community Charter, which is a solemn declaration without binding force see Arrigo (2001); Guarriello (2003); Manzella, Melograni, Paciotti & Rodotà (2001).

[13]As clarified in the Regulations, deployers are financial institutions subject to requirements on governance, arrangements or internal processes established under Union financial services law and retain logs as part of the records maintained under relevant Union financial services law.

[14] See Article 26 of the European Regulations

organisational and business models as well as jurists and doctrine[15] to question the prospects for managing labour relations[16].

A first issue that arises is that inherent in both redistributive and fiscal policies, which need to be attended to in order to avoid the risk of inequality[17].

Although business adoption of artificial intelligence is still relatively low, rapid advances are on the brink of a true digital revolution (including with generative artificial intelligence, such as ChatGPT) together with falling costs and the increasing availability of workers with skills in the field warn OECD countries, are on the brink of a true digital revolution.

More to the point and for the sake of completeness, it should be noted that while artificial intelligence consists of the ability of a technology to replicate human intelligence based on information provided by an algorithm, "generative" artificial intelligence complements traditional artificial intelligence by adding Machine Learning and Deep Learning techniques to generate new data.

Therefore, the OECD calls for a pro-active role for governments to ensure that states' policies guarantee respect for fundamental rights and support inclusive labour markets that facilitate skill integration.

The issue of artificial intelligence must be at the centre of the dialogue between Governments, stakeholders, the world of institutions, businesses and civil society.

What emerges is that these are work and organisational models[18] in which there is a kind of morphological change in the employment relationship in which intelligent robots interact with their surroundings and with humans, by whom they are often "educated."

Another issue that emerges is that related to the use of algorithms in both personnel selection processes, human resource management processes and in relation to the definition of career plans and, therefore, the related problems of discrimination that could arise. Added to this is the risk of inequalities between companies capable of investing in artificial intelligence and those more "fragile" due to lack of resources, which also affects competitiveness and labour costs.

Regarding algorithms, algorithmic management assumes relevance as it refers to automated decision-making systems in which there is no human correction. This, however, can lead to distorting effects or otherwise alter perceptions both with regard to the replacement impact of human labour and with regard to the creation of new employment and in the complementary relationship with artificial intelligence[19].

On this point, the joint study by the European Commission, Joint Research Centre (JRC) and International Labour Organisation (ILO), *Algorithmic Management Practices in Regular Workplaces: Case Studies in Logistics and Healthcare*[20],

---

[15]On the bursting consequences of the impact of artificial intelligence on the sociological and legal categories of labour and worker see Caruso (2019).

[16]For a reflection on the freedom of work in the digital age and the transformations of work performance due to the advent of technology see Bavaro (2021).

[17]Tolan, Pesole, Martínez-Plumed, Fernández-Macías, Hernández-Orallo & Gómez (2021).

[18]See the Lee (2008) report.

[19]See Gaudio (2022)

[20]Authored by Rani, Pesole & Gonzalez Vazquez (2024). The study compares two European countries (Italy and France) and two non-European countries (India and South Africa).

which examines the effects of algorithmic management in the logistics and healthcare sectors, shows that while there is an improvement in production efficiency as a result of rationalisation and simplification of processes, there is also the problem of worker surveillance.

In addition, the analysis of the impact of artificial intelligence on employment is affected by varying aspects and facets depending also on employment contexts, territories, and social groups[21].

It can be reasonably assumed that there will be different effects in cases where artificial intelligence intervenes to replace or automate processes, creating a problem of social magnitude.[22] This can lead to cyclical unemployment until new skills for workers are developed, or until an increase in productivity is fostered. Conversely, situations with the complementary effect on human labour will affect the well-being of the worker who can "free up" work time to devote to reconciliation.

Training will play a key role to the extent that there is a redistribution of skills and an adaptation of skills that requires both investment in training and retraining programs, and the adoption of policies capable of fostering occupational mobility and transition to new and emerging sectors.

The Gender Dimension: Stereotypes and Algorithms dictated by Artificial Intelligence

The UNESCO report, *The effects of AI on the working lives of women*[23], prepared with the collaboration of the Inter-American Development Bank and the Organization for Economic Cooperation and Development (OECD), highlighted how artificial intelligence can improve job search methods and services[24] while also reducing the impact of gender stereotypes that create barriers in accessing work.

However, with respect to the problems that will have to be faced by employment centres, it is crucial, in the construction of algorithms[25], to parameterise artificial intelligence engines in a "neutral" way so that they do not adapt to languages, contract types, aptitudes or personal data (On the privacy point, it is important to delete unnecessary data that can produce distorting effects.) while preserving ethical standards.

UNESCO's study, *Bias Against Women and Girls in Large Language Models*[26], and The Guardian's investigation, "'There is no standard': investigation finds AI algorithms objectify women's bodies"[27], have found how worrying the risk of gender bias is."

---

[21]For a detailed analysis see Lane & Saint Martin (2021).
[22]Simoncini (2018); Garofalo (2019); Kaplan (2017).
[23]Unesco, Oecd, Idb (2024).
[24]In this sense see also Urquidi & Orega (2020).
[25]Adams-Prassl (2019); Jarrahi, Newlands, Lee, Wolf, Kinde & Sutherland (2021).
[26]Unesco (2024).
[27]Gianluca & Schellman (2023).

According to the United Nations Educational, Scientific and Cultural Organization, there is a tendency for large language models[28] to produce gender stereotypes and biases. Women are often described as much as four times more than men as domestic workers or cooks and are often associated with words such as family, children, maid while men are ascribed the words career, executive, business, doctor.

With respect to linguistic patterns, there are fears of the risk of spreading discrimination more widely if such patterns are not carefully constructed; in the background is the spectre of standardizing more vulnerable social groups and categories. The report, *Multimodal datasets: misogyny, pornography, and malignant stereotypes*[29], which analysed the datasets with which algorithms are trained based on the most common linguistic patterns, has confirmed a real labelling of sets with built-in discrimination and prejudice.

Productivity and Wages

A further aspect that emerges in the general scenario of a yet unclear and ambiguous position oscillating between pessimistic and more optimistic studies[30], is the issue of productivity, which is at the centre of political and academic debate, also in the consulting world.

While the study reports of the world's largest companies, such as McKinsey[31], Accenture[32], and PWC[33] and a part of academia consider artificial intelligence to be an accelerator that can increase productivity, a part of the literature has pointed out that there is no empirical data to confirm this. In fact, it seems the opposite is true. In this vein, both Gordon[34] and Acemoglu and Restrepo[35], in their 2018 studies, note that there is a progressive reduction in the demand for labour in which the substitution effect of significant shares of cognitive labour occurs.

The reduction in demand also brings with it a reduction in supply in a scenario in which there may be a mismatch between capital and profitability inevitably leading to a reduction in wages, even when productivity is created in some sectors[36] and areas. This effect, however, is not unique or absolute but is influenced by multiple economic and social cyclical variables that can shift and/or steer the axis.

---

[28]These are deep learning models of considerable volume, which are set up to receive and analyse large amounts of data through systems that extract meanings from a sequence of text and define relationships between words and phrases in it.

[29]Birhane, Prabhu & Kahembwe (2021).

[30]On this point for an initial reasoned review of the literature see Dagnino (2024).

[31]Mckinsey & Company (2019).

[32]Accenture (2017).

[33]Pwc (2018).

[34]Gordon (2018).

[35]Acemoglu & Restrepo (2018).

[36]A number of studies by Fossen and Sorgner prepared on the basis of a Survey targeting entrepreneurs and workers point out that "exposure to AI advances would be associated with greater job stability and wage growth, projecting, at least so far, a use of AI that complements, rather than replaces, human labor," so in Marciano (2021). For the detailed study see Fossen & Sorgner (2022).

As for productivity growth, most recently the PWC 2024 report highlighted a five-fold increase in labour productivity among which were consulting services, information technology and financial services in sectors affected by artificial intelligence, as compared to sectors with lesser AI integration.

The central issue, however, is not only the effect resulting from the increase in productivity sic et simpliciter, but more importantly the distributional effect that is generated with respect to the number of hours worked and the resulting employment with respect to the relationship with total factor productivity and GDP.

The National Bureau of Economic Research's 2024 study, titled *Scenarios for the Transition to AGI* analysed how output and wages behave under different scenarios of technological progress. The assumption is that human labour can be decomposed into atomistic tasks that differ in their complexity. Additionally, technological advances make increasingly complex tasks easily automated. The effects on wages depend on a race between automation and capital accumulation, which may bring about different likely scenarios.

Conclusion

From the analysis conducted thus far, it appears that every technological advance impacts the labour market. It is therefore crucial to understand the relationship between worker replacement, skill obsolescence, and the advent of automation models.

Government policies, therefore, must be able to meet the challenges, confront technological change and put in place actions and proposals. The social partners, particularly labour unions through collective bargaining, must be able to govern change and mitigate its risks.

The paradigm shift, therefore, is not only t technological and cultural but also legal, inevitably passing through the new role of unions and collective bargaining with effects that are gradually taking place in our legal system as well. An example would be the debate that has developed in America around the professions of actors[37] that has been manifesting in our country as well.

Likewise, it is essential to intervene in labour policies linked to training policies in order to design methods that meet people's training needs on the one hand, and the modernisation needs of businesses on the other, in a context of building integrations within the territory. The rationale behind this is to strengthen and stimulate relations between the world of education and business. Central to this is the role played by Competence Centres that connect technological advancement and universities with large and small businesses.

In the background is the need to focus on participatory industrial relations that are innovation-friendly and strategically oriented toward cooperative-participatory systems that can also enable the recovery of inflation and labour productivity.

---

[37]For an initial commentary on the U.S. agreement, see Caragnano (2023b).

Overall, moreover, there is a further issue, namely that of demographic decline in relation to new technologies; an issue that needs to be analysed because of the legal as well as its sociological and economic implications.

While, in fact, there is the advantage of prolonging life expectancy as a result of improved well-being, at the same time there is an impact on the health and pension system with significant effects to the extent that there is an increasing reduction of young people entering the labour market along with a real decline in the birth rate. Italy, for example, according to ISTAT data[38], will have a population of 51 million in 2050 and if the trend is not reversed, the debt/GDP ratio in 2070 could reach 220% - a worrying figure.

From an overall analysis including that of the trends determined (over the years) by technological innovation on productivity, it emerges that artificial intelligence could be a tool that could stem the smaller number of workers that are in the system due to the effect of the demographic decline by leveraging the automation of production processes, and thus workflows and increasing work efficiency. This could have balancing effects for some countries such as Italy. The Deloitte AI Institute's 2024 study, Deloitte State of Generative AI in the Enterprise: Now Decides Next found that declining demographics can be more effectively addressed by businesses investing in artificial intelligence in order to optimise production processes and generate positive efficiency impacts.

It follows that the key to countering the effects of an aging population is certainly the retraining of workers, and artificial intelligence can be a useful tool. Just imagine virtual assistants in the service sector, medicine and telemedicine, and the use of drones and sensors in agriculture. States, however, need to identify "compensatory" actions starting from a European regulatory framework that also intervenes on a unified and systemic vision of immigrant integration, with respect to the flows of foreign workers and their bility to contribute to the growth of different country systems.

References

Accenture (2017). *How AI boosts industry profits and innovation.* https://blog.worldsummit.ai/how-ai-boosts-industry-profits-and-innovation

Acemoglu, D. & P. Restrepo (2018). *Artificial Intelligence, Automation and Work.* Working Paper 24196. National Bureau of Economic Research, Cambridge. https://doi.org/10.3386/w24196

Adams-Prassl, J., (2019). 'What if Your Boss was an Algorithm? Economic Incentives, Legal Challenges, and the Rise of Artificial Intelligence at Work', in *Comparative Labor Law & Policy Journal*; *Champaign* 41(1):123-146.

Arrigo, G. (2001). *Il diritto del lavoro nell'Unione europea*, vol. II. Milano: Giuffrè.

Bavaro, V. (2021). 'Lavoro subordinato e lavoro autonomo nell'era digitale: il problema della libertà del lavoro' in P. Passaniti *La dignità del lavoro. Nel cinquantenario dello Statuto*. Milano: Franco Angeli.

Birhane, A., Prabhu V.U. & E. Kahembwe (2021). 'Multimodal datasets: misogyny, pornography, and malignant stereotypes' in arXiv.org (5 October 2021).

Caragnano, R. (2023a). 'Studios: accordi storici e il nodo della intelligenza artificiale sul

---

[38]ISTAT (2021).

futuro dei rapporti di lavoro' in *Guida al Lavoro n. 47 de "Il Sole 24 Ore"*.   [24 novembre 2023].

Caragnano, R. (2023b). 'Towards New Work Paradigms: Inclusion, Digital, Sustainability, Hybrid Organisations', in *Athens Journal of La*w 9(4):549-568.

Caruso, B. (2019). 'I lavoratori digitali nella prospettiva del pilastro sociale europeo: tutele rimediali legali, giurisprudenziali e contrattuali' in *Diritto delle Relazioni Industriali* 29(4):1005-1040.

Caruso, B. & L. Zappalà (2021). 'Un diritto del lavoro "tridimensionale": valori e tecniche di fronte ai mutamenti dei luoghi di lavoro' in WP C.S.D.L.E. "Massimo D'Antona".IT – 439/2021.

Chimenti, A. (2024). 'L'Intelligenza Artificiale impatterà sul 40% dei posti lavoro in tutto il mondo. Fmi lancia l'allarme a Davos 2024' in Milano Finanza, 15 January 2024.

Dagnino, E. (2024). 'Intelligenza artificiale e mercati del lavoro. Prima rassegna ragionata della letteratura economica e giuridica', in *Casi e materiali di discussione: mercato del lavoro e contrattazione collettiva*, CNEL, n. 3.

Degryse, C. (2016). *Digitalisation of the economy and its impact on labour markets*, ETUI Working Paper 2016.02. https://doi.org/10.2139/ssrn.2730550

Ferrari, E. (2000). 'I servizi sociali' in *Trattato di diritto amministrativo*, in S. Cassese (ed.) *Diritto amministrativo speciale*, I. Milano. (599).

Ferrera, M. (2022). *Le politiche sociali*. Bologna : Il Mulino.

Fossen, F. & A. Sorgner (2022). New Digital Technologies and Heterogeneous Employment and Wage Dynamics in the United States: Evidence from Individual-Level Data. *IZA Discussion Paper Series*, No. 2.

Garofalo, D. (2019). 'Rivoluzione Digitale e Occupazione: Politiche Attive e Passive' in *Il Lavoro nella Giurisprudenza*, 4:329-349.

Gaudio, G. (2022). 'Algorithmic management, sindacato e tutela giurisdizionale' in *Diritto delle Relazioni Industriali*, 32:30-74.

Gianluca, M. & H. Schellman (2023). "'There is no standard': investigation finds AI algorithms objectify women's bodies" in The Guardian [8.2.2023].

Giannini, M.S. (1977). *Stato sociale: una nozione inutile, in Scritti in onore di Mortati*. Milano.

Gordon, R., (2018). 'Why has Economic Growth Slowed When Innovation Appears to be Accelerating?' in *NBER Working Paper Series*, No. 24554.

Guarriello, F. (2003). 'Dalle prime proposte in tema di partecipazione all'attuale direttiva' in L. Bordogna & F. Guarriello (eds.) *Avere voce in capitolo, Società europea e partecipazione dei lavoratori nell'impresa*. Roma: Edizioni Lavoro.

Istat. (2021). 'Futuro della popolazione: meno residenti, più anziani, famiglie più piccole', 26 Novembre 2021.

Jarrahi, M.H., Newlands, G., Lee, M.K., Wolf C.T., Kinder, E. & W. Sutherland (2021). 'Algorithmic Management in a Work Context' in *Big Data & Society* 8(2). https://doi.org/10.1177/20539517211020332

Kaplan, J. (2017). *Intelligenza Artificiale. Guida al Futuro Prossimo*. Roma: Luiss University Press.

Lane, M. & A. Saint Martin (2021). 'The impact of Artificial Intelligence on the labour market: What do we know so far?' in *OECD Social, Employment and Migration Working Papers 256*. OECD Publishing.

Lee, E.A. (2008). 'Cyber Physical Systems: Design, Challengers, Electrical Engineering and Computer Science', University of California at Berkeley – technical report n. UCB/EECS-2008-8. http://www2.eecs.berkeley.edu/Pubs/TechRpts/2008/EECS-2 008-8.pdf

Manzella, A., Melograni, P., Paciotti, E.O. & S. Rodotà (2001). *Riscrivere i diritti in Europa. Introduzione alla Carta dei diritti fondamentali dell'Unione europea*.

Bologna: Il Mulino.

Marciano, C. (2021). *L'Intelligenza artificiale e il paradosso della produttività: il punto sulle ricerche*, in *Agenda Digitale*, 15 April 2021.

Mckinsey Global Institute (2017). *A future that works: automation, employment and productivity*.

Mckinsey & Company (2019). *Global AI Survey: AI adoption proves its worth, but few scale impact*. https://www.mckinsey.com/featured-insights/artificial-intelligence/global-ai-survey-ai-proves-its-worth-but-few-scale-impact

Natili, M., Jessoula, M., Raitano, M. & E. Pavolini (2021). 'Politiche per la casa e per i senza dimora in Italia. Sfide e prospettive in prospettiva comparata' in *Quaderni della coesione sociale*, 1:1-26.

Nogler, L. (2008). *La disciplina dei licenziamenti individuali nell'epoca del bilanciamento tra i "principi" costituzionali*, in AA.VV., *Disciplina dei licenziamenti e mercato del lavoro*, AIDLASS, Atti delle giornate di studio di diritto del lavoro, Venezia, 25-26 maggio 2007. Milano: Giuffrè.

Perulli, A. (2021). *Oltre la subordinazione. La nuova tendenza espansiva del diritto del lavoro.* Torino: Giappichelli.

Pwc (2018). *Artificial Intelligence in HR: a No-brainer*. https://www.pwc.nl/nl/assets/documents/artificial-intelligence-in-hr-a-no-brainer.pdf

Rani, U., Pesola, A. & I. Gonzalez Vazquez (2024). *Algorithmic Management practices in regular workplaces: case studies in logistics and healthcare*. Luxembourg: Publications Office of the European Union.

Report Economist (2021). 'The future of work. A bright future for the world of work', 10 April, 2021.

Rullani, E. (2004) *La fabbrica dell'immateriale.* Roma: Carocci.

Rullani, F. & E. Rullani (2018). *Dentro la rivoluzione digitale.* Torino: Giappichelli.

Saraceno, C., Benassi, D. & E. Morlicchio (2020). *Poverty in Italy. Features and Drivers in a European Perspective.* Bristol: Bristol University Press.

Schwab, K. (2016). *The Fourth Industrial Revolution: what it means, how to respond.* World Economic Forum.

Simoncini, G.R. (2018). 'L'Incidenza della Rivoluzione Digitale nella Formazione dei Lavoratori', in *Il Lavoro nella Giurisprudenza* 26(1):39-45.

Tolan, S., Pesole, A., Martínez-Plumed, F., Fernández-Macías, E., HernándezOrallo, J. & E. Gómez (2021). 'Measuring the Occupational Impact of AI: Tasks, Cognitive Abilities and AI Benchmarks' in *Journal of Artificial Intelligence Research*, 71: 191-236.

Unesco (2024). *Bias Against Women and Girls in Large Language Models*, UNESCO. International Research Centre on Artificial Intelligence.

Unesco, Oecd, Idb (2024). *The effects of AI on the working lives of women.* ISBN:978 - 92-3-100513-8

Urquidi, M. & G. Ortega (2020). *Artificial intelligence for job seeking: How to Enhance Labor Intermediation in Public Employment Services*, Inter-American Development Bank. http://dx.doi.org/10.18235/0002897

Valenduc, G. & P. Vendramin (2016). *Work in the digital economy: sorting the old from the new.* Bussels: ETUI - European Trade Union Institute.