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AI & HUMANITIES

the impact of artificial intelligence on italian workers.

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01.

EXECUTIVE SUMMARY.

AI IS RESHAPING THE LABOR MARKET.

Artificial intelligence is rapidly transforming work, impacting all occupational levels. While some jobs are at greater risk of automation, new professions related to the development and management of AI are emerging. The future of work will not only be a matter of replacement, but of skills evolution.

AT-RISK PROFESSIONS.

In our survey, we examined the possible evolution of professions following three different indicators that examine, respectively, the risk of automation, exposure to AI, and compatibility with Machine Learning of the various professions. Three different profiles emerged:

Clerks, mainly male, aged between 15 and 24, with low education levels and of foreign origin

These professions, which do not engage in much smart working and operate in sectors with high manual labor, were found to be at greater risk of automation. Repetitive and standardized tasks are the first to be replaced, putting millions of jobs at risk.

Women with high specialization, Italian, graduates, and mainly working in Northern and Central Italy

Contrary to common belief, AI does not only impact manual labor but also highly skilled jobs. Professions such as analysts, technicians, and financial specialists are increasingly exposed, especially due to the growing role of machine learning and generative AI in managing complex data.

Clerks, mainly female, aged between 15 and 24 with a high school diploma, Italian, operating in Northern and Central Italy, and often engaging in smart working

These are the results of the profile according to the third index, which measures compatibility with Machine Learning. In general, those who work remotely seem to be more exposed.

This suggests that digital transformation impacts differently based on workplaces, as well as skills.

WILL DEMOGRAPHIC DECLINE MITIGATE THE EMPLOYMENT IMPACT?

AI is revolutionizing work in a context of a sharp decline in the labor force: by 2030, Italy will lose about 1.7 million workers. Digitalization could help balance the mismatch between supply and demand, reducing the risk of unemployment. It should also be remembered that AI does not replace human intelligence, but redefines it. The value of soft skills, including critical thinking, creativity, and emotional intelligence, becomes increasingly strategic for operating in the labor market of tomorrow.

Conclusion

As we can see from the three profiles obtained, the impact of artificial intelligence is transversal on the labor market, and this justifies the concerns expressed by many, which can, however, be reduced in light of two considerations. The first is what we have observed regarding demographic changes. The second consideration concerns soft skills. The tools introduced by increasingly marked digitalization are useful to enhance, rather than completely replace, human capabilities and are able to reshape the value of the skills that each professional brings. The challenge for the future will be to retrain the workforce and adapt educational systems to face a rapidly transforming market.

02.

FOREWORD.

Artificial intelligence (AI) is rapidly transforming the labor market, in some cases redefining sectors and professional roles. As AI technologies advance, their impact on employment patterns, productivity, and required skills becomes increasingly significant.

Overall, technological innovation and AI influence the labor market along two dimensions: the extensive margin, through the destruction of some occupations and the creation of new jobs, and the intensive margin, through the change of skills required in professions.

EXTENSIVE MARGIN: AI, AUTOMATION, AND JOB REPLACEMENT.

One of the direct effects of AI on the labor market is the automation of relatively standardized tasks. AI-based systems can perform such tasks with greater speed and precision than humans, leading to the replacement of jobs in sectors such as manufacturing, logisti-cs, and customer service. The automation of processes is not only used for administrative or production activities, but recent developments in generative AI further expand this impact, replacing non-routine cognitive activities such as text processing.

EXTENSIVE MARGIN: AI AND THE CREATION OF NEW JOBS.

Artificial intelligence, while leading to the replacement of some professions, also generates new job opportunities. The development, implementation, and maintenance of AI-based systems require highly specialized skills, stimulating the demand for professional figures such as data scientists, machine learning engineers, and specialists in the field of artificial intelligence. Furthermore, AI contributes to the emergence of innovative sectors and new types of employment. A significant example is the expansion of AI-powered healthcare technologies, which has given rise to roles dedicated to the design and management of such innovations. Also of particular importance is the impact in the field of cybersecurity, where AI is used to identify and prevent cyber threats, while also generating the need for experts capable of working with these advanced systems.

INTENSIVE MARGIN: CHANGE OF SKILLS AND COMPETENCIES.

Despite the fact that the attention of the media and policymakers is focused on the extensive margin, especially through a narrative that emphasizes how AI will replace some jobs, the extensive margin will not be the most relevant direction of change. Most jobs and professions will, in fact, survive, but the skills required to perform them will be profoundly changed. Workers will have to learn to work with AI rather than be replaced by it. The integration of AI in work environments requires a transformation in the skills required of the workforce. There is a growing need for digital literacy and advanced technical skills, including programming, data analysis, and AI system management. At the same time, the automation of routine tasks by artificial intelligence makes human abilities that are difficult to replicate, such as creativity, critical thinking, and emotional intelligence, even more important. In response to these changes, educational and training programs must evolve, prioritizing not only STEM (science, technology, engineering, and mathematics) disciplines but also the development of transversal skills essential to face the challenges of a rapidly transforming work environment. All this pertains to the so-called intensive margin, which is more relevant than the extensive one because it has to do with the entire stock of the workforce and not only with new occupations.

03.

MEASURING AND QUANTIFYING THE IMPACT OF AI.

How to effectively quantify the impact of AI on work? Starting from the contribution of Autor, Levy, and Murnane (2003), the task approach has established itself as a particularly effective analytical tool for studying the impact of technology on the world of work. This approach divides work activities into tasks, each of which can be performed by humans or by machines/technology. This methodology allows a distinction between activities specifically attributable to capital and labor that is not only more accurate but also flexible enough to adapt to transformations over time. In particular, machines and capital can replace labor in performing certain activities, but they can also integrate it, acting as indispensable complements in others.

The task approach has recently been adopted to measure the exposure of occupations to computers and robots. In a well-known article, Frey and Osborne (2017) estimated that up to 47% of jobs in the United States are at risk of automation. Subsequently, other attempts have focused on the development of measures of exposure to machine learning and robotics (Brynjolfsson and Mitchell 2017; Acemoglu and Restepo 2020) and to AI (Felten, Raj, Seamans 2021; Webb 2023; Eloundou, Manning, Mishkin, Rock 2023; Pizzinelli, Panton, Tavares, Cazzaniga, Li 2023).

In this work, we consider in particular three indices that identify three different aspects of recent technological progress:
- exposure to automation: the index, developed by Osborne and Frey[1], measures the aspect of automation risk to which individual professions are exposed based on the activities usually performed. It focuses in particular on the replacement of the non-cognitive and repetitive aspects of tasks.
- exposure to AI: indicator developed by Felten, Raj, and Seamans[2], which measures the exposure of a profession to artificial intelligence. It concerns non-repetitive and cognitive tasks and is also associated with robotic systems but not only.
- exposure to Machine Learning: this index, developed by Brynjolfosson and Mitchell[3], reflects how much a Machine Learning model is able to complete a task in a way that is equal to or more efficient than the human way. ML has to do with the cognitive and repetitive aspects of activities and the issue of decisions. Machine Learning (ML) is a subset of artificial intelligence that focuses on the development of algorithms capable of learning from data and making predictions or decisions without being explicitly programmed for each specific task.

All three indicators measure an exposure risk using the SOC occupation classification used in the USA. To apply them to the Italian case, a transcoding of the SOC classification into the ISCO classification at the 4th level was carried out. In this way, we obtained an index of exposure to Automation, AI, and Machine Learning for each ISCO occupation at the 4th level.

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[1] See Carl Benedikt Frey and Michael A. Osborne in the article Frey, C.B., Osborne M.A. (2017) "The future of employment: How susceptible are jobs to computerisation?" Technological Forecasting and Social Change N.114, pp.254 – 280.
[2] See Edward Felten, Manav Raj, and Robert Seamans in the article Felten, E., Raj, M., Seamans, R. (2021) "Occupational, industry, and geographic exposure to artificial intelligence: A novel dataset and its potential uses. Strategic Management Journal, 42(12), 2195–2217".
[3] See Erik Brynjolfsson and Tom Mitchell in the article Brynjolfsson, E., Mitchell, T. (2017). "What can machine learning do? Workforce implications".

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04.

RESULTS OF THE ANALYSIS.

Results of the analysis

A first order of considerations can be formulated by grouping the three indicators described above by major occupational group:

1. Legislators, entrepreneurs, and senior management
2. Intellectual, scientific, and highly specialized professions
3. Technical professions
4. Executive professions in office work
5. Qualified professions in commercial activities and services
6. Craftsmen, skilled workers, and farmers
7. Plant operators, operators of fixed and mobile machinery, and vehicle drivers
8. Unqualified professions
9. Armed Forces.

Excluding the Armed Forces, Graph 1 shows the impact of the three different indices. Note that in order to allow comparability between different measures, the three indices have been standardized. Therefore, a negative value of the index does not mean a negative level of exposure but rather a low level of exposure. The graph shows that clerical professions (group 4) and blue-collar workers and drivers (group 7) are the most exposed to the risk of automation. Entrepreneurs and managers (group 1), highly specialized professions (group 2), and clerical professions (group 4) are the most impacted by the AI index. Group 4 is largely the most impacted by Machine Learning according to the ML index.

GRAPH 1.

Exposure to Automation, AI, and Machine Learning by Major Occupational Group.
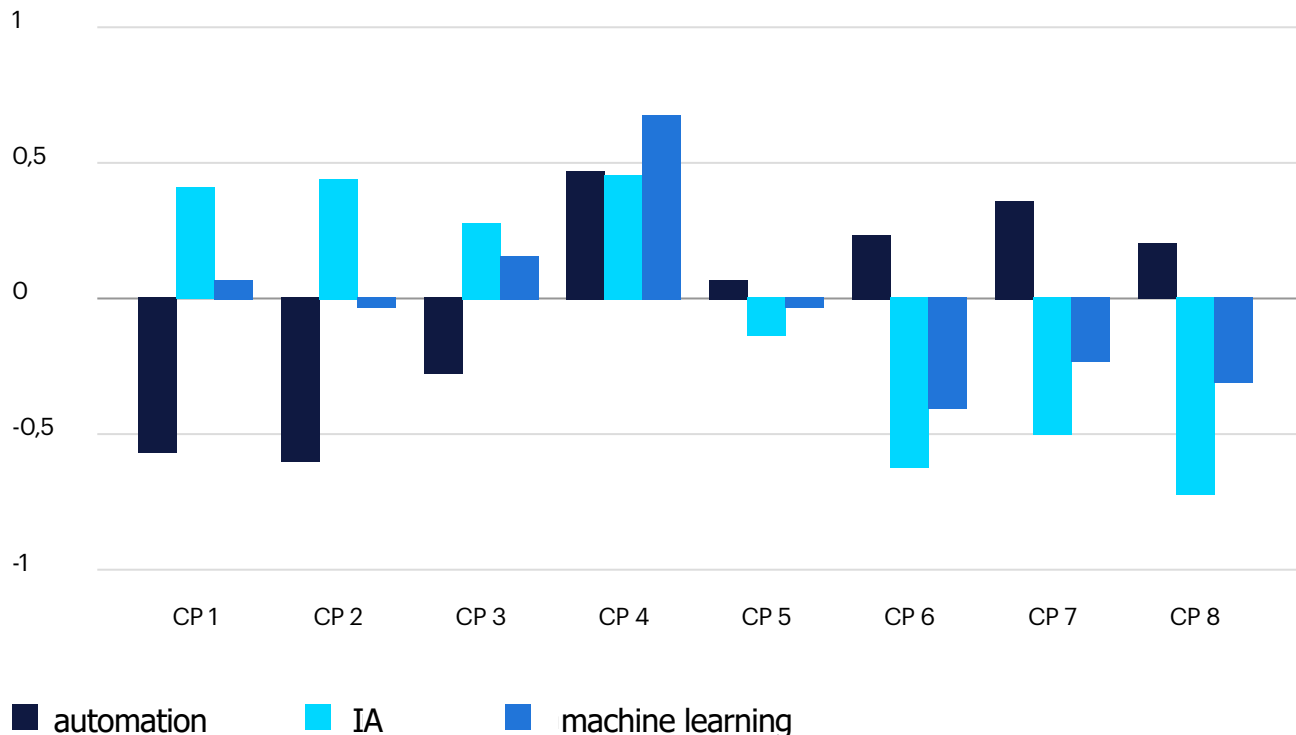
Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)

The next step was to apply the results relating to the degree of exposure of individual professions to the Italian case. Using the Labor Force data, we analyzed the number of Italian workers who will be impacted by the new technologies. For greater clarity, we have distinguished the employed by levels of professionalism: high skills (corresponding to the first three major professional groups, i.e., managers, specialists, and technicians), medium skills (clerks and qualified professions in trade and services), and low skills (laborers, drivers, and unskilled). Furthermore, we decided to classify the impact of technological change into three categories: low, medium, and high impact depending on the tercile of the degree

of exposure measured by the indices described above.

The population of employed persons of reference is 22.4 million. The values are slightly lower than the total number of employed in 2022, about 23 million, due to the exclusion from the analysis of the Armed Forces and some residual professional codes for which there are spurious correspondences between different classification standards.

Graphs 2, 3, and 4 show the distribution of Italian employed persons by level of exposure to the different indices.

Considering exposure to automation (Graph 2), the workers with low exposure are 7.8 million, of which 71.5% are typically high-skill professions, 21.9% are medium-skilled workers, while 6.6% represent low-skill professions. Among those with medium impact (about 4 million), just over half (53.1%) are represented by low-skill professions. Among the workers with high impact (10.5 million), 43.5% are medium-skilled professionals and only 9.9% are highly skilled.

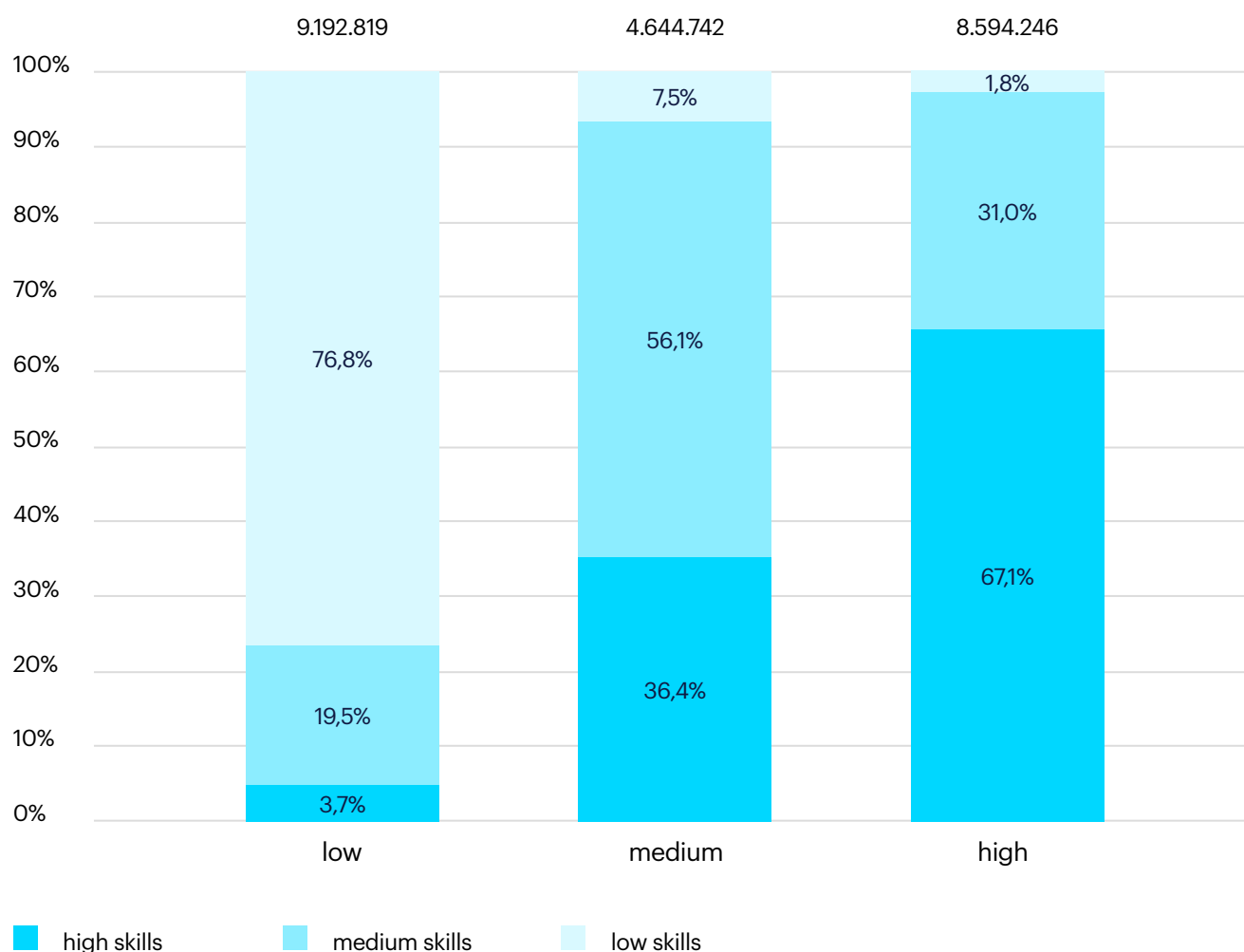Italian Employed Persons by Level of Professionalism and Level of Exposure to Automation.
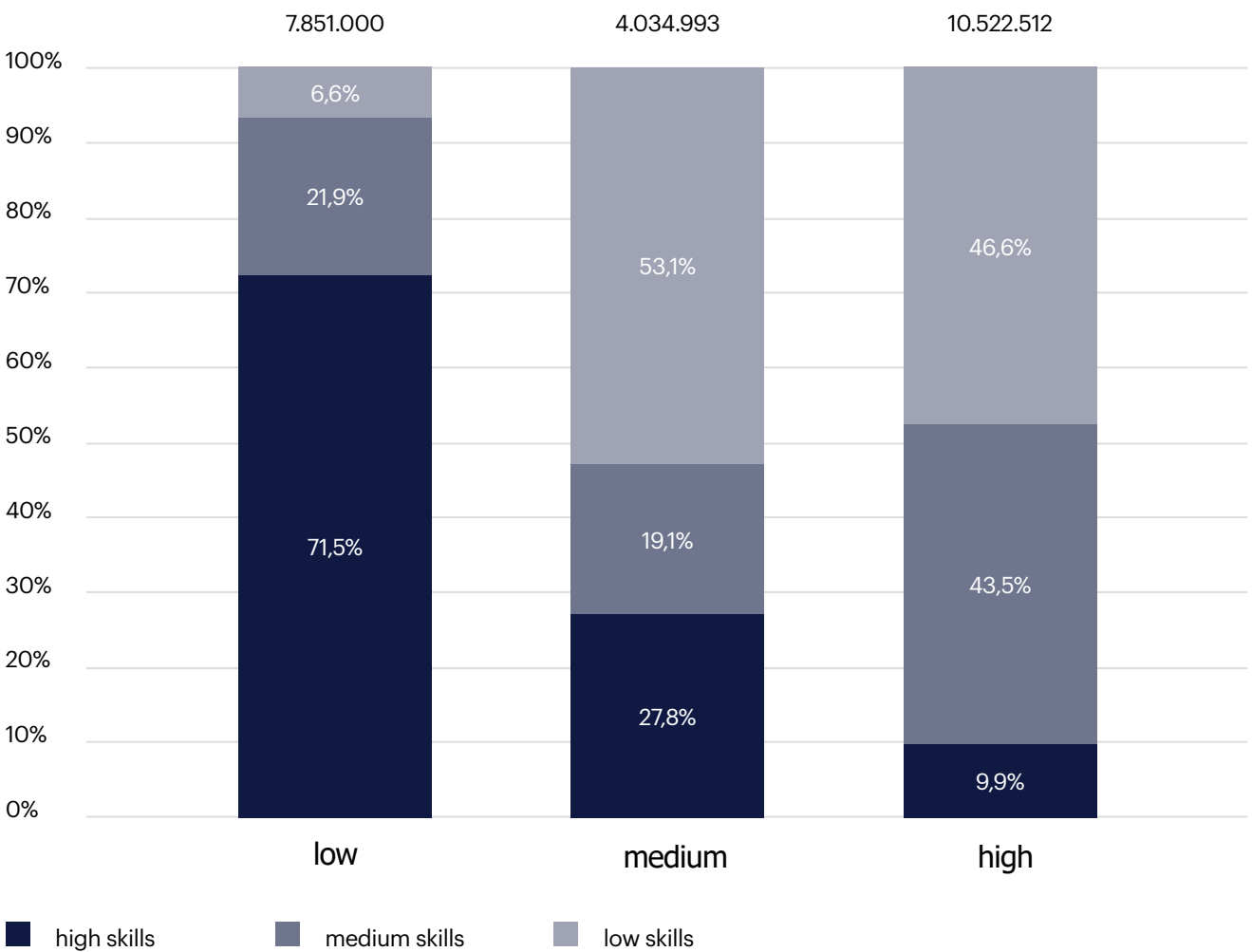
Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017)

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If we consider the AI exposure index, we find an almost opposite situation compared to the one described previously. In fact, among the workers with low exposure to AI (about 9.2 million), low-skill professions are 76.8%, while medium-skill professions represent 19.5%. Among the medium-impact professionals (4.6 million), 56.1% are represented by medium-skill professions and 36.4% by high-skill professions. Among the 8.6 million workers highly exposed to AI, 67.1% are high-skill professionals, 31% medium-skill, and only 1.8% low-skill workers.

Italian Employed Persons by Level of Professionalism and Level of Impact to AI.
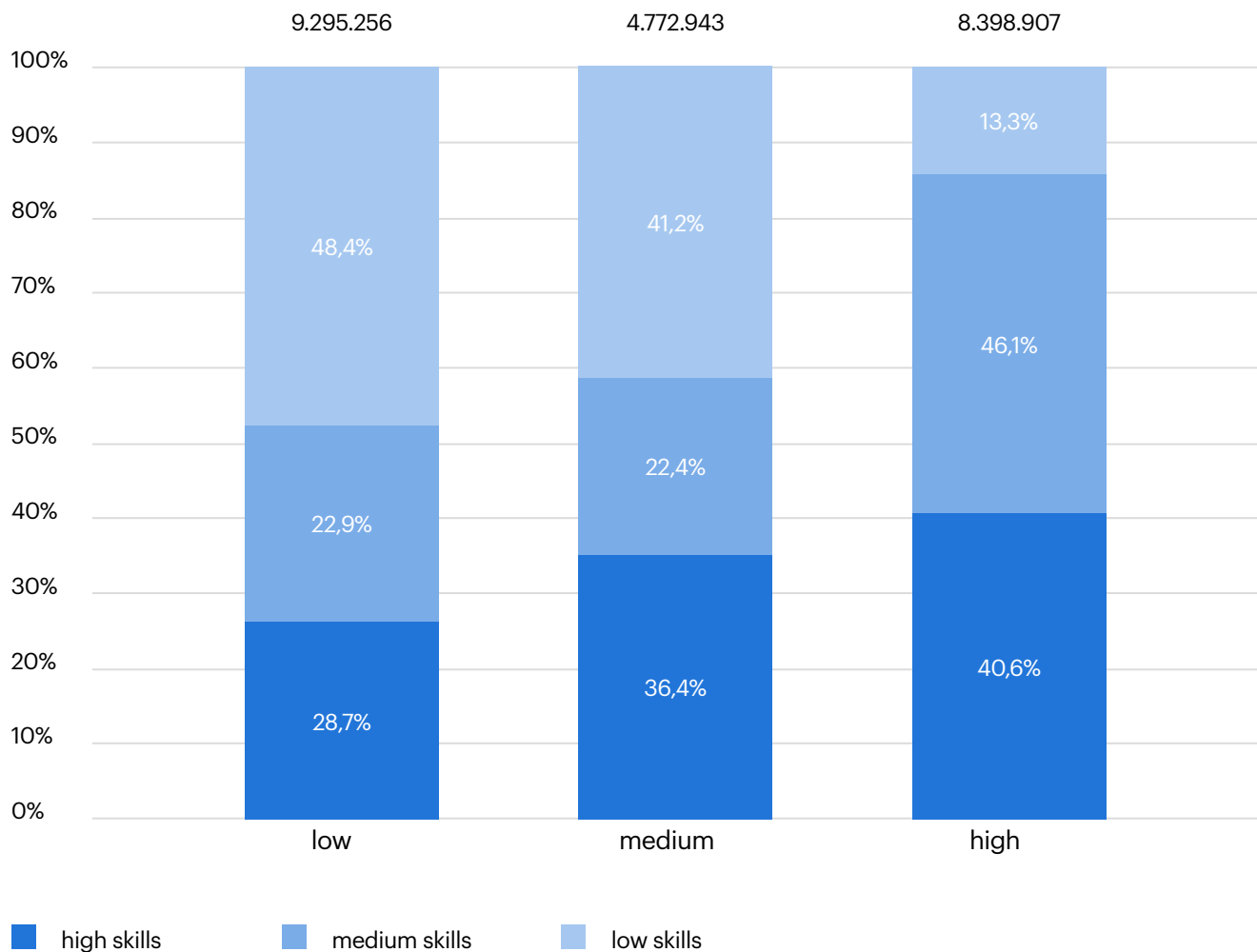

Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Felten E., Raj M., Seamans R. (2021).

According to the Machine Learning exposure indicator, among the 9.3 million Italian employed persons with low impact from Machine Learning, just under half (48.4%) are low-skilled personnel, compared to 28.7% highly skilled.

Among those considered medium impact (4.8 million), 36.4% are high skill versus 41.2% low skill, while those considered highly exposed to Machine Learning (8.4 million), 46.1% are medium skill and 40.6% are high skill.

GRAPH 4.
Italian Employed Persons by Level of Professionalism and Level of Exposure to Machine Learning.

Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Brynjolfsson E., Mitchell T. (2017).

Overall, we can draw two general conclusions from the analysis of the indicators that measure the degree of exposure.

- Considering the various and different aspects of the new technologies and artificial intelligence, we can say that on average all professions are exposed to technological impact. If low-skill occupations are particularly exposed to the automation and robotics component, highly qualified ones are exposed to the artificial intelligence component that strongly impacts cognitive abilities.
- Among the various occupations, those at medium level, especially in sales and administrative roles, are the most exposed. They are in fact strongly impacted by all three measures considered.

It is interesting to explore the impact of AI on employed persons segmented by a series of socio-economic variables.

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1. GENDER.

The automation exposure index shows a higher impact on male workers: 48.7% of them are highly exposed. For women, this percentage drops to 43.7%. The AI index shows the opposite situation: more than half of men (51.6%) are slightly exposed to AI, while 45.6% of women are highly exposed. A similar situation is also highlighted by the Machine Learning index, according to which 43.2% of women are highly impacted, compared to 34.3% of men. These differences derive from the different distribution of the workforce by gender and professional type. Women are in fact relatively more numerous in liberal and clerical professions, where the impact of AI and Machine Learning is higher, while there is a higher percentage of men in manual professions, which are more exposed to the risk of automation.

GRAPH 5.
Exposure to Automation, AI, and Machine Learning on Italian Workers by Gender.
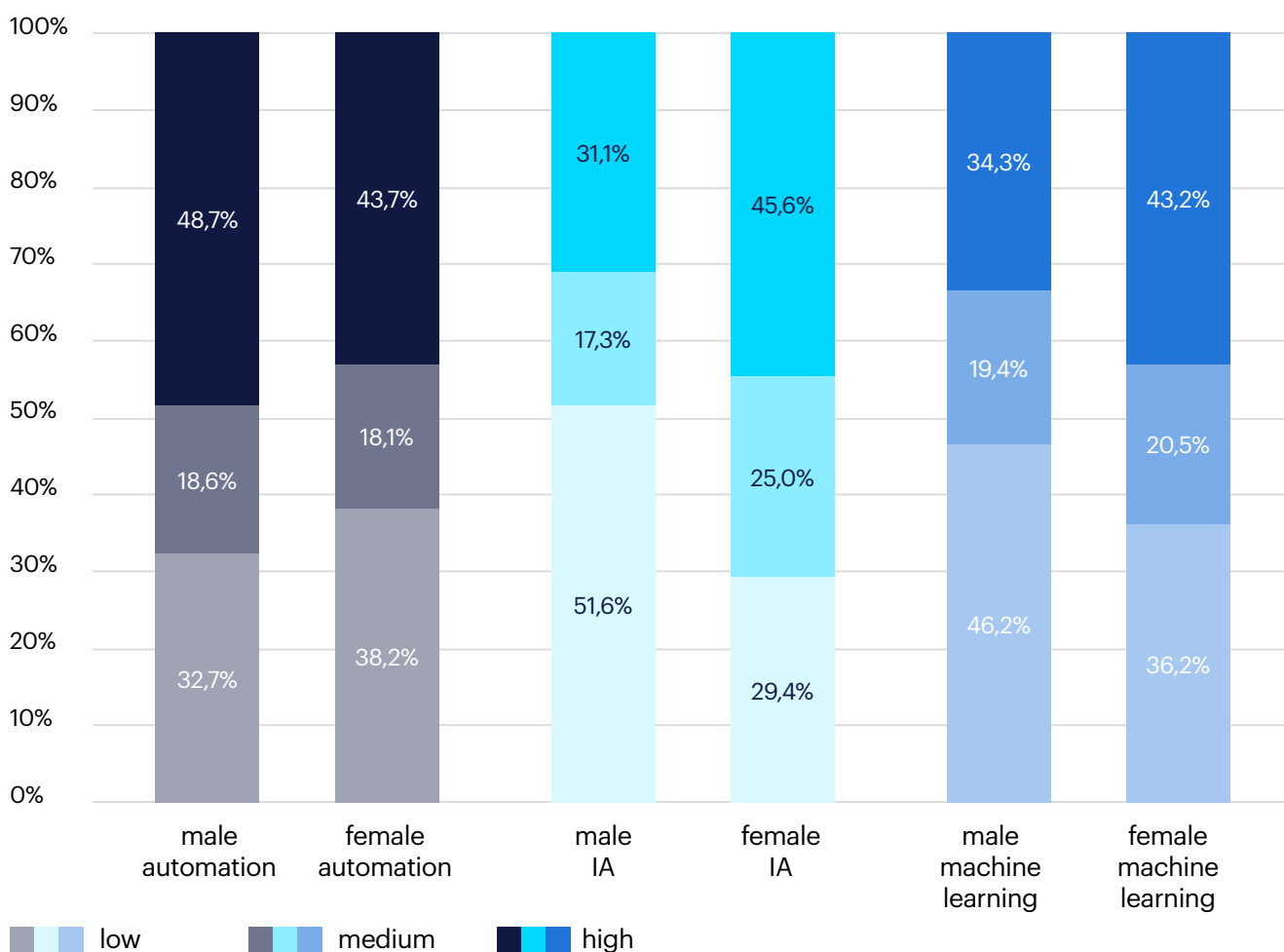
Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)
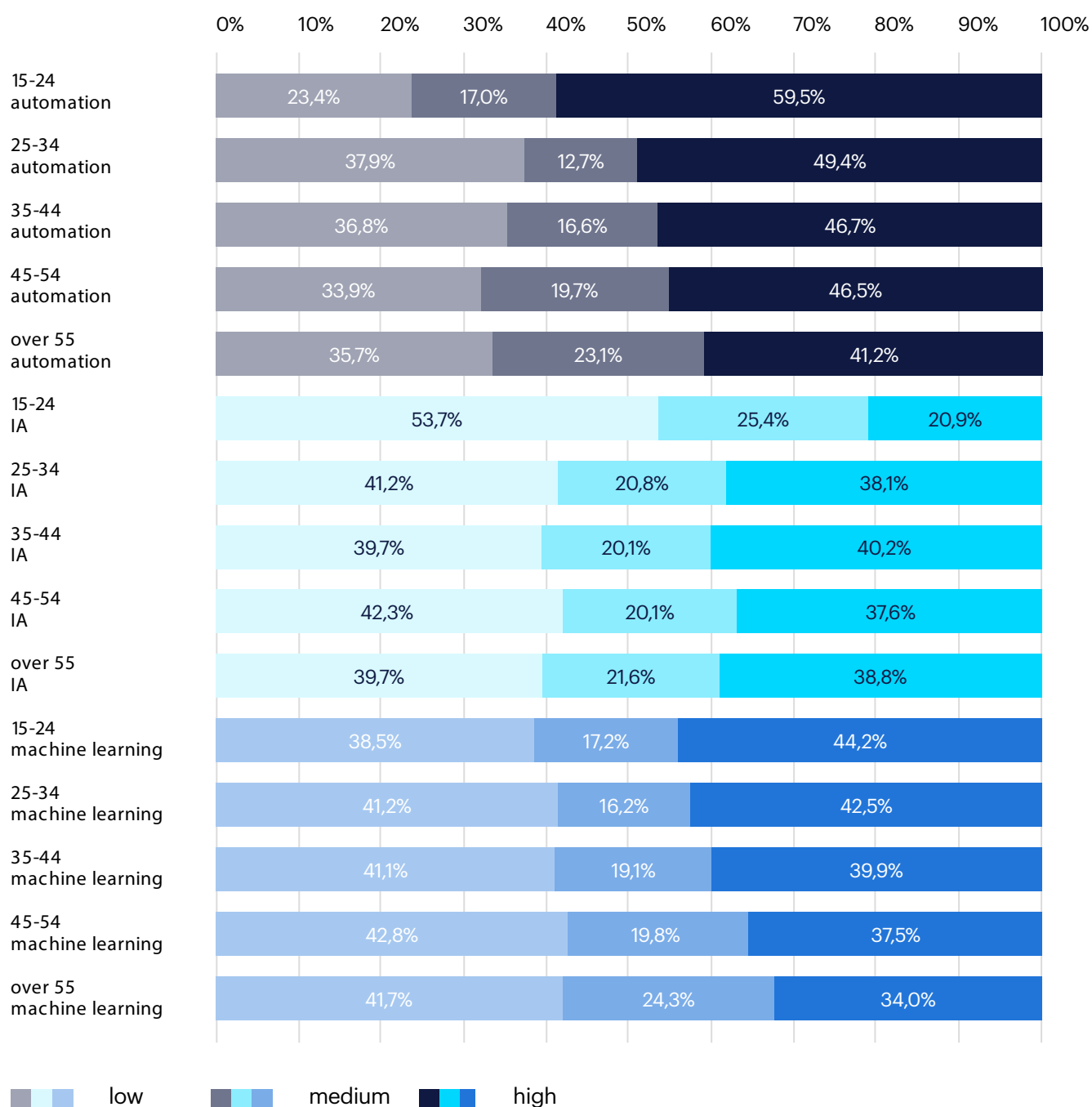
2. AGE GROUP.

For the automation risk index, it is observed that, as age increases, the percentage of highly exposed workers decreases: we go from 59.5% for the 15-24 age group to 41.2% for the over 55 age group. At the same time, however, the over 55s have the highest average impact, equal to 23.1%, compared to the 15-24 age group with a value of 17%. The ML exposure index presents a situation similar to the previous one with more contained differences: in fact, the sum between the medium and highly exposed remains about the same for all age groups (58-59%), but the balance between who is highly and medium exposed changes (for young people, 15-24 years, 44.2% are highly impacted against 34% of over 55s). 53.7% of young people are slightly exposed to AI. This value decreases and remains in the 40-42% range for all other age groups. This data should be read with the results presented in the next paragraph relating to the level of education. AI impacts mainly qualified jobs that require a high level of education, which explains the low level of exposure for the 15-24 age group (in which young people have not yet obtained a high level of education) and the high level of exposure for the next 25-34 age group.

GRAPH 6.

Exposure to Automation, AI, and Machine Learning on Italian Workers by Age Group.

Age Group	low	medium	high
15-24 automation	23,4%	17,0%	59,5%
25-34 automation	37,9%	12,7%	49,4%
35-44 automation	36,8%	16,6%	46,7%
45-54 automation	33,9%	19,7%	46,5%
over 55 automation	35,7%	23,1%	41,2%
15-24 IA	53,7%	25,4%	20,9%
25-34 IA	41,2%	20,8%	38,1%
35-44 IA	39,7%	20,1%	40,2%
45-54 IA	42,3%	20,1%	37,6%
over 55 IA	39,7%	21,6%	38,8%
15-24 machine learning	38,5%	17,2%	44,2%
25-34 machine learning	41,2%	16,2%	42,5%
35-44 machine learning	41,1%	19,1%	39,9%
45-54 machine learning	42,8%	19,8%	37,5%
over 55 machine learning	41,7%	24,3%	34,0%

low   medium   high

Source: Randstad Research elaborations on data from the Labor Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)

3.   EDUCATION QUALIFICATION.

As the level of education increases, the percentage of workers highly exposed to the risk of automation decreases. Occupied individuals with compulsory school education have a high impact percentage of 58.5% compared to 21.9% of graduates. The situation is completely opposite if we consider exposure to AI: while among those with compulsory school only 8.9% are highly exposed, for those with a degree this value rises to 69.8%. According to the ML index, those with a diploma have the highest probability of exposure (47.3%).

GRAPH 7.
Exposure to automation, AI, and Machine Learning among Italian workers by educational qualification.
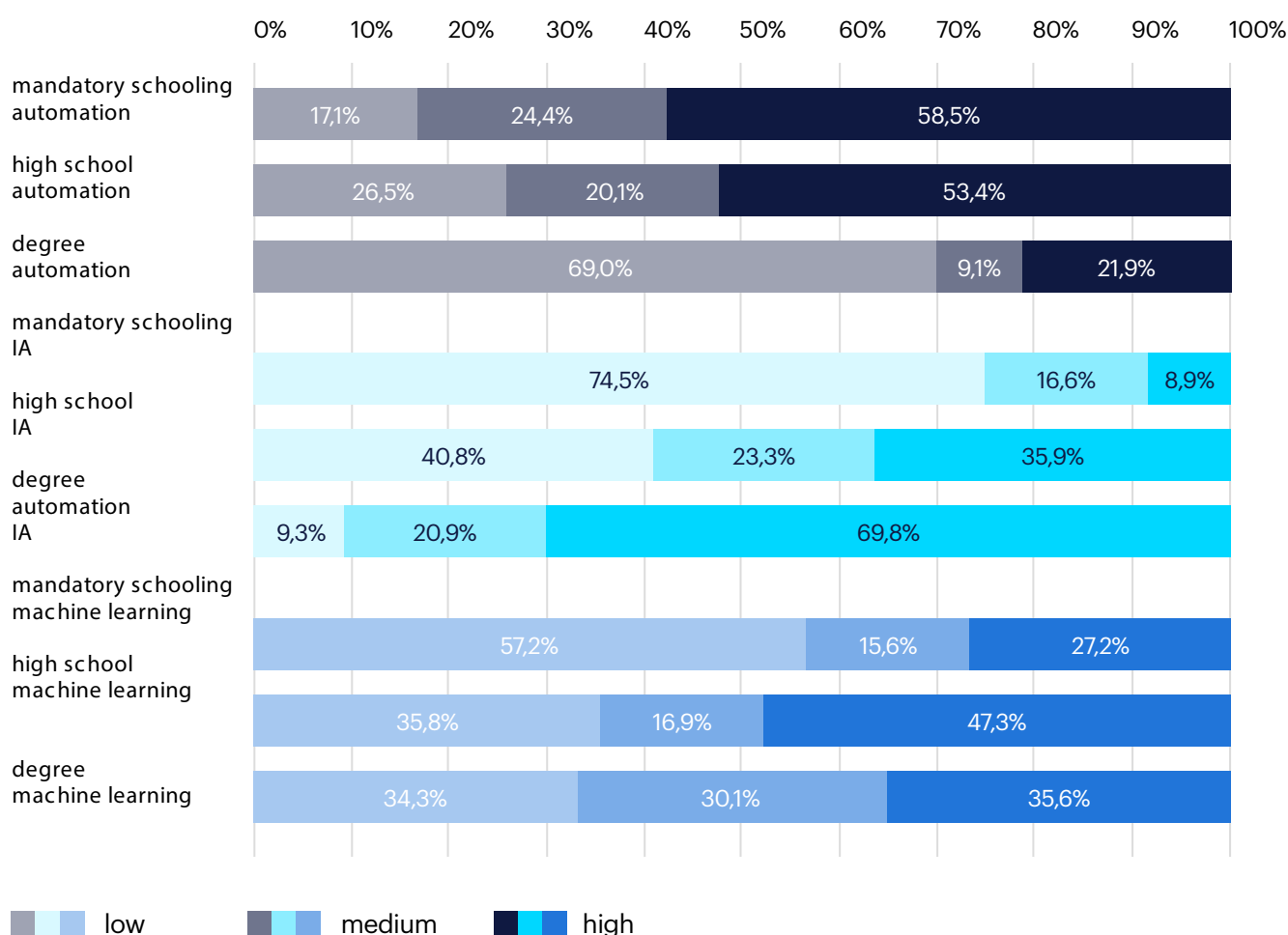
Source: Randstad Research elaborations on data from Labour Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)
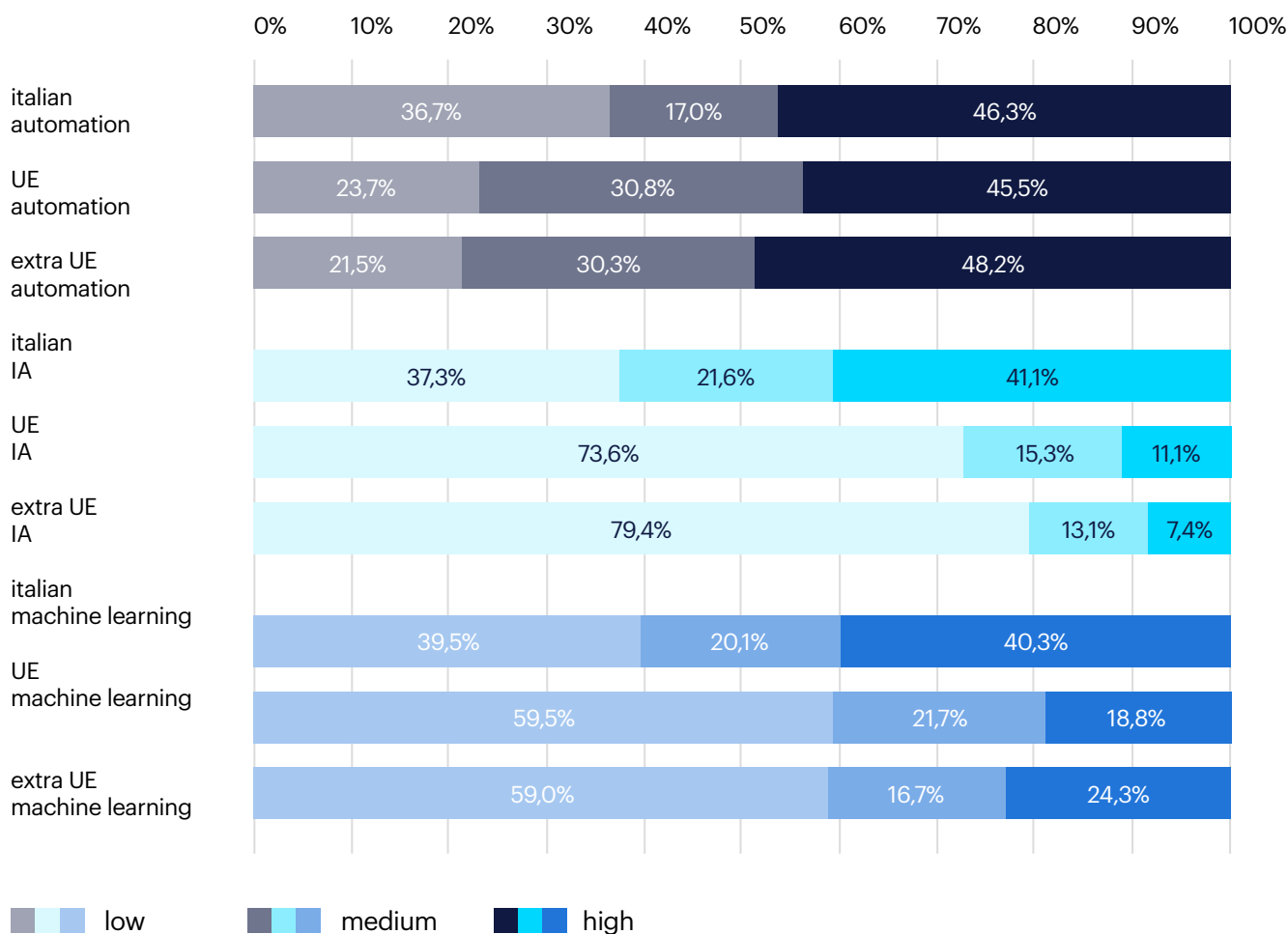
4. CITIZENSHIP.

The automation exposure index impacts similarly on EU and non-EU foreign workers, with a medium-high impact percentage of 76.3% and 78.5% respectively. This value decreases to 63.3% for Italian workers. According to the AI exposure index, foreign workers, both EU and non-EU, are poorly exposed to AI (73.6% and 79.4%), while among Italian workers, 41.1% are considered highly exposed. The ML index presents a similar scenario with slightly higher percentages for foreigners in terms of medium and high impact.

Exposure to automation, AI, and Machine Learning among Italian workers by citizenship.

	low	medium	high
italian automation	36,7%	17,0%	46,3%
UE automation	23,7%	30,8%	45,5%
extra UE automation	21,5%	30,3%	48,2%
italian IA	37,3%	21,6%	41,1%
UE IA	73,6%	15,3%	11,1%
extra UE IA	79,4%	13,1%	7,4%
italian machine learning	39,5%	20,1%	40,3%
UE machine learning	59,5%	21,7%	18,8%
extra UE machine learning	59,0%	16,7%	24,3%

low   medium   high

Source: Randstad Research elaborations on data from Labour Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)
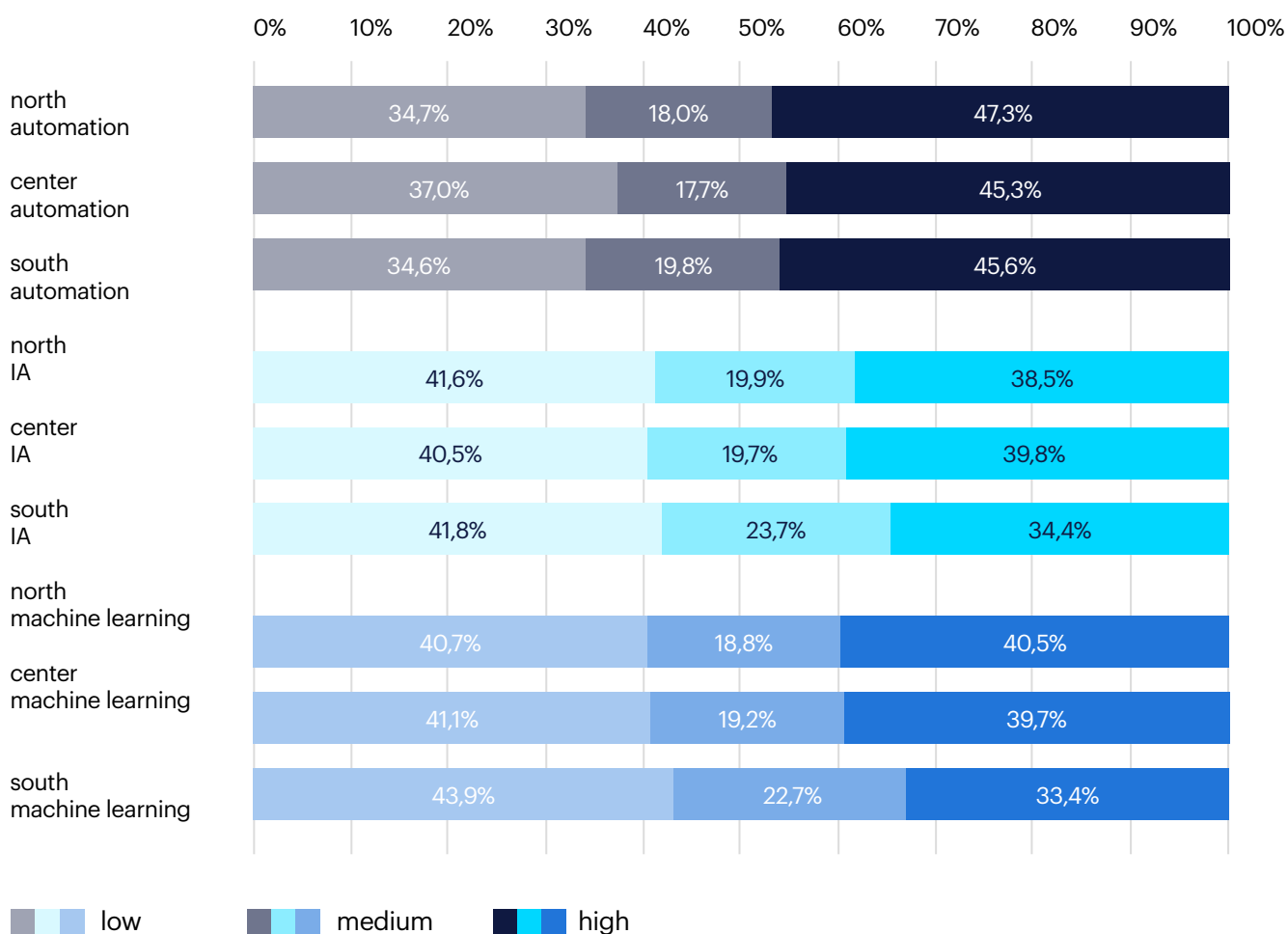
5. GEOGRAPHICAL DISTRIBUTION.

The indicator related to the risk of automation shows a substantially unchanged situation between the three geographical areas: in fact, highly exposed workers are around 45-47%, albeit with a slight prevalence in the North. The AI and ML indices show a very similar distribution: workers in the North and Center are more impacted than those in the South.

Exposure to automation, AI, and Machine Learning among Italian workers by geographical distribution.

Region	low	medium	high
north automation	34,7%	18,0%	47,3%
center automation	37,0%	17,7%	45,3%
south automation	34,6%	19,8%	45,6%
north IA	41,6%	19,9%	38,5%
center IA	40,5%	19,7%	39,8%
south IA	41,8%	23,7%	34,4%
north machine learning	40,7%	18,8%	40,5%
center machine learning	41,1%	19,2%	39,7%
south machine learning	43,9%	22,7%	33,4%

Source: Randstad Research elaborations on data from Labour Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)

6. SMART WORKING.

Analyzing working from home, we note that workers most subject to automation are those who never do smart working (48.3%). On the contrary, workers who carry out their work remotely are those most exposed to AI (82.5% for those who work at least half the time from home, 85.5% for those who do so for less than half the time, and 60.3% for those who always work remotely). A similar situation, with more balance, is seen for the Machine Learning exposure indicator, which shows greater exposure for workers who do smart working.

Chart 10. Exposure to automation, AI, and Machine Learning among Italian workers by frequency of smart working.
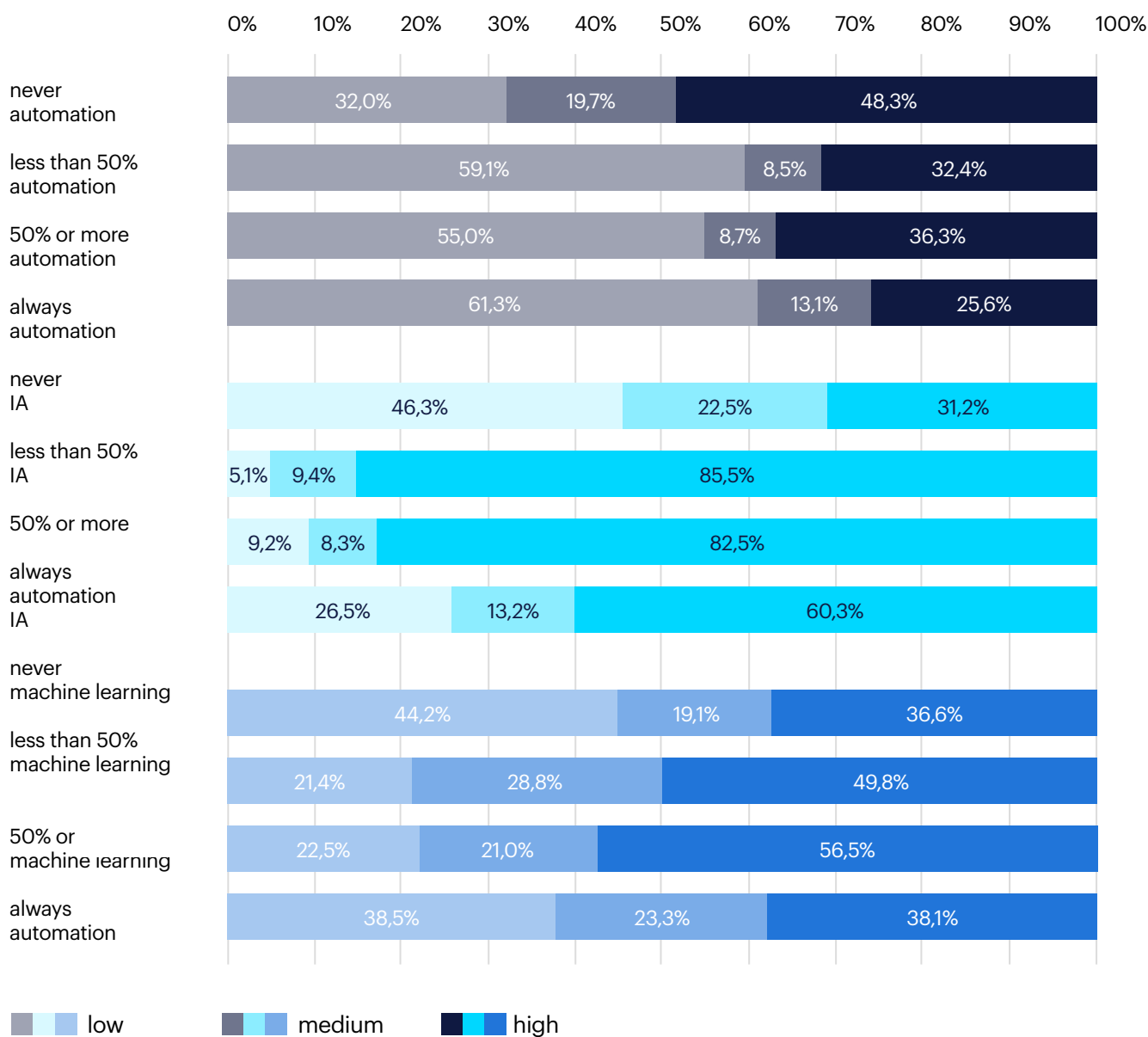
Source: Randstad Research elaborations on data from Labour Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)

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The positive correlation between AI exposure and the frequency of smart working constitutes a significant challenge for the organization of work within the company and, in particular, for human resource managers.

Many occupations are in fact affected by both the transformation of smart working, which has changed the way workers interact with

each other and organize their work, and by exposure to AI, which requires greater collaboration between humans and technology. Integrating these two major trends is not easy, also because they can lead to conflicting implications. For example, greater exposure to AI leads to greater importance being given to interpersonal interaction, which is strongly reduced by smart working.

7. SECTORS.

The sectoral analysis uses the Istat classification into 12 macro-sectors:

1. agriculture, forestry, and fishing
2. industry in the strict sense
3. construction
4. commerce
5. hotels and restaurants
6. transport and warehousing
7. information and communication services
8. financial and insurance activities
9. real estate activities, business services, and other professional and entrepreneurial activities
10. public administration and defense, compulsory social security
11. education, health, and other social services
12. other collective and personal services.

Workers most exposed to automation are those working in the construction, tourism, logistics, and financial and insurance sectors. Those least exposed work in the education and health sector and in information and communication services. The latter, along with those operating in financial and insurance activities and in real estate and business services, are considered most impacted by AI. On the contrary, those working in the agricultural and construction sectors are less impacted by AI. Professionals most subject to Machine Learning exposure work in financial and insurance activities and in commerce. Those least exposed operate in the construction sector.

GRAPH 11.
Exposure to automation, AI, and Machine Learning among Italian workers by economic sector.
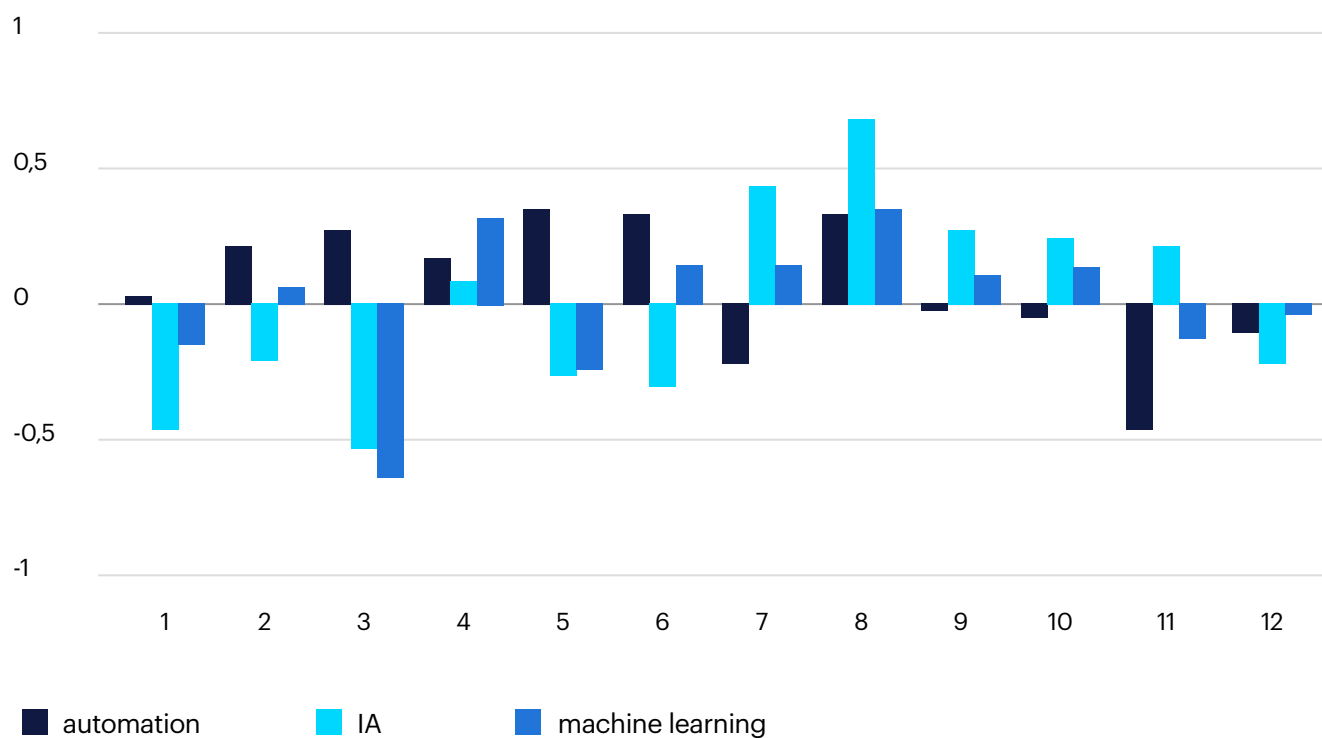
Source: Randstad Research elaborations on data from Labour Force Survey, Istat, 2022 and Frey C.B., Osborne M.A. (2017), Felten E., Raj M., Seamans R. (2021), Brynjolfsson E., Mitchell T. (2017)

05.

IDENTIKIT.

Considering the implications of the analyses presented in the previous paragraphs, we have reconstructed the identikit of workers most exposed to new technologies according to the three indicators:

The professions most exposed to automation are clerical jobs, performed by male workers, mostly young (15-24 years old), with low educational qualifications (compulsory school), with a high percentage of foreigners, who tend not to work in smart working and who operate in highly manual sectors (construction, tourism, and logistics).

According to the AI exposure index, highly exposed workers perform highly specialized professions, are women, Italian and graduates, who work mainly in the North and Center, who carry out their work in smart working (partially or always) and are employed in the information and communication services and financial and insurance activities sectors.

Those most exposed to Machine Learning are employees, predominantly female, young (15-24 years old), with a diploma, of Italian citizenship, who carry out their work in the North and Center, who do smart working (partially or always) and operate in the commerce and financial and insurance activities sectors.

06.

CONCLUDING REMARKS.

The indicators we have considered show that all occupations, both low-skilled and highly skilled, will be strongly affected by the change introduced by the developments in robotics and AI. The technological revolution and AI will therefore have a generalized and significant impact for everyone. This explains the strong concern expressed by many about the impact of AI on the labor market.

These concerns can be downsized in light of two considerations.

Firstly, it is necessary to consider the demographic dynamics. AI replaces work in a context where the availability of workers decreases considerably due to demographic decline. Istat estimates show that in 2030 the labor force will decrease by about 1.7 million, equivalent to about 6% of the current labor force. In subsequent years, these figures are destined to increase and will certainly not be compensated by migratory flows. Therefore, if AI replaces (even partially) work activities in a context of reduced labor supply, the implications could be positive in terms of overall productivity.

Secondly, it is necessary to consider that, analyzing the tasks and activities that AI tends to perform effectively, it emerges that it tends to excel in routine cognitive activities on the one hand, and will enhance many intrinsically human characteristics, the value of which it is able to increase. Critical analysis, decision-making, supervision, and interaction activities are peculiar to human activity. They will not only be enhanced by AI, but will be made available to a wider set of workers. AI will in fact allow even workers with a less elite level of education to access and process large amounts of information that were previously the preserve of only a few "experts".

# AI AND THE FUTURE OF WORK: BETWEEN INNOVATION AND AWARENESS.

The future of artificial intelligence is not written, but depends on the choices that will be made today. This is one of the key messages that emerged during the first Unconference of the Randstad AI & Humanities Foundation, which brought together experts to discuss the role of AI in the transformation of work and society. Helga Nowotny opened the debate emphasizing how AI is not just an automation engine, but a means to amplify human capabilities. The challenge is not so much preventing the impact of technology, but guiding it so that it serves society and not exclusively the market.

During the event, crucial themes were addressed:

- Innovation and narration: the adoption of AI depends not only on technological progress, but also on the ability to tell about its implications in a clear and conscious way.
- Geopolitics and governance: the global competition on AI redefines economic balances and raises questions about technological sovereignty.
- Impact on work: AI will transform the job market, automating some professions, but also creating new opportunities. The key issue is to ensure a fair transition through skills retraining.
- Data management and transparency: the control of information is a crucial point to avoid monopolistic drifts and ensure an ethical use of AI.
- Education and critical thinking: AI can improve learning, but poses new challenges on the ability to distinguish between information and manipulation.
- Role of scientific research: AI is revolutionizing the scientific method, acce-

lerating discoveries and redefining the boundarybetween man and machine.

Nowotny concluded with a fundamental reflection: AI should not be seen as an autonomous entity, but as a tool that reflects human choices. The goal is not to replace human intelligence, but to build an ecosystem in which technology is allied with human creativity and decision-making capacity. The interdisciplinary approach therefore becomes essential to address the transformation in a critical and conscious way, ensuring that the future of AI is guided by humanistic values and not only by market logics.
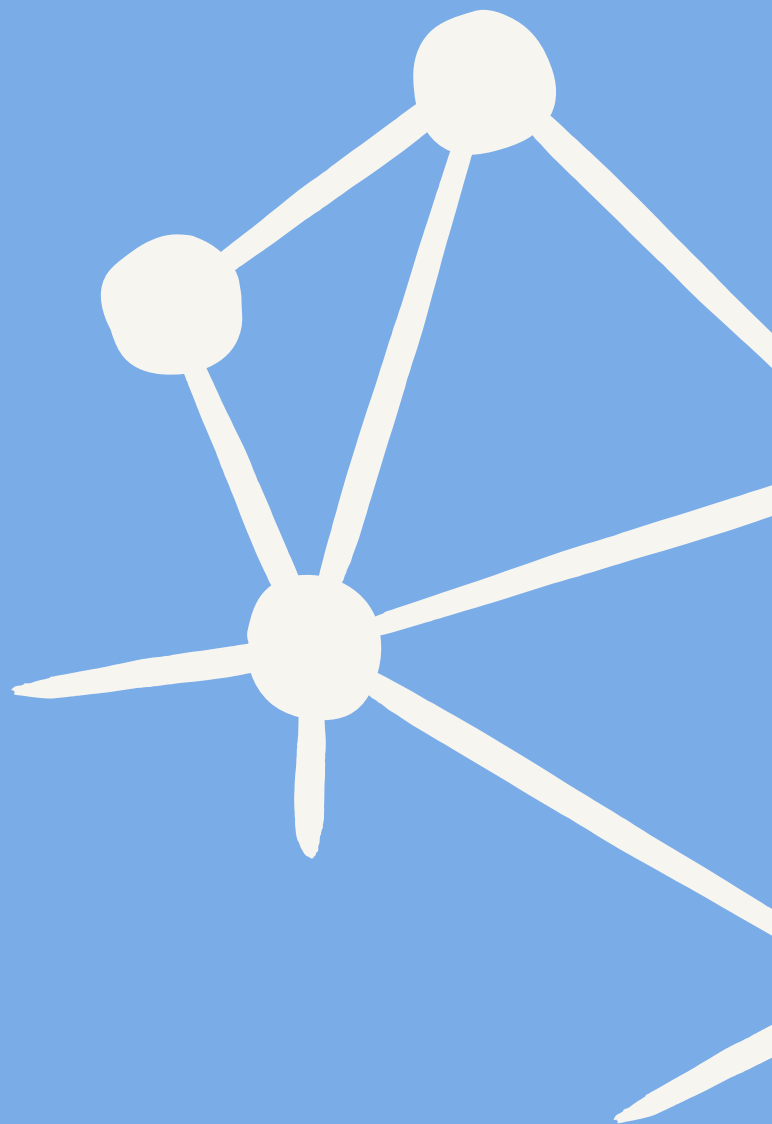
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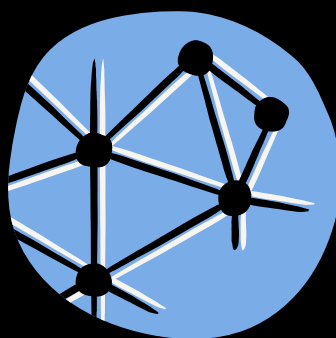
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