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GDPR-compliant AI-based automated decision-making in the world of work



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ABSTRACT

Artificial Intelligence is spreading fast in our everyday life and the world of work is no exception. AI is increasingly shaping the employment context: such emerging areas are augmented and automated decision-making. As AI-based decision-making is fuelled by personal data, compliance with data protection frameworks is inevitable. Even though automated decision-making is already addressed by the European norms on data protection – especially the GDPR –, their application in the world of work raises specific questions. The paper examines, in the light of the ‘general’ data protection background, what specific data protection challenges are raised in the field of AI-based automated decision-making in the context of employment. As a result of the research, the paper provides a detailed overview on the European legal framework on the data protection aspects of AI-based automated decision-making in the employment context. It identifies the main challenges, such as the applicability of the existing legal framework to the current use-cases and the specific questions relating to the lawful bases in the world of work, and provides guidelines on how to address these challenges.

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1. Introduction

The proliferation of Artificial Intelligence (AI) affects almost every aspect of our everyday lives – and the world of work is no exception. The growing use of algorithms and AI may lead to

greater automation, which raises several burning issues in the employment context, such as whether human workforce will be replaced by robotic workforce or whether (or rather how) human employees will work together with robots (or cobots) or algorithms.² In addition, many organizations have already integrated AI-based solutions into their internal processes, for

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² For the possible cases and effects on automation in the employment context see more in: Valerio De Stefano, “Negotiating the Algorithm”: Automation, Artificial Intelligence, and Labor Protection’ (2019) 41 Comp Lab L & Pol’y J 15

example to collect, synthesize and analyse large amounts of employee data,³ therefore, it is particularly important to examine the legal framework under which they can undertake these actions. Our starting point is that AI is in fact a method for implementing efficient algorithms for a variety of complex problems. These algorithms can be used to develop software capable of automated decision-making, which can run in different hardware environments depending on their application (e.g. mobile phones, access control systems, tender evaluation systems, etc.). The possible application of AI can range⁴ from digital surveillance,⁵ through platform work,⁶ to using AI during work (e.g. digital voice assistants,⁷ financial fraud detection⁸) – just to mention a few examples. Decision-making processes as well are increasingly subject to automation and augmentation. Amongst the above mentioned areas where automation might play a greater role in the employment context, we focus on AI-based decision-making. Although our paper focuses on the examination of the challenges arising in connection with automated decision-making, for the sake of completeness it is necessary to mention that the use of such decision-making systems can also have several advantages. If employed correctly, such systems might have the potential to enhance effectiveness and decision quality,⁹ since they may eliminate human error or make decision-making mechanisms faster.¹⁰ Due to the changes brought by digitalization transforming recruitment as well, the use of AI in different stages of recruitment can be beneficial (if not inevitable) for companies.¹¹

In this paper, we consider automated decision-making as a (computational) process, including AI techniques and ap-

proaches, which, fed by inputs and data received or collected from the environment, can generate, given a set of predefined objectives, outputs in a wide variety of forms (content, ratings, recommendations, decisions, predictions, etc.).¹² According to our view, the concept of automated decision-making includes not only general algorithmic decision-making but AI-driven solutions as well.

In this study, we focus exclusively on automated individual decision-making, and do not cover profiling.¹³ Also, we focus on the traditional employment contracts, and do not address platform work in detail.¹⁴ After addressing how AI-based automated decision-making might be applied in the employment context, its legal background will be examined. We especially focus on data protection and on the AI legal framework, since the whole functioning of the system is based on the processing of employees' personal data, and the fundamental rights most affected by automated data processing and algorithms are the right to privacy and the right to data protection as AI-based algorithms are able to process vast amounts of (personal) data.¹⁵ Even though the paper mainly focuses on the EU's data protection framework, it is not the only area affected by the application of AI-based automated decision-making in the employment context. For example, anti-discrimination is subject to detailed regulation¹⁶ and several examples have shown that algorithmic discrimination can be associated with automated decision-making.¹⁷

³ Manuel F. Gonzalez and others, 'Allying with AI? Reactions toward human-based, AI/ML-based, and augmented hiring processes' (2022) 130 *Computers in Human Behavior*, 1-2

⁴ Sumit Das and others, 'Applications of Artificial Intelligence in Machine Learning: Review and Prospect' (2015) 115(9) *International Journal of Computer Applications*, 31

⁵ Antonio Aloisi and Elena Gramano, 'Artificial Intelligence Is Watching You at Work: Digital Surveillance, Employee Monitoring, and Regulatory Issues in the EU Context' (2019) 41 *Comparative Labor Law & Policy Journal* 104

⁶ European Institute for Gender Equality, 'Artificial intelligence, platform work and gender equality' (2021) 16

⁷ Katja Wagner and Hanna Schramm-Klein, 'Alexa, Are You Human? Investigating Anthropomorphism of Digital Voice Assistants – A Qualitative Approach' (2019) 7, *ICIS 2019 Proceedings* <https://aisel.aisnet.org/icis2019/human_computer_interact/human_computer_interact/7> accessed 20 December 2023

⁸ Yang Bao, Gilles Hilary and Bin Ke, 'Artificial Intelligence and Fraud Detection' in Babich, V., Birge, J.R., Hilary, G. (eds), *Innovative Technology at the Interface of Finance and Operations*. Springer Series in Supply Chain Management, 11. (Springer, Cham 2022)

⁹ Markus Langer, Cornelius J. König and Vivien Busch, 'Changing the means of managerial work: effects of automated decision support systems on personnel selection tasks' (2021) 36 *Journal of Business and Psychology* 753

¹⁰ Article 29 Working Party, 'Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679' (wp251rev.01, 6 February 2018) <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

¹¹ J. Stewart Black, Patrick van Esch, 'AI-enabled recruiting: What is it and how should a manager use it?' (2020) 63 *Business Horizons* 216

¹² European Law Institute, 'Innovation Paper: Guiding Principles for Automated Decision-Making in the EU' (2022) 8

¹³ More information on the interconnection of profiling and automated decision-making can be found here: Klaus Wiedemann, 'Profiling and (automated) decision-making under the GDPR: A two-step approach' (2022) 45 *Computer Law & Security Review* 105662

¹⁴ Although the data protection questions examined in this study applies, *mutatis mutandis*, for platform work, platform work raises the challenges of automated decision-making with different intensity, since algorithms (and their decisions) are inevitable and play a prominent role in essentially all phases of platform work. The study focuses on the presentation of data protection questions, as present space limitations prohibit a detailed descriptive account of platform work and its specific characteristics.

¹⁵ Council of Europe – Committee of experts on internet intermediaries (MSI-NET) 'Algorithms and human rights – Study on the human rights dimensions of automated data processing techniques and possible regulatory implications' DGI(2017)12. March 2018, 12 <<https://rm.coe.int/algorithms-and-human-rights-en-rev/16807956b5>> accessed 07 December 2022

¹⁶ See, for example, Title III of the Charter of Fundamental Rights of the European Union [2012] OJ C 326/391; Chapter I of the Communication from the Commission COM(2017) 250 final Establishing a European Pillar of Social Rights [2017]; Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation [2000] OJ L 303/16

¹⁷ Even though algorithms – unlike humans – are not biased, it should not be forgotten that algorithms are programmed by humans. Thus, bias can be introduced to the system either intentionally or unintentionally. Frederik Zuiderveen Borgesius, 'Discrimination, artificial intelligence, and algorithmic decision-making' (Council of Europe, 2018) 15 <<https://rm.coe.int/discrimination-artificial-intelligence-and-algorithmic-decision-making/1680925d73>> accessed 12 December 2022

Occupational safety and health¹⁸ should also be mentioned, in which field the application of automated decisions can also have important consequences on employees' rights.¹⁹ The information and consultation of social partners can also play an important role when it comes to social partners contributing to the protection of employees' rights.²⁰ An example includes the right to information and consultation of social partners regarding the introduction of a new technology (e.g. AI).²¹ Although its detailed analysis would go beyond the scope of the present work, it is worth noting that the proposed directive on improving working conditions in platform work explicitly deals with the question of algorithmic management.²²

Even though automated decision-making is already regulated in Article 22 of the General Data Protection Regulation of the European Union (GDPR),²³ several questions arise when such decision-making is applied in the specific context of employment. The aim of our paper is to address these questions and to explore the opportunities for the application of AI-based automated decision-making in the world of employment. The paper's main contribution to the academic discussion is that even though automated decision-making has been addressed from a data protection point of view,²⁴ to the best of our knowledge, there has not been much legal analysis on the topic with special regard to the world of work. Therefore, our research method is to combine legal insights from privacy and data protection law with labour law. The two research questions that the paper aims to explore are the following. First, in the light of the 'general' data protection background, what

are the specific data protection challenges raised in the field of algorithmic/automated decision-making in the context of employment. Second, what possible answers can be given to those challenges.

As a result of the research, the paper provides a critical analysis of the European legal framework on the data protection aspects of AI-based automated decision-making in the employment context. Even though the legal analysis focuses on EU legislation, it may also be relevant for those outside of Europe if they process EU employees' personal data. Also, as our paper clarifies the permitted cases of automated decision-making, it can be helpful for employers in contributing to lawfully conducting such processing, as well as for employees in raising their awareness regarding their right to data protection in this specific field.

In doing so, in [Section 2](#), we discuss questions related to the employment context. This section examines how AI-based automated decision-making can be applied in the employment relationship and how decision-making in this field is challenged by AI. [Section 3](#) examines the legal provisions on (AI-based) automated decision-making, with special regard to data protection and the legal framework regulating AI. More precisely, it focuses on the European legal order and addresses the European Union's GDPR and the proposed AI Act. The research is conducted using a desk-based legal analysis of relevant literature and legal documents on AI and automated decision-making in the employment context.

2. Automated individual decision-making in the employment context

Before moving on to the analysis of the legal questions, it is worth reviewing the areas in which AI is present in the employment context. Even though it is impossible to list all the already used AI applications, AI-based decision-making is already used in the context of employment²⁵ and is expected to become even more widespread in the future.²⁶

Employer decision-making naturally permeates the whole course (conclusion, fulfillment and termination) of the employment relationship ranging from hiring decisions, through determining Christmas bonuses, to allocating tasks. Nowadays, these decisions are increasingly made not only by humans, but by humans assisted with augmented or automated decision-making.²⁷ In the case of augmented decision-making

¹⁸ Regulated especially by Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work [1989] OJ L 183/1. See also in Article 31 of the Charter of Fundamental Rights; Principle 10 of the European Pillar of Social Rights.

¹⁹ For example, the safety of the human workforce could be questioned if the algorithm allocating tasks to employees dictates a work pace not sufficiently considering the physical needs of humans.

²⁰ Guaranteed by Article 27 of the Charter of Fundamental Rights, Principle 8 of the European Pillar of Social Rights. The detailed rules are to be found in Directive 2002/14/EC of the European Parliament and of the Council of 11 March 2002 establishing a general framework for informing and consulting employees in the European Community [2002] OJ L 80/29.

²¹ Article 4. point 2. item (c) of Directive 2022/14/EC explicitly covers 'information and consultation on decisions likely to lead to substantial changes in work organisation or in contractual relations'.

²² See the Proposal for a Directive of the European Parliament and of the Council on improving working conditions in platform work COM(2021) 762 final [2021]. The Proposed Directive regulates the transparency of such systems (Article 6), human monitoring and review (Articles 7-8) and information and consultation of platform workers' representatives (Article 9).

²³ Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L119/1

²⁴ For example, see more in: Klaus Wiedemann, 'Profiling and (automated) decision-making under the GDPR: A two-step approach' (2022) 45 *Computer Law & Security Review* 105662; Aurelia Tamò-Larrieux, 'Decision-making by machines: Is the "Law of Everything" enough?' (2021) 41 *Computer Law & Security Review* 105541

²⁵ An EU study written by De Stefano and Wouters conducted in this subject lists numerous examples of already applied AI systems. Valerio De Stefano and Mathias Wouters, 'AI and Digital Tools in Workplace Management and Evaluation. An Assessment of the EU's Legal Framework' (STOA, PE 729.516, May 2022) <[https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU\(2022\)729516_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU(2022)729516_EN.pdf)> accessed 28 November 2022

²⁶ Valerio De Stefano and Mathias Wouters, 'AI and Digital Tools in Workplace Management and Evaluation. An Assessment of the EU's Legal Framework' (STOA, PE 729.516, May 2022) 5 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU\(2022\)729516_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU(2022)729516_EN.pdf)> accessed 28 November 2022

²⁷ According to Davenport and Kirby, the same technologies can be used to augment or automate the decision-making, but the

the human decision-maker has an active role in the process, the augmented system supports the decision-making, while in the case of automation, the human decision-maker is replaced and does not have a role in the process.²⁸ Even though '[f]ully automated decision-making by any form of AI does not seem to be prevalent for now',²⁹ it is crucial to address the phenomenon as the application of AI-based decision-making is increasing throughout the whole existence of the employment relationship.

2.1. Application of automated decision-making

Regarding the conclusion of the employment relationship, AI can be used to advertise job opportunities, to narrow down the pool of applicants by eliminating less-qualified applicants from consideration, to assist human recruiters by keeping in touch with applicants, scheduling interviews, or even conducting the interviews.³⁰ Existing examples include, for example, Vera or Tengai. Vera finds suitable resumes online, calls candidates and conducts interviews (by voice or by video).³¹ Tengai is an AI assistant developed to objectively screen candidates and delivers structured data, which makes it possible to identify candidates with the right competencies. Tengai is also able to conduct online interviews.³²

Regarding the fulfillment of the employment relationship, algorithmic management is more and more often applied. Algorithmic management can be understood as 'the large-scale collection and use of data on a platform to develop and improve learning algorithms that carry out coordination and control functions traditionally performed by man-

agers'.³³ It can contribute to several processes of work organization, such as assignment of tasks, employee evaluation or termination of legal relationships. Throughout such tasks, these systems measure and manage employees, collect and evaluate tremendous data, which later on might be used in decision-making.³⁴ Wearables can be mentioned as an example: wearable technology 'is a term that encompasses accessories and garments created or enhanced using electronics' which 'provid[es] instant performance and environment feedback as well as aid in various tasks'.³⁵ They can be (and often are) used for measuring and tracking employees with the aim to improve organizational performance. Based on the obtained data, decisions can be made regarding work schedules, task allocation or promotions.³⁶ Algorithmic management is extremely often used in the case of platform work: it forms the fundamental core of platform work, as the whole system is based on the use of algorithms: through the platform algorithms assign tasks, monitor workers' performance, give instructions, payment, etc. Besides platforms, algorithmic management is increasingly spreading in traditional employment relationships as well.³⁷

Regarding the termination of the employment relationship, disciplinary legal consequences – and amongst them termination of the employment – might be applied by involving an algorithm in the decision-making process. For example, Amazon uses an app with its contract workers (drivers), which can terminate workers' employment relationship if they do not meet delivery quotas also determined by AI.³⁸ In the field of platform work, 'deactivation' of the worker's profile can be mentioned as a possible disciplinary consequence, triggered by algorithmically determined workers' ratings, taking into

mindset behind these approaches are "180 degree apart". As long as augmentation has a focus on human-machine co-operation, the algorithm substitutes an employee to overcome its limitations and shortcomings in case of automation. See Thomas H. Davenport and Julia Kirby, 'Only Humans Need Apply: Winners & Losers in the Age of Smart Machines' (Harper Business, New York, 2016)

²⁸ Michael Leyer, Sabrina Schneider 'Decision augmentation and automation with artificial intelligence: Threat or opportunity for managers?' (2021) 64 Business Horizons 715

²⁹ *ibid* 18. The International Labour Organisation (ILO) is at a similar standpoint: according to the organization, it can be highly questioned whether it is technologically possible at present to create a fully autonomous AI system, as such strong AI only exists in science fiction. Source: Sara Baiocco and others, 'The Algorithmic Management of Work and Its Implications in Different Contexts' (International Labour Organization and European Commission Background paper n 9, June 2022). 6. <https://www.ilo.org/wcmsp5/groups/public/—ed_emp/documents/publication/wcms_849220.pdf> accessed 28 November 2022

³⁰ Melanie Johnson, '7 effective uses of AI in recruitment' (Unleash, 30 March 2022) <<https://www.unleash.ai/artificial-intelligence/7-effective-uses-of-ai-in-recruitment/>> accessed 30 November 2022

³¹ Peter Holley, 'Want to work for Ikea? Your next job interview could be conducted by a Russian robot' (The Washington Post, 25 April 2018) <<https://www.washingtonpost.com/news/innovations/wp/2018/04/25/want-to-work-for-ikea-your-next-job-interview-could-be-conducted-by-a-russian-robot/>> accessed 30 November 2022

³² 'Unbiased hiring' (Tengai) <<https://tengai.io/unbiased-hiring/>> accessed 30 November 2022

³³ Alexander Benlian and others, 'Algorithmic Management – Bright and Dark Sides, Practical Implications, and Research Opportunities' (2022) 64 Business & Information Systems Engineering 825, 825. citing Mareike Möhlmann, Lior Zalmanson, Ola Henfridsson, and Robert Wayne Gregory, 'Algorithmic management of work on online labor platforms: when matching meets control' (2021) 45 MIS Quarterly 1999, 2001

³⁴ Andrew McAfee and Erik Brynjolfsson, 'Big Data: The Management Revolution' (Harvard Business Review, October 2012) <<https://hbr.org/2012/10/big-data-the-management-revolution>> accessed 30 November 2022

³⁵ Kateryna Maltseva, 'Wearables in the Workplace: The Brave New World of Employee Engagement' (2020) 63 Business Horizons 494

³⁶ *ibid*

³⁷ Sara Baiocco and Enrique Fernandez-Macías and Uma Rani and Annarosa Pesole, 'The Algorithmic Management of Work and Its Implications in Different Contexts' (International Labour Organization and European Commission Background paper n 9, June 2022) 5, 8 <https://www.ilo.org/wcmsp5/groups/public/—ed_emp/documents/publication/wcms_849220.pdf> accessed 28 November 2022

³⁸ Jessa Crispin, 'Welcome to dystopia: getting fired from your job as an Amazon worker by an app' (The Guardian, 5 July 2021) <<https://www.theguardian.com/commentisfree/2021/jul/05/amazon-worker-fired-app-dystopia>> accessed 30 November 2022. The system is highly criticized as it lacks human oversight, gives no chance to appeal the decision, contains many errors, and punishes workers for circumstances beyond their control (e.g. traffic conditions).

consideration many aspects of the performed work, such as accepting or rejecting ‘gigs’ or user ratings.^{39,40}

2.2. Labour law and automated decision-making

As AI-supported decision-making will likely become more common in the employment relationship, it is necessary to examine the (labour) law background of such decisions. As a starting point, it should be noted that the employment relationship is usually based on dependency, subordination, authority, direction, supervision and control.⁴¹ Consequently, these employer ‘prerogatives’ manifest in the employer’s right to make decisions, as it is impossible to exercise these powers without making decisions. However, the employer’s powers are not without limits: during the exercise of these prerogatives, the employer shall respect the employees’ rights (e.g. right to privacy or right to data protection).

Even though employer decision-making in itself existed before AI as well, the increased use of AI raises the question of the protection of employees’ rights with different intensity, as there are fundamental differences between human decision-making and AI-supported automated decision-making – as some of them were already mentioned above. Both AI and human made decisions have powerful assets: while AI is equipped with better analytical skills, humans have intuition which makes them more capable to deal with uncertainty. For this reason *Jarrahi* advances an approach, where AI- and human-based decision-making should complement each other (instead of replacing) and collaborate utilizing their comparative advantages.⁴² AI-based solutions can also have different impacts on managers depending on which phase of the decision-making they are introduced to.⁴³

AI-based automated decision-making seems to be in an inherent conflict with data protection: whereas these decisions usually require a large amount of personal data, data

protection principles, such as data minimization try to reduce the amount of personal data being processed.⁴⁴ For example, AI is fuelled by personal data, and it allows the monitoring of employees and the collection and processing of their personal data to an extent unthinkable in the past.⁴⁵ AI-powered decision-making needs much more data than humans, thus its application might lead to increased employee monitoring. Also, such increased monitoring (and as a result: decision-making) will concern both blue-collar and white-collar employees.⁴⁶ In addition, as they are machines, it is highly likely that they will treat humans like machines as well: automated systems lack human empathy and cannot make subjective decisions based on the consideration of the employees’ individual (or personal) circumstances.^{47,48} For the above reasons, it is argued that AI causes a shift of paradigm and magnifies the employer’s rights, notably the power of decision-making, to the detriment of employee rights.⁴⁹

3. Existing legal frameworks in Europe for data protection and automated decision-making in the context of employment

There already exists a European legal framework which is applicable to automated decision-making in the employment context. These norms either have a general scope and are applicable to data processing in all fields - including employment as well -, or specifically regulate data protection in the world of work. Even though, due to space limitations, the paper restricted its scope to the detailed examination of the EU’s legal order, before its analysis, other international frameworks shall briefly be addressed.

It is important to mention the role of the Council of Europe (CoE) in shaping the regulation of automated decision-making. In Article 9 of the modernized Convention 108+ of the CoE, the rights of data subjects are included. If these provisions are applied in the context of an employment relationship, it is essential that an employee who may be subject to

³⁹ International Labour Organisation, ‘World Employment and Social Outlook 2021’ (Executive Summary, 2021) 7 <https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/publication/wcms_771672.pdf> accessed 30 November 2022

⁴⁰ On European cases issued by courts and by data protection authorities on workplace-related automated decision-making and their possible infringement of European data protection law, see the report written by Christina Hießl. These cases include for example shift allocations (Bologna Civil Court, 2020), performance recording (Hanover Administrative Court, 2023), task allocation (Italian Data Protection Authority, 2021) or account deactivation (Amsterdam Civil Court, 2021). See Christina Hießl, ‘Jurisprudence of national courts in Europe on algorithmic management at the workplace’ (2022, revised in 2023) European Centre of Expertise in the field of labour law, employment and labour market policies (ECE)

⁴¹ ‘The employment relationship. Report V(1)’ (International Labour Conference, 95th Session, International Labour Office, Geneva, 2005) 20, 21

⁴² Mohammad Hossein Jarrahi, ‘Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making’ (2018) 61 *Business Horizons* 584

⁴³ Markus Langer, Cornelius J. König and Vivien Busch, ‘Changing the means of managerial work: effects of automated decision support systems on personnel selection tasks’ (2021) 36 *Journal of Business and Psychology* 753

⁴⁴ Isabel Ebert, Isabelle Wildhaber and Jeremias Adams-Prassl, ‘Big Data in the workplace: Privacy Due Diligence as a human rights-based approach to employee privacy protection’ (2021) *Big Data & Society* 3

⁴⁵ Valerio De Stefano, ‘“Negotiating the Algorithm”: Automation, Artificial Intelligence, and Labor Protection’ (2019) 41 *Comp Lab L & Pol’y J* 23

⁴⁶ *ibid.*, 24-25

⁴⁷ For example, in the field of performance monitoring the machine – which never gets tired or sick – only focuses on performance and is not capable of understanding certain ‘very human’ conditions (e.g. sickness, exhaustion, personal events such as the death of a close one), which understandably influences work efficiency and which might have received empathy from a human supervisor.

⁴⁸ Also, while human supervisors naturally forget certain minor events that occurred in the past or a minor incident might even escape their attention, in contrast, AI systems do not make mistakes or forget an event occurring in the workplace.

⁴⁹ Valerio De Stefano, ‘“Masters and Servants”: Collective Labour Rights and Private Government in the Contemporary World of Work’ (SSRN, 21 Oct 2020) 2 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3675082> accessed 30 November 2022

a purely automated decision has the right to challenge such a decision by putting forward his or her point of view and arguments in a meaningful manner. According to the CoE, legislation should provide an effective and predictable system of oversight that can remedy human rights violations.⁵⁰ The employee as a data subject should also be entitled to know the reasoning underlying the processing of data, which led to any resulting conclusions, especially in cases involving the use of algorithms for automated decision-making. To achieve this goal, public awareness and public debate are crucial. The CoE proposed to use all available means to inform and engage the public, so that users can understand and critically deal with the logic and functioning of algorithms.⁵¹ In addition to Convention 108+, it should be mentioned that the CoE also has a sectoral approach towards employee data protection – which is manifested in the 2015 Recommendation on the processing of personal data in the context of employment.⁵² The Recommendation states that '[a]n employee should not be subject to a decision significantly affecting him or her, based solely on an automated processing of data without having his or her views taken into consideration.'^{53,54}

As mentioned above, automated decision-making involves the processing of large amounts of personal data and as a result, the final outcome about employees is achieved without human intervention, using technology alone. Therefore, these processing operations can have a significant impact on

the privacy of the employees, they may thus affect their social status, employment and, where appropriate, their decisions. Therefore, automated decision-making and the provisions regarding its data protection compliance are covered by the GDPR.⁵⁵

3.1. Automated individual decision-making under the GDPR

The GDPR is applied uniformly in all EU Member States from 25 May 2018, and as Goodman and Flaxman stated, it does not direct the law of EU Member States, it simply is the law for them.⁵⁶ One of the main aims of the GDPR is not only to address the challenges posed by new technologies, but also to shape the development of information technologies as much as possible and 'to tame'⁵⁷ the potentially harmful impact of algorithms on the rights and freedoms of individuals. Employees can rely on the GDPR as it governs data processing arising in connection with the world of work as well, with Article 88 providing the opportunity to adopt more precisely established rules at the member state level in the context of employment.

Relevant to our topic is Article 22 of the GDPR, paragraph 1 of which states that the data subject (the employee) has the right not to be subject to a decision based solely on automated processing, including profiling.⁵⁸ However, this prohibition only applies where the processing produces legal effects concerning the employee or similarly significantly affects him or her.⁵⁹

According to the Article 29 Data Protection Working Party (WP29),⁶⁰ only serious impactful effects will be covered by Article 22 (1). One of the conditions for the prohibition is that it must have a legal effect on the data subject.^{61,62} The GDPR

⁵⁰ Council of Europe Convention 108+. Convention for the protection of individuals with regard to the processing of personal data (adopted on 18 May 2018, opened for signature on 25 June 2018) Commentary to Article 9 Littera a) para. 75 <<https://rm.coe.int/convention-108-convention-for-the-protection-of-individuals-with-regard/16808b36f1>> accessed 05 December 2022

⁵¹ *ibid* Commentary to Article 9 Littera c) para. 77

⁵² Its antecedent, the Recommendation No. R (89) 2 of the Committee of Ministers to Member States on the Protection of Personal Data Used for Employment Purposes (1989) did not explicitly address automated decisions.

⁵³ Committee of Ministers, 'Recommendation on the processing of personal data in the context of employment' (Council of Europe, CM/Rec(2015)5, April 2015) Article 11.4.

⁵⁴ Besides the European approach, the ILO shall also be mentioned: the ILO's code of practice on the protection of workers' personal data (1997) – even despite the lack of its binding force – is a centerpiece of international instruments on employee data protection, highlighting the importance of the sectoral regulation of data processing in the employment context and containing internationally acceptable solutions in this field. [Frank Hendrickx, 'Protection of workers' personal data: General principles' (ILO Working Paper 62, May 2022) 12 <https://www.ilo.org/wcmsp5/groups/public/—ed_protect/—protrav/—travail/documents/publication/wcms_844343.pdf> accessed 30 November 2022; Spiros Simitis, 'Reconsidering the Premises of Labour Law: Prolegomena to an EU Regulation on the Protection of Employees' Personal Data' (1999) 5 *European Law Journal* 45, 50.] Among the general principles Article 5.5 of the code of practice stated that '[d]ecisions concerning a worker should not be based solely on the automated processing of that worker's personal data.' Back when the code of practice was adopted, AI was still far from its general application that can be experienced nowadays, still the ILO rejected a purely mechanical decision-making process and argued that such solely automated decision-making processes should be auxiliary means for the employer, in order to enforce employees' right to a due process.

⁵⁵ Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L119/1.

⁵⁶ Bryce Goodman and Seth Flaxman, 'European Union Regulations on Algorithmic Decision Making and a "Right to Explanation"' (2017) 38(3) *AI Magazine*, 51-52 <<https://doi.org/10.1609/aimag.v38i3.2741>> accessed 10 December 2022

⁵⁷ Lee A. Bygrave, 'Minding the Machine v2.0: The EU General Data Protection Regulation and Automated Decision Making' in Karen Yeung and Martin Lodge (eds), *Algorithmic Regulation* (Oxford University Press 2019) 2 <<http://dx.doi.org/10.2139/ssrn.3329868>> accessed 20 December 2022

⁵⁸ As we emphasized in the Introduction, we focus on the provisions on automated decision-making which are closely related to our topic, and do not examine the rules on profiling.

⁵⁹ Article 22 (1), GDPR.

⁶⁰ The Article 29 Working Party was the independent European working party that dealt with issues relating to the protection of privacy and personal data until 25 May 2018 (entry into application of the GDPR). It was replaced by the European Data Protection Board, but most of the guidelines of the WP29 (after a revision) are still applicable.

⁶¹ Article 29 Working Party, 'Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679' (wp251rev.01, 6 February 2018) at 22 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

⁶² The WP29 emphasized the importance of the provisions on automated decision-making, by referring to Article 15 of the former

does not contain the concept of legal effect, so we have to look at the practice, where two categories of consequences are distinguished. On the one hand, legal effect is when the processing of personal data in the course of automated decision-making affects the exercise of the rights of the data subject. Thus, for example, when the data subject's fundamental rights and freedoms or his or her right to a judicial remedy are rendered impossible or significantly restricted. On the other hand, a legal effect may also be something that affects a person's legal status. Examples of this type of effects can be automated decisions concerning an individual that result in loss of entitlement to certain social benefits provided by law, refusal to enter a Member State or denial of citizenship, restriction of the exercise of rights under a contract.⁶³ According to the WP29, the cancellation of a contract produces such legal effect,⁶⁴ thus the cancellation of an employment contract based on automated decision-making falls under this category.

The above prohibition also applies where the automated decision affects the data subject to an extent comparable to the legal effect. The procedure must have a 'similar significant' influence on the decisions, actions or circumstances of the data subject. The impact must exceed a certain level to be considered 'significant'. The influence should be notable, i.e. sufficiently great, the extent of which, according to WP29, always depends on the circumstances of the case. The decision must have the potential to significantly affect the privacy of the individuals concerned, such as their circumstances, behaviour or choices; have a prolonged or permanent impact on the data subject; or at its most extreme, lead to the exclusion or discrimination of individuals.⁶⁵ In such cases, the controller must pay particular attention to the individual situation of the data subject, such as members of disadvantaged social groups or nationalities. An example of an application relevant to our topic is the e-recruitment practices without any human intervention. In themselves, these practices are prohibited, but they can have a significant impact on the individual if the person does not get the job applied for as a result of this procedure. It is important to emphasize that the use of AI-based algorithms will involve a high degree of risk, therefore, a Data

95/46 data protection directive, which 'also grants data subjects the right not to be subject to a decision based solely on automated processing, where that decision produces legal effects or similarly significantly affects them and which is based solely on automated processing of data intended to evaluate certain personal aspects, such as performance at work, unless the decision is necessary for entering into or performance of a contract, authorized by Union or Member State law, or is based on the explicit consent of the data subject.' Article 29 Working Party, 'Opinion 2/2017 on data processing at work' (17/EN WP 249, 2017) 5, 8

⁶³ Article 29 Working Party, 'Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679' (wp251rev.01, 6 February 2018) at 21 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

⁶⁴ *ibid.*, 21

⁶⁵ Article 29 Working Party, 'Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679' (wp251rev.01, 6 February 2018) at 21 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

Impact Assessment is legally required by the employer acting as data controller, which must cover all the GDPR requirements.

Nowadays, precisely because of the rapid development and widespread use of technology, a total prohibition of automated decision-making would not be feasible. It is clear from the wording of the legal provision in question that the prohibition applies only to decisions based solely on automated processing. In other words, the decision-making process is fully automated, without any substantive human intervention affecting the outcome of the process. Fig. 1. illustrates the possible use-cases of AI-based decision-making, indicating the extent of human/AI involvement as well as the applicability of Article 22.

However, as it was mentioned before, such decision-making processes with no human intervention at all are not (yet?) prevalent in the employment context. This means that Article 22 is usually not even applicable to certain use-cases of AI-based decision-making, as instead of solely automated decision-making, partly automated decision-making takes place, where the AI assists and does not replace the human decision-maker.⁶⁶ We find this problematic, as by excluding the application of the specific requirements laid down in Article 22, employees are 'only' left with the general data protection norms in a highly sensitive data processing scenario. Besides, there are other challenges that can arise from automated decision-making in the world of work, which are discussed below.

3.1.1. Possible challenges of automation and AI-based algorithms

Automation is a key feature of algorithmic decision-making. The ability of automated computing systems to replace human beings in an increasing number of situations is one of the most important features of the practical implementation of algorithms. Data analysis algorithms are applied to large datasets to find correlation patterns within data sets, without necessarily establishing cause and effect relationships.⁶⁷ However, data mining and pattern recognition without 'understanding' causal relationships can lead to errors and raise concerns about the quality of the data. In close connection with this, Recital (71) of the GDPR highlights concern about the potential for machine error and unfair discrimination in

⁶⁶ According to Wiedemann, excluding partly automated decision-making from Article 22 is in line with the objectives of the GDPR, as 'decision-making per se does not trigger implications on the right to the protection of personal data.' He also adds that the aim of Article 22 is to prevent the objectification of humans, where machines make binding decisions without human involvement. Klaus Wiedemann, 'Profiling and (automated) decision-making under the GDPR: A two-step approach' (2022) 45 *Computer Law & Security Review* 105662, 14

⁶⁷ Council of Europe – Committee of experts on internet intermediaries (MSI-NET), 'Algorithms and human rights – Study on the human rights dimensions of automated data processing techniques and possible regulatory implications' DGI(2017)12. March 2018, 5-6 <<https://rm.coe.int/algorithms-and-human-rights-en-rev/16807956b5>> accessed 07 December 2022

Examples of possible use-cases	Extent of human/AI involvement	Applicable provisions of the GDPR
Applicants are individually and personally invited to an interview (e.g. based on phone numbers) by the HR staff.	quasi-manual data processing conducted by human decision-maker	Article 22 is not applied – the ‘general’ provisions are applicable
Applicants complete an electronic application on a platform and are ranked and invited to an interview by the HR staff on the same platform.	data processing conducted by human decision-maker	Article 22 is not applied – the ‘general’ provisions are applicable
AI ranks the applicants, but based on the list, the human HR staff decides which applicants are called in to an interview.	AI supports the human decision-maker: the human exercises meaningful intervention during the process	Article 22 is not applied – the ‘general’ provisions are applicable
Combined with profiling, AI prepares a list of the most suitable applicants and only those selected by the AI are invited to an interview.	no meaningful human intervention: decisions based solely on automated means	Article 22 is applied

Fig. 1 – Examples of possible use-cases of AI-based automated decision-making during recruitment.

the context of automated decision-making.⁶⁸ Bias is often cited as one of the major risks associated with AI-based algorithms,⁶⁹ which also comes into question when recruiting employees, and is therefore an issue that is receiving increasing attention, also in association with social justice and non-discrimination.⁷⁰

A further problem is that it poses challenges to the employees’ ability to seek effective remedies.⁷¹ This is mainly due to the lack of transparency of the decision itself and its basis, and in some cases, it is not clear whether individuals have consented to their personal data being used to make the decision, or whether they are even aware of the decision affecting them. Regarding employees’ rights, the employer shall provide all the relevant information about the data processing to the employee under Articles 13 and 14 of the GDPR. The employee must then be informed of the fact of automated decision-making, including the logic used and information on the sig-

nificance⁷² of the processing and its likely consequences for the employee.⁷³

In the view of WP29, the employer should find simple ways to explain to employees the rationale behind or the criteria used to make the decision. In the spirit of the GDPR, it is primarily necessary to provide substantive information on the above and not a complex explanation of the algorithms used, nor does it mean that the algorithm should be fully disclosed. The point is to provide comprehensive information to help the person concerned understand the rationale behind the decision.⁷⁴ The WP29 gave the example of creditworthiness scoring, where the specific scoring system should not be explained, but how it helps the data controller to make fair and responsible credit decisions. Thus, the main features to be taken into account when making a decision are the source and the relevance of the information concerned. The controller should also include information to advise the data subject that the credit scoring methods used are regularly tested to ensure they remain fair, effective and unbiased. The controller provides contact details for the data subject to request that any declined decision is reconsidered, in line with the provisions of Article 22 (3).

⁶⁸ About the principle of fairness and its meaning in the context of automated decision-making see: Natali Helberger, Theo Araujo, Claes H. de Vreese, ‘Who is the fairest of them all? Public attitudes and expectations regarding automated decision-making’ (2020) 39 Computer Law & Security Review, 105456

⁶⁹ For a method to compile a non-biased and GDPR-compliant database, see Timnit Gebru. and others, ‘Datasheets for Datasets’ (2021) ArXiv 1803.09010 <<https://doi.org/10.48550/arXiv.1803.09010>> accessed 20 May 2023

⁷⁰ Ilana Golbin and others, ‘Responsible AI: A Primer for the Legal Community’ (2020 IEEE International Conference on Big Data) 2123 <<https://ieeexplore.ieee.org/document/9377738>> accessed 07 December 2022

⁷¹ Sandra Wachter, Bernt Mittelstadt, Luciano Floridi, ‘Why a right to explanation of automated decision-making does not exist in the General Data Protection Regulation’ (2017) 7(2) International Data Privacy Law, 91

⁷² For the notions of ‘meaningful information’, ‘the logic involved’, and ‘the significance and the envisaged consequences’ see the further analyses: Bart Custers and Anne-Sophie Heijne, ‘The right of access in automated decision-making: The scope of article 15(1)(h) GDPR in theory and practice’ (2022) 46 Computer Law & Security Review, 105727

⁷³ Articles 13 and 14, GDPR

⁷⁴ Article 29 Working Party, ‘Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679’ (wp251rev.01, 6 February 2018) at 27 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

In addition to the above, the explainability of the AI-based algorithms can be challenging. In some cases, data controllers have an interest in not sharing the details of the algorithms they use, for example, in order to avoid revealing trade secrets or violating the rights of others. Furthermore, employees should not be able to deceive or manipulate the decision-making system by knowing its logic and operation.⁷⁵ However, a given data controller organization may be put at financial, reputational and regulatory risk by the lack of meaningful interpretation about the mechanism of AI decisions.⁷⁶

Therefore, the explainability of AI technology⁷⁷ is one of the most researched questions today.⁷⁸ In the context of employment, the explainability of the decision can be of utmost importance,⁷⁹ e.g. in cases when the employer needs to exempt himself or herself in proceedings related to a discrimination case, or when he or she must meet the requirement of clarity when terminating the employment relationship. Most research works⁸⁰ explore the possibilities of providing insights into the internal logic of black-box algorithms. Conversely, some researchers argue that so-called counterfactual explanations, which do not attempt to clarify how internal decisions are made, may be a solution. In this context, they would provide insight into what external facts could be diverted to achieve the desired result. Counterfactual explanations include the reasons on which a decision was based (e.g. low income), the reason for challenging the decision (e.g. if the controller used inaccurate data on the applicant's income), and limited 'advice' on how to achieve the desired result in the future (e.g. an increase in salary would have resulted in a positive outcome in the application).⁸¹

⁷⁵ Sandra Wachter, Bernt Mittelstadt, Chris Russell, 'Counterfactual explanations without opening the black box: automated decisions and the GDPR' (2018) 31(2) *Harvard Journal of Law & Technology* (Harvard JOLT), 843

⁷⁶ Ilana Golbin and others, 'Responsible AI: A Primer for the Legal Community' (2020 IEEE International Conference on Big Data) 2123 <<https://ieeexplore.ieee.org/document/9377738>> accessed 07 December 2022

⁷⁷ Carlos Zednik, 'Solving the Black Box Problem: A Normative Framework for Explainable Artificial Intelligence' (2019) *Philosophy & Technology*, 1-29 <<https://doi.org/10.48550/arXiv.1903.04361>> accessed 10 December 2022

⁷⁸ Federico Cabitza and others, 'Quod erat demonstrandum? – Towards a typology of the concept of explanation for the design of explainable AI' (2023) 213(A) *Expert Systems with Applications*, 118888; Plamen P. Angelov and others, 'Explainable artificial intelligence: an analytical review' (2021) 11(5) *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, e1424 <<https://doi.org/10.1002/widm.1424>> accessed 10 December 2022; Michael Ridley, 'Explainable Artificial Intelligence (XAI)' (2022) 41(2) *Information Technology and Libraries* <<https://doi.org/10.6017/ital.v41i2.14683>> accessed 10 December 2022

⁷⁹ Jennifer Cobbe and Jatinder Singh, 'Reviewable Automated Decision-Making' (2020) 39 *Computer Law & Security Review* 105475, 2-3

⁸⁰ Sascha Löbner and others, 'Explainable Machine Learning for Default Privacy Setting Prediction' (2021) 9 *IEEE Access*, 63710 <[10.1109/ACCESS.2021.3074676](https://doi.org/10.1109/ACCESS.2021.3074676)> accessed 10 December 2022

⁸¹ Sandra Wachter, Brent Mittelstadt, Chris Russell, 'Counterfactual Explanations without Opening the Black Box: Automated Decisions and the GDPR' (2018) 31(2) *Harv J L & Tech.* 880-883

To sum up, in particular, when interacting with an automated system, consideration should be given to provide information to employees on how to reach a human and how to ensure that a system's decisions can be checked or corrected. The wide range of sectors that use automated decision-making systems can have a serious impact on human rights, whether it is employment opportunities, health care or predictive policing, therefore making access to effective remedies in these cases is even more essential. As already pointed out, the workplace is a prominent area, where automated decision-making has become more widespread in recent years. Algorithms can be involved in decisions on hiring and firing employees, staff organization and management, as well as in individual employee evaluation.⁸²

3.1.2. Exceptions – when is automated decision-making possible?

Following the prohibitions and challenges detailed earlier, we will examine the conditions and exceptions⁸³ under which an employer can use AI-based algorithms for automated decision-making in practice. As described in [Section 3.1](#) of our paper, the employee shall have the right not to be subject to a decision based solely on automated processing. On the basis of the interpretation of the provision under discussion, it can be concluded that where human intervention is possible to modify the decision, this case may be considered an exception to the prohibition under Article 22 (1) of the GDPR. The latter means that the decision is either made by a human being, or a human is meaningfully involved in the decision-making process. The employer must ensure that the human review of the automated decision is genuine and not merely symbolic.⁸⁴ Furthermore, it is important that this review is carried out by a person who has the authority and appropriate competence to change the decision.⁸⁵ The following [Fig. 2](#) summarizes the possible legal grounds and scenarios in which an employer, as a data controller, may lawfully apply AI-based automated decision-making in the employment relationship, together with the rights that the employee can exercise.

Even though as a main rule the GDPR provides employees the right not to be subject to automated individual decision-making, it might be insufficient to provide meaningful protection against such practices. This is especially due to the

⁸² Council of Europe – Committee of experts on internet intermediaries (MSI-NET) 'Algorithms and human rights – Study on the human rights dimensions of automated data processing techniques and possible regulatory implications' DGI(2017)12. March 2018, 28 <<https://rm.coe.int/algorithms-and-human-rights-en-rev/16807956b5>> accessed 07 December 2022

⁸³ See also Henni Parviainen, 'Can algorithmic recruitment systems lawfully utilise automated decision-making in the EU?' (2022) 13(2) *European Labour Law Journal*, 240

⁸⁴ Kiel Brennan-Marquez, Karen Levy and Daniel Susser, 'Strange Loops: Apparent versus Actual Human Involvement in Automated Decision Making' (2019) 34(3) *Berkeley Technology Law Journal*, 745-772

⁸⁵ Article 29 Working Party, 'Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679' (wp251rev.01, 6 February 2018) at 22 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

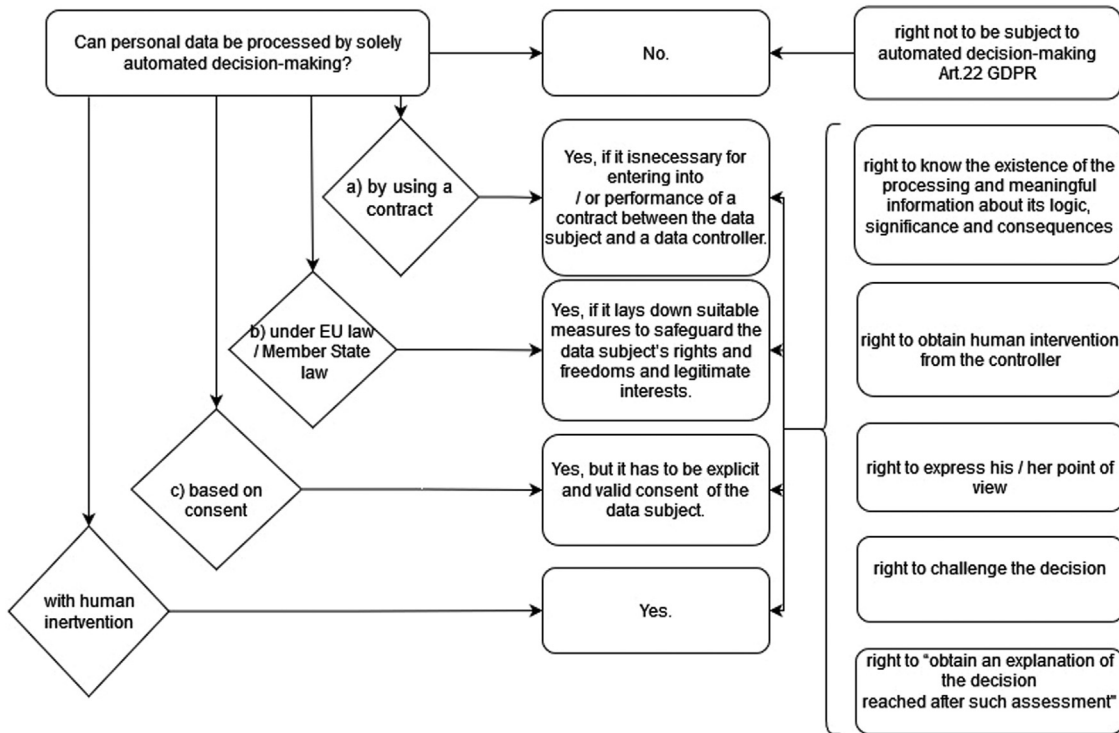


Fig. 2 – Possible exceptions for automated decision-making under the GDPR.

exceptions provided in Article 22.⁸⁶ As Fig. 2. depicts, Article 22 (2) of the GDPR contains exceptions under which the processing of personal data in automated decision-making will be lawful. This requires that the processing has an appropriate legal basis: the first possible exception is if it is necessary for entering into, or performance of a contract. The intention of the parties to conclude a contract or the mere existence of a contractual relationship does not mean that a decision is necessary to fulfil the contract. The procedure must be indispensable for the conclusion or performance of the contract in question. A typical example includes the processing of the employees payment information – where without processing certain personal data the employer would not be able to perform one of his or her most important obligations: paying remuneration to the employee.⁸⁷ The employment contract itself – if it is based on real need – might provide justifications to conduct automated decision-making.⁸⁸ This exception does not apply, however, where the decision is taken for reasons of

cost-benefit or convenience, or where it is taken on the basis of a unilateral interest of the controller.^{89,90} Consequently, this exception should not be interpreted extensively.

According to Article 22 (2) b) of the GDPR, the second possible exception is when the decision based on automated processing is authorized by ‘Union or Member State law’. In this case, the authorizing provisions must serve a legitimate purpose, such as ensuring the security and reliability of certain

l’effet panoptique de la pandémie’ (2022) 161 *Revue internationale du Travail* 323, 340.

⁸⁹ Article 29 Working Party, ‘Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC. (WP 217, 9 April 2014) at 24 and ‘Opinion 3/2012 on developments in biometric technologies’ (WP 193, 27 April 2012) at 8

⁹⁰ For example, according to the WP29, automated decision-making might be necessary due to the quantity of data being processed. It cites the following example: ‘A business advertises an open position. As working for the business in question is popular, the business receives tens of thousands of applications. Due to the exceptionally high volume of applications, the business may find that it is not practically possible to identify fitting candidates without first using fully automated means to sift out irrelevant applications. In this case, automated decision-making may be necessary in order to make a short list of possible candidates, with the intention of entering into a contract with a data subject.’ Article 29 Working Party, ‘Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679’ (wp251rev.01, 6 February 2018) at 23 <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

⁸⁶ Valerio De Stefano, ‘“Negotiating the Algorithm”: Automation, Artificial Intelligence, and Labor Protection’ (2019) 41 *Comp Lab L & Pol’y J* 38-39; Frank Hendrickx, ‘Privacy 4.0 at Work: Regulating Employment, Technology and Automation’ (2019) 41 *Comp Lab L & Pol’y J* 167

⁸⁷ Article 29 Working Party, ‘Opinion 2/2017 on data processing at work’ (WP 249, 8 June 2017) at 7

⁸⁸ Frank Hendrickx, ‘Protection of workers’ personal data: General principles’ (ILO Working Paper 62, May 2022) 46 <https://www.ilo.org/wcmsp5/groups/public/-ed_protect/-protrav/-travail/documents/publication/wcms_844343.pdf> accessed 30 November 2022; Antonio Aloisi and Valerio De Stefano, ‘Activités essentielles, télétravail et surveillance numérique:

services.⁹¹ Besides this exception, Article 88 should also be mentioned, as Member State legislation and collective bargaining have a great role in preventing Article 22 from remaining an ‘empty shell’ at the local level and ensuring employees’ rights during employee monitoring and decision-making.⁹² In this regard, Article 88 of the GDPR is of crucial importance as it allows Member States to provide more specific rules in relation to data processing in the world of work.⁹³ This leaves Member States a margin of manoeuvre to adopt legislation specifically designed to the context of employment, and possibly specifically regulating automated decision-making. However, as De Stefano and Wouters argued, this provision is still significantly underutilised.^{94,95}

The third exception when a decision based on automated processing may also be taken is if the data subject has given his or her explicit consent.⁹⁶ It can be seen that automated decision-making requires stricter forms of consent, i.e. an active, documented and demonstrable expression of the data subject’s will.⁹⁷ However, in the employment context, the application of consent is problematic, due to questions related to its free nature. Both the WP29 and the European Data Protection Board emphasized that given the dependency resulting

from the employment relationship, it is quite rare that the employee could deny giving consent without fearing detrimental consequences. As a result, in most cases of the processing of employees’ personal data, consent should not be the lawful basis of the processing.⁹⁸ In our opinion, this includes the employee’s (or future employee’s)⁹⁹ consent to automated decision-making as well.

In addition to these, Article 22 (3) of the GDPR states that, even in the case of exceptions, data controllers must implement appropriate safeguards regarding the data subject’s rights and freedoms and legitimate interests in the cases referred to in points (a) and (c) of paragraph 2, this kind of measure can include ‘the right to obtain human intervention [...], to express his or her point of view and to contest the decision.’ In relation to human intervention, a review of the decision may be requested, even a modification of the decision to eliminate possible incorrect conclusions or errors. In this context, Recital (71) of the GDPR provides that the data subject must be given the opportunity to express his or her point of view, to obtain an explanation of the decision and to object to it. The extent to which automated decision-making exposes individuals to discrimination is an issue that is often examined. It is also necessary to ensure that the outcome of the process is not erroneous, inaccurate or discriminatory. In the case of a legal authorization, the aforementioned guarantees are contained in the legislation enabling the automated decision.¹⁰⁰

Another important issue in relation to automated decision-making is the scope of the data processed. Thus, the decision may be based on personal data provided directly by the employee (e.g. answers to a questionnaire), data obtained from observation of natural persons (e.g. preferences collected through an application) or data obtained by deduction (e.g. a profile created by the natural person).¹⁰¹

It is important to emphasize that automated processing based on special categories of personal data – including personal data relating to criminal convictions and offenses – is explicitly prohibited by Article 22 (4) of the GDPR even in the cases specified as exceptions in Paragraph (2). However, there are two exceptions to this general rule:

⁹¹ Regarding Member State exemptions see more on the national regulations in: Gianclaudio Malgieri, ‘Automated decision-making in the EU Member States: The right to explanation and other “suitable safeguards” in the national legislations’ (2019) 35 *Computer Law & Security Review* 105327

⁹² Antonio Aloisi and Valerio De Stefano, ‘Activités essentielles, télétravail et surveillance numérique: l’effet panoptique de la pandémie’ (2022) 161 *Revue internationale du Travail* 341

⁹³ According to a well-established legal tradition, most EU countries provide that workers’ representatives must be consulted or their agreement obtained before surveillance equipment can be introduced. Source: *ibid*, 342

⁹⁴ Valerio De Stefano and Mathias Wouters, ‘AI and Digital Tools in Workplace Management and Evaluation. An Assessment of the EU’s Legal Framework’ (STOA, PE 729.516, May 2022) <[https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU\(2022\)729516_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU(2022)729516_EN.pdf)> accessed 28 November 2022. 41.

⁹⁵ Even though the following example is from the US, – thus it comes from a fundamentally different legal environment – it is still an interesting case of legislating automated decision-making in the world of work. The New York City council enacted Local Law 144 of 2021 (A Local Law to amend the administrative code of the city of New York, in relation to automated employment decision tools), which will not be enforced till April 2023. According to the Local Law, automated employment decision tool means ‘any computational process, derived from machine learning, statistical modeling, data analytics, or artificial intelligence, that issues simplified output, including a score, classification, or recommendation, that is used to substantially assist or replace discretionary decision making for making employment decisions that impact natural persons.’ As a main rule, the application of such tools are prohibited, unless certain safeguards (e.g. subject to bias audit or providing notices to candidates) are met. NYC Consumer and Worker Protection, ‘New Laws & Rules – New Laws 2023’ <<https://www.nyc.gov/site/dca/about/new-laws-rules.page>> accessed 30 January 2023.

⁹⁶ Article 22 c), GDPR.

⁹⁷ Article 29 Working Party, ‘Guidelines on consent under Regulation 2016/679.’ (WP259rev01, 28 November 2017. As last Revised and Adopted on 10 April 2018)

⁹⁸ Article 29 Working Party, ‘Opinion 2/2017 on data processing at work’ (WP 249, 8 June 2017) at 4.; European Data Protection Board ‘Guidelines 05/2020 on consent under Regulation 2016/679’ (Version 1.1. Adopted on 4 May 2020) 9. In its Opinion 8/2001, the WP29 stressed that ‘[r]eliance on consent should be confined to cases where the worker has a genuine free choice and is subsequently able to withdraw the consent without detriment.’ [Article 29 Working Party, ‘Opinion 8/2001 on the processing of personal data in the employment context’ (WP 48, 13 September 2001), at 23]

⁹⁹ According to the WP29, if the consent is a condition of employment, refusing it is – in theory – possible, however, it might result in losing a job opportunity. [Article 29 Working Party, ‘Opinion 8/2001 on the processing of personal data in the employment context’ (WP 48, 13 September 2001), at 23.]

¹⁰⁰ Article 22 (2) b), GDPR.

¹⁰¹ Article 29 Working Party, ‘Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679’ (wp251rev.01, 6 February 2018) <<https://ec.europa.eu/newsroom/article29/items/612053>> accessed 10 December 2022

- the data subject has given explicit consent to the processing of those personal data for one or more specified purposes;¹⁰² or
- processing is necessary for reasons of substantial public interest, on the basis of Union or Member State law which shall be proportionate to the aim pursued, respect the essence of the right to data protection and provide for suitable and specific measures to safeguard the fundamental rights and the interests of the data subject.¹⁰³ In these cases, it is also necessary to demonstrate that appropriate measures have been taken to protect the freedoms and legitimate interests of the data subject concerned.¹⁰⁴ However, in the employment context, the second of the two exceptions may apply in practice, given the problems with valid consent mentioned earlier. Here again, Article 88 of the GDPR can have a special importance in providing more specific rules for the context of employment.

3.2. AI act

Besides the GDPR, the other document that is relevant to our topic is the Commission's proposal for a legal regulatory framework on AI (AI Act).¹⁰⁵ On 21 April 2021, the Commission published its proposal that is the first of its kind, and which aims to address risks of specific uses of them.¹⁰⁶ The new legal framework aims to provide a harmonized set of rules that are in line with existing EU human rights instruments and harmonize EU law on data protection, data management, consumer protection, non-discrimination and gender equality. Accordingly, it proposes a prudent but balanced and proportionate regulatory approach, which is primarily risk-based.¹⁰⁷

In the field of AI-based automated decision-making, the proposed AI Act will be applicable as well. In this context, AI application can be considered high-risk if it is used in an area that may already carry risks. According to the Commission, a separate list should be prepared for these areas, but it mentions healthcare as an example. Another source of risk comes from the way AI is applied, for example, in the field of healthcare, a use that could even result in injuries or death.

¹⁰² 'except where Union or Member State law provides that the prohibition referred to in Paragraph 1 may not be lifted by the data subject' Article 9 (2) a), GDPR.

¹⁰³ Article 9 (2) g), GDPR.

¹⁰⁴ Article 22 (4), GDPR.

¹⁰⁵ The European Commission adopted its Communication entitled 'Artificial Intelligence for Europe' on 25 April 2018, with one of its main objectives to provide a legal framework for AI based on EU values. The aim of the document is to set an example for Member States to follow in order to achieve a successful European-level collaboration, since one of the main goals is to ensure Europe's competitiveness in AI technologies. See Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on Artificial Intelligence for Europe. COM(2018) 237 final. Brussels, 25.4.2018. 2.

¹⁰⁶ European Commission, 'Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union legislative acts' COM(2021) 206 final 2021/0106 (COD). (Brussels, 21.4.2021)

¹⁰⁷ *ibid* Explanatory Memorandum 1.2.

The application of the two cumulative criteria would ensure that the regulatory framework provides legal certainty.¹⁰⁸ On the other hand, the Commission mentions as exceptions the cases where the use of an AI-based algorithm is risky in itself, regardless of the field of application and its method. Given its impact on individuals, the use of AI applications in recruitment procedures and in situations involving workers' rights is always considered 'high risk' in the Proposed AI Act, as such systems 'may appreciably impact future career prospects and livelihoods of [the individuals]'.¹⁰⁹ These AI systems include, on the one hand, systems that are intended to be used for recruitment or selection of natural persons, notably for advertising vacancies, screening or filtering applications, evaluating candidates in the course of interviews or tests. On the other hand, it also includes systems that are intended to be used for making decisions on promotion and termination of work-related contractual relationships, for task allocation and for monitoring and evaluating performance and behaviour of persons in such relationships.¹¹⁰

Even though the Proposed AI Act lays down important safeguards (e.g. transparency, human oversight, etc.), scholars drew attention to several shortcomings. In contrast to the already mentioned legal instruments aiming to provide protection for employees in various fields, the AI Act does not primarily focus on the protection of fundamental rights, it rather focuses on the spread of AI. One of the greatest challenges, according to the Commission, is to ensure that AI-related technologies are widely deployed throughout the economy, not just in one extreme segment of it. The AI Act focuses on the regulation and the proliferation of 'trustworthy AI': once an AI is considered as such, its spread should be promoted.¹¹¹ The proposal also aims to create a single market for AI, harmonizing this legal field.¹¹² Thus, it is argued that the (current version) of the AI Act would act as a regulatory 'ceiling', weakening the protection offered by other legal instruments (e.g. stricter national rules).¹¹³

In our view, in order to implement AI that is trustworthy and complies with the safeguards required by the GDPR, an additional solution can be applied. One such solution could be to involve employee representatives in the risk assessment process.¹¹⁴ This would allow for an opinion on the nature of the data on which the decision is based, avoiding biased or dis-

¹⁰⁸ *ibid*, 17

¹⁰⁹ *ibid*, 18, Recital (36), Proposed AI Act

¹¹⁰ Item 4. of Annex III, Proposed AI Act

¹¹¹ Valerio De Stefano and Mathias Wouters, 'AI and Digital Tools in Workplace Management and Evaluation. An Assessment of the EU's Legal Framework' (STOA, PE 729.516, May 2022) 50 <[https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU\(2022\)729516_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/729516/EPRS_STU(2022)729516_EN.pdf)> accessed 28 November 2022

¹¹² *ibid*

¹¹³ *ibid*

¹¹⁴ During the consultation on the AI Act, the German Trade Union Confederation (DGB) proposed a similar participatory approach. The DGB highlighted the importance of ensuring that labour law at national level is not undermined by the AI regulation. See German Trade Union Confederation, 'The German Trade Union Confederation's Position on the EU Commission's draft of a European AI Regulation' (2021) 5 <www.dgb.de/downloadcenter/++co++9341cf1a-5107-11ec-9432-001a4a160123> accessed 15 May 2023

criminary decisions and increasing transparency. However, this solution requires the cooperation of the employer and employee representatives in the automated decision-making process.

Another important aspect is that the conformity assessment laid down in Article 43 of the Proposed AI Act requires internal control and does not require the involvement of a notified body,^{115,116} leaving out of its scope the involvement of external parties – such as social partners.¹¹⁷ Consequently, based on the current state of the AI Act, it is argued that in its current form the draft regulation would take precedence over the already existing more protective frameworks, paving the way for a massive deregulation of industrial relations.¹¹⁸ The approach underpinning the proposed Regulation is currently based on the authorisation of high-risk uses, provided that the operator carries out a self-assessment and meets certain requirements. However, these requirements are often inconsistent with the data protection of employees. The European Commission is putting technology service providers first, with the aim of giving them the trust to adopt AI and encouraging businesses to develop uses. However, as the EU plays an important role in defining how AI systems will be used in the future, it is extremely crucial to guarantee employees' protection.

Despite various shortcomings, the AI Act is a valuable start in helping to shape global norms and standards and promote trustworthy AI: AI systems that are, at least to some degree, more consistent with human values and interests.

4. Conclusion

In this paper, we have raised several issues of AI-based decision-making in the world of work, and proposed guidelines on how to act lawfully in labour environments. First, we argued that the applicability of Article 22 of the GDPR to the current use-cases in the employment context is questionable. Although currently the application of Article 22 of the GDPR is limited to decisions based solely on automated processing, the importance of this provision should not be underestimated. Even though at present AI systems used in employment are mostly used for supporting human decision-making, it is likely that in the future the use of fully automated decision-making will become more common. However, regardless of whether the decision-making system is

augmented or automated by AI, several legal norms already lay down requirements, which must be respected when AI-based decision-making takes place in the field of employment (e.g. anti-discrimination, occupational safety and health, etc.). Also, the general data protection requirements laid down in the GDPR (e.g. lawfulness, necessity, data subject's rights, data protection impact assessments, etc.) are to be respected by the employers – regardless of the application of Article 22. Nevertheless, due to the characteristics of the employment relationship, we argued that specific requirements should be defined and applied in cases when partly automated AI-based decision-making is taking place. Besides the data protection framework, the EU's AI Act will have a significant effect on AI-based automated decision-making, though in its present form it is still somewhat questionable.

Second, we found that when Article 22 is indeed applicable to decision-making, particular attention should be paid to Article 22(2) defining the exceptions from the general prohibition laid down in Article 22(1). Amongst these exceptions we drew attention to the questionable voluntary nature of the consent – excluding it as a possible lawful basis for such decision-making in the employment context. The exception of 'necessary for entering into, or performance of a contract' might be recalled, however, it cannot be given a broad interpretation. The third exception is related to authorization by 'Union or Member State law', which might have a particular relevance in the world of work. With regard to the possibility of human intervention under Article 22 of the GDPR, it is important to emphasize that this is an *ex post* tool, which means that the employee has the opportunity to request a human review after the automated decision has been made. In practice, this possibility of review is particularly relevant in case of a negative result. A further problem is that the person carrying out the factual review may not have the necessary knowledge to assess the outcome of the automated decision. Therefore, employers shall be aware of all of these problems, if they want to ensure compliance.

Even in cases when Article 22 is not applicable to decision-making, Article 88 of the GDPR allows the adoption of more specific rules in the context of employment. Consequently, employment-specific requirements can be laid down by Member State law (or by collective agreements in the case of Article 88), serving as means to adopt sectoral rules and more effectively address the challenges in the employment context.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Data availability

No data was used for the research described in the article.

¹¹⁵ Article 43. 2., Proposed AI Act

¹¹⁶ Antonio Aloisi and Valerio De Stefano, 'Activités essentielles, télétravail et surveillance numérique: l'effet panoptique de la pandémie' (2022) 161 *Revue internationale du Travail* 342

¹¹⁷ Another criticism is that the vast majority of respondents to the national consultation were industry and technology companies. For this reason, and given the hierarchical nature of the employment relationship, some authors propose the adoption of a specific directive provision for its application in the world of work. This would allow for more detailed regulation of employer's responsibilities, workers' rights and how they are exercised. See Aída Ponce Del Castillo, 'The AI Regulation: entering an AI regulatory winter? Why an ad hoc directive on AI in employment is required' (2021) ETUI Policy Brief 6

¹¹⁸ *ibid.*, 342-343

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