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NEW ACTORS OR NEW TOOLS - ALGORITHMS IN EMPLOYMENT AND LABOUR RELATIONS

It can be said that, for more than a decade, algorithms seriously affected the work processes around the world. Despite this, in most countries, there are only pioneering attempts to analyze their impact on the quality of the enjoyment of workers' rights and to prevent or sanction the possible abuses of algorithmic decision-making. The research follows some basic recorded bad practices, both during the hiring process and in the work process itself. The goal is to point out the fact that algorithms in themselves represent a significant technological achievement that makes labour relations more efficient and easier, but that precise normative limits of their usage have to be set. Algorithms are therefore neither good nor bad themselves, as good or bad are more of parameters by which their functioning has been defined. Guided by this idea, authors try to point out basic principles of prior and subsequent control of algorithmic decision-making, in order to preserve or improve the quality of the achieved rights of workers without, at the same time, diminishing the importance of automation of data processing in the work process. Available current literature on this topic, as well as normative sources and the most significant judicial practice, were used in the research.

Keywords: algorithms in labour law, algorithmic management, labour rights, employment discrimination, human-in-command approach.

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1. INTRODUCTION AND CONCEPTUAL BACKGROUND

The labour market and the world of work which exists today, from a macro perspective, is, in some aspects, very similar to the world of work that existed decades ago, with the constantly present struggle to truly implement the fundamental labour law principles. In that sense, “human work in organizations has been influenced and shaped by digital technologies ever since their advent in the mid-twentieth century. In the earlier stages of development, digital systems were mainly used for calculation tasks that were cumbersome or time-intense for humans to perform” (Oppl & Stary, 2019, p. 1). The categories established in labour law are designed to assign legal status, from which certain associated rights and obligations flow (Koscher, 2022, p. 17). These categories are being blurred by some factors emerging in the labour markets worldwide. A closer look allows us to see changes and particularities influenced by “new” factors and trends such as the neoliberal concept of economy and society, demographic change, climate change, globalization and global crises and certainly, digitalization.¹ Having in mind the mentioned, in this part, we shall focus on the one issue which belongs, so to speak, to the trend of a “new normative basis for future paradigms regulating the digital world” – work processes algorithms.²

We shall address this issue from the wider perspective, in terms of referring to possible advantages, as well as disadvantages of algorithms “participating” in the labour market, at the employer’s side of the employment process and organization of the work duties. However, we shall also try to incorporate the micro perspective i.e. the worker’s perspective facing the algorithm, into the research.³

Algorithmic management is a process of automated decision-making by the computer based on preset software (data) parameters. An explanatory memorandum for the Directive on improving working conditions in platform work sums up its role in the work process: “Digital labour platforms use automated systems to match supply and demand for work. Albeit in different ways, digital platforms use them to assign tasks, monitor, evaluate and make decisions for the people working through them. Such practices are often referred to as ‘algorithmic management’” (Proposal for a Directive of the European Parliament and of the Council on improving working conditions in platform work).⁴ However, algorithms

¹ When it comes to digitalization and the world of work, it is certain that digitalization makes a lot of things possible, easier and more efficient. At the same time, it bears many risks, with the obvious one being putting the equality sign between digitalization and precarization. Reljanović & Misailović, 2021, pp. 407–410. The said is true not “only” when it comes to the world of work – “history shows that technological advances make work easier, safer, and more productive, but at the same time open opportunities for abuse”. Bagari & Franca, 2023, p. 138.

² In this “new reality”, new discourses are being formed and becoming more present. As stated, “one example of this is the discourse that casts social problems as technological problems, capable of being solved through proper algorithms or further technological innovation in the ‘new spirit of digital capitalism’”. Kocher, 2022, p. 22.

³ Certainly, algorithms are becoming increasingly “popular” not only in employment but in different spheres of life and concerning different issues, from education to police investigations. Morondo Taramundi, 2022, p. 74.

⁴ As the Directive was adopted on April 24, 2024, currently, the only available text is the proposal of the Directive: Proposal for a Directive of the European Parliament and the Council on improving working

can be used in employment procedures as well, for profiling candidates, headhunting on the labour market, and similar activities.⁵

In that sense, as it is pointed out in literature: “the evidence shows that the more aware employees are of the impending introduction of smart technology, artificial intelligence, robotics and algorithms in their workplaces, the lower their organisational commitment and career satisfaction, and the higher their turnover intentions, the tendency to depression and cynicism about the job. This does not make for the happy, harmonious, productive workplaces of the future that some envisage – and it has a lot to do with the underlying political-economic foundations not only of capitalism in its contemporary guise but capitalism as a historically specific mode of production more broadly” (Dinerstein & Pits, 2021, p. 41).

If we take the stance that the thread connecting different spheres and aspects of society is knowledge, then we should also take into account that “algorithms have risen to become one of the – if not the – central technology for creating, circulating, and evaluating knowledge in multiple societal arenas” (Jarke *et al.*, 2024, p. 7).

Bearing in mind everything said, the research is directed towards identifying the potential positive and negative aspects of the use of algorithmic management in the process of employment and labour relations. The basic hypothesis is that algorithms introduce significant innovations into the work process, which does not necessarily have to be negative in terms of the quality of working conditions and workers’ rights. In order to use the potential of algorithms primarily for positive outcomes, it is necessary to look at the use of algorithms both through the lenses of traditional labour law guarantees, as well as through the holistic and integrative approach aimed at effectively preventing abuses that have been observed in practice so far.

The analysis that follows is based on the modest normative foundations of controlling algorithms in the world of labour, but also on the well-established basic principles of labour law and guarantees of decent work, including the right to equality and prohibition of discrimination. Concerning the mentioned, the key methods that shall be used are the conceptual analysis, normative method, as well as the case study of case law relevant to the use of algorithms in employment and especially the human-in-command approach.

2. (DIS)ADVANTAGES OF ALGORITHMS “EMPLOYING PEOPLE”

In order to assess the changes, both positive and negative, that introducing an algorithm can have in the employment process, we should, in the first place, briefly address the general principles and guarantees which labour law, at the international level, provides in this regard. Namely, when it comes to the hiring process, the goal of the labour law guarantees is to find a balance between the right and the freedom of the employer to choose the person it would consider best for the job in question and the goal to protect

conditions in platform work (Text with EEA relevance) {SEC(2021) 581 final} - {SWD(2021) 395 final} - {SWD(2021) 396 final} - {SWD(2021) 397 final}.

⁵ See for detailed profiling analysis: Anrig, Browne & Gasson, 2008, pp. 65-87.

workers in the employment process. In that sense, it is considered that the employer, in the recruitment process, has the right to determine necessary prerequisites for the job and the conditions that the jobseeker must fulfil in order to be employed. Therefore, we could say that the employer first decides upon the conditions necessary for the job and then on the best candidate, from the ones who have applied for the job in question. However, such freedom is not without limitations, the crucial one being the principle of equality and prohibition of discrimination. Namely, the general rule is that it is prohibited to, in any way, make an (unjustified) distinction between job seekers on the basis of one or multiple personal grounds. In other words, it is allowed for the employer to make a distinction based on professional qualifications, such as qualifications, work experience, knowledge and skills while making a difference is forbidden based on personal grounds. An exception to this rule can be found in cases where a certain personal ground or grounds are considered a real and decisive condition for performing a certain job, i.e., are a business necessity.⁶

So, the process of hiring is a process shaped by vertical inequality which bears many risks, perhaps the most emphasized being the risk of discrimination, but also other risks in terms of violations and abuse of rights (and power). That is also the context in which many novelties, including digitalization and specifically algorithms, as a new form of automation, are being introduced. Analysis of advantages and disadvantages in this regard also helps us in further understanding the issue of protecting the workers, which is the goal of labour law, in the context where algorithms are introduced.

In that sense, we would like to address the advantages that introducing algorithms in the recruitment process can have.⁷ Namely, the use of algorithms is present even in, as we decide to call them, professional social networks or hiring platforms, out of which perhaps the most popular is LinkedIn, which implements algorithmic decision-making in terms of creating predictive analytics. Even networks of not primarily professional character, such as Facebook, can also include job advertisements, and often such algorithms exclude certain groups, such as older potential jobseekers (Kim & Scott, 2018). Furthermore, the algorithmic tools that organisations use often include “CV and resume screening, telephone, or video interviews, providing an algorithmic evaluation”, all of which are used before the “face-to-face interview” (Köchling & Wehner, 2020, pp. 832-834). In other words, as the International Labour Organization points out, algorithms conduct the so-called “workers’ profiling” by certain parameters, which may manifest the bias introduced when constructing such parameters (ILO, 2022, p. 21).

The two key positive points we see, when it comes to using algorithms in the recruitment process, refer to efficiency and impartiality. When it comes to efficiency, it is important to also put this issue in a certain context. Namely, it is true that, especially in the last couple of years, particular attention has been devoted to the recruitment process, and human resources management is gaining more and more attention in workplaces,

⁶ For more in this regard, see: Kovačević, 2021, pp. 564–669.

⁷ In that sense, we use the term recruitment as a wider term that includes recruitment in terms of advertising the jobs and taking the first step in finding the best candidate, while it also includes the candidate selection.

as well as legal theory.⁸ With the flexibilization of work in different senses, with remote work becoming the “new reality”, especially after the COVID-19 pandemic, jobs are becoming more accessible to a greater number of job seekers, which leads to creating a highly competitive hiring process.⁹ When it comes to highly valued and more complex and responsible jobs, the number of the jobseekers that apply can be quite large, while testing them, from the moment of reading the CV-s, through numerous “stages” of testing, by written tests, interviews and so on, can require a lot of time and effort being dedicated to each and every candidate. In that sense, algorithms can be a great *tool* which leads to greater efficiency, so it is considered that “the major driving forces for algorithmic decision-making are savings in both costs and time, minimizing risks, enhancing productivity, and increasing certainty in decision-making” (Köchling & Wehner, 2020, p. 796)¹⁰. What is more, “software algorithms can help interpret data or draw conclusions about a particular problem that can be of great use in implementing ideas as part of innovation work behaviour” (Bogilović, 2023, p. 51).

To this we add the discussion on the risk of discrimination in the recruitment process – “given the growing awareness of algorithmic discrimination, the politics of digital technologies are also increasingly being acknowledged as a serious societal challenge” (Jarke *et al.*: 2024, p. 21). It is often emphasized that perhaps the greatest step forward in introducing algorithms in the recruitment process refers to, if not eliminating, then at least reducing bias, stereotypes and prejudices based on such stereotypes, which are the root causes of discrimination in employment (Díaz-Rodríguez *et al.*, 2023, p. 2). There is an understanding that algorithms cannot be biased as they are “only mathematics” that collect and process data. Therefore, introducing a digital system, the algorithm is praised as a way to move past the “human imperfections”, as human minds think subjectively and are often coloured by learned patterns of thinking and acting that include bias towards anyone who is “different”.¹¹ However, as it turns out, the mentioned cannot be looked at from a one-sided perspective, as algorithms also bear many risks.¹² The situation in practice has shown us that the use of algorithms does not necessarily mean

⁸ Namely, algorithms bring not only more efficiency but also the sense and “promise” of efficiency. See: Heine, 2023, pp. 50–63.

⁹ In relation to that, it is considered that three major developments in the world of work, which are closely connected are: automation, flexibilization and intensification of work. Kremer, Went & Engbersen, 2021, pp. 1–9.

¹⁰ With the new technological developments, balancing the different interests while not putting question the principle of equality and non-discrimination, i.e., balancing the goals of fairness and “professional personalization” becomes extremely challenging.

¹¹ In that sense, we would like to emphasize, that, in order for discrimination to exist, it is not for the discriminatory intent to exist. When it comes to human bias, we can argue that such bias is a result of a reality that is necessarily distorted in a subjective perception of each human, often reflecting on the process of choosing the most suitable job seeker. Wimmer, 2022, pp. 30–75.

¹² In light of the developments “typical” of the 21st century, we can speak of the “renewed interest in a utopia that was also present in the period following the deep economic crisis of the 1970s: the dream that the dynamics of automation released by capitalist crisis create the potential to progressively liberate society from capitalist work”. Dinerstein & Pits, 2021, p. 48.

that the recruitment process shall be impartial and objective. Sometimes, the use of algorithms can have quite the opposite effect, which the Amazon case, as perhaps one of the most media-covered cases in this regard, confirms.

Amazon has used an AI tool, an algorithm, as a recruitment tool with the goal of spotting potential jobseekers, whose CVs are to be graded from one to five stars. However, it turned out that this tool was not gender-neutral as it has put women who have applied for “typically male jobs”, such as software engineer, in a worse position, i.e., has downgraded their CVs (Lavanchy, 2018).¹³ So, the Amazon case has shown us that algorithms do not (always) find the “perfect match for the job”, at least not without discriminating (Fritsch, 2021).

What is more, “algorithmic discrimination might create refined and highly intersectional categories which make the identification of a disadvantaged group linked to a protected category much more difficult” (MacKinnon, 2013, pp. 1029-1030). In order to understand the bias that an algorithm can have, we must look deeper into the way that the algorithms operate. A simplified procedure in this regard includes three steps: the input, or collecting data, then defining “parameters and metrics, machine learning functions, optimisation loops, analysis loops”, and finally making a decision (Baiocco *et al.*, 2022, pp. 29-30). When discussing what are, metaphorically said, algorithms fed with, we are in fact asking ourselves what is the input data because algorithms learn from historical data as an example. Such was the case with Amazon, where the algorithm was also “fed” with some data, and as it turned out, it was data that showed male dominance and has, therefore, introduced the factor of being male as a factor of success. So, actually, Amazon used an algorithm with the purpose of screening the CVs of the jobseekers, while this algorithm only “repeated” the story which was the “story of hiring” in the company Amazon, and that is the story of giving preferences to male

¹³ Regarding a, to the same extent different topic, as it is not a case regarding the employment sphere, it seems that Amazon is once again in the spotlight as there is currently a lawsuit by the Federal Trade Commission (FTC) and 17 state attorneys against Amazon. In short, the ones who filed a lawsuit stated that “Amazon violates the law not because it is big, but because it engages in a course of exclusionary conduct that prevents current competitors from growing and new competitors from emerging. By stifling competition on price, product selection, and quality, and by preventing its current or future rivals from attracting a critical mass of shoppers and sellers, Amazon ensures that no current or future rival can threaten its dominance. Amazon’s far-reaching schemes impact hundreds of billions of dollars in retail sales every year, touch hundreds of thousands of products sold by businesses big and small and affect over a hundred million shoppers”. As part of its strategy, it is stated that Amazon has used algorithms to influence the market in ways that are the subject of the lawsuit. As part of its strategy, it is stated that Amazon has used algorithms to influence the market in ways that are the subject of the lawsuit. Federal Trade Commission, *FTC Sues Amazon for Illegally Maintaining Monopoly Power -2023*. Available at: <https://www.ftc.gov/news-events/news/press-releases/2023/09/ftc-sues-amazon-illegally-maintaining-monopoly-power> (1. 10. 2024).

In this context, a new study by researchers at Carnegie Mellon University sheds light on the effectiveness of automated pricing strategies used in e-commerce and their interactions in competitive markets, finding that pricing algorithms with seemingly benign aims can lead to higher prices in the market – specifically when others use more sophisticated pricing algorithms. For more interesting perspectives on this case, see: *Algorithmic Pricing: Understanding the FTC’s Case Against Amazon – 2023*. Available at: <https://www.cmu.edu/news/stories/archives/2023/october/algorithmic-pricing-understanding-the-ftc-case-against-amazon> (1. 10. 2024).

candidates in comparison to female.¹⁴ Having that in mind, we should ask ourselves do algorithms, at first glance so neutral and, in fact, contribute to the growth of risk of discrimination (Todolí-Signes, 2021, pp. 433-451). And even if we consider it to be so, we must further ask ourselves whether algorithms are “the ones to blame”, or should we, in fact, blame humans, which create and “feed” algorithms with information,

Having in mind the mentioned, i.e., the ups and downsides of including algorithms in the recruitment process, we shall take a glance at the legal sources that are relevant in this regard.

In 2022, the European Commission took the stance that there is “insufficient transparency regarding such automated monitoring and decision-making systems and people lack efficient access to remedies in the face of decisions taken or supported by such systems” (European Foundation for the Improvement of Living and Working Conditions, 2022). In that sense, we shall just mention the Platform Work Directive, which will be addressed in more detail in the second part of the paper. Namely, from the recruitment perspective, it is important to state that this directive “may represent a first attempt to regulate algorithmic management in a consistent framework, although it only covers workers mediated by digital labour platforms” (Baiocco *et al.*, 2022, pp. 29-30). As stated in the preamble of the Directive: “Algorithmic management is a relatively new and – apart from EU data protection rules – a largely unregulated phenomenon in the platform economy that poses challenges to both workers and the self-employed working through digital labour platforms”. Also, article 6 of the Directive is dedicated to the issue of algorithmic management, and even though this precise article is primarily dedicated to platform workers, it is also relevant from the perspective of the recruitment process. Namely, it emphasizes the importance of using algorithms only for data relevant to the work performed, and by no means any personal data, such as the data on private conversations, health, psychological or emotional state.¹⁵

¹⁴ Concerning the Amazon case, the following is stated in the literature: “The information that the algorithm ‘sees’ about individuals is a set of features, which may be less informative or not as representative for individuals belonging to minority groups (...) For instance, in the example above of Amazon’s recruiting tool, most of the resumes belonged to males (majority group), while female applicants (minority group) were not representative. As a consequence, a prediction algorithm solely trained to maximize expected accuracy (or to minimize expected loss) of the training data, will lead to higher prediction errors for the minority group, as the prediction error decreases as more data is collected”. Valera, 2021, p. 17.

¹⁵ In that sense, we feel obliged to emphasize the many risks that introducing algorithms carries when it comes to personal data. Certainly, the issue of personal data is important as such, but also in terms of risks it carries when it comes to job seekers and employees. Requesting personal data from employees is often a “prerequisite” and sort of a “first step” when it comes to discrimination. Therefore, adopting the GDPR (Consolidated text: Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 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) (Text with EEA relevance), *Official Journal of the European Union* L 119, 04.05.2016) is of great importance when it comes to the world of work in general and especially when it comes to algorithms in the world of work. Namely, this regulation introduces the principles of equality, transparency and fairness when it comes to processing personal data (Article 5 of the GDPR). In that sense, ILO also recognizes the importance of Regulation when it comes to employees’ personal data. See: Hendricks, 2022. Protection of workers’ personal data: General principles, International Labour Organization Working Papers.

What could we conclude when it comes to the use of algorithms in the recruitment process? It is certain that digitalisation introduces disruption in the world of work and in that sense, in the recruitment process (Kocher, 2022, p. 4). That being said, whether we find this to be primarily positive or negative, the reality is that algorithms are “making their way” into the labour market.¹⁶ In other words, no matter how optimistic or pessimistic the view we have of the future, we cannot deny that algorithms are the future, as well as our present. It is also certain that taking any step in further development of positive aspects that algorithms bring to the recruitment process is not possible without seeing the negative sides as well. So, in order for algorithms not to be considered “black boxes” as they are, at times, referred to in theory, it is considered crucial to pay attention to the following three elements in algorithm management: *transparency*, *interpretability*, and *explainability* and start from that (Köchling & Wehner, 2020, p. 799).¹⁷

3. ALGORITHMIC MANAGEMENT – TRANSFORMING WORK RELATIONSHIPS AND REMOTE WORK

3.1 *Algorithms in a Transforming Work Environment*

If algorithmic management is considered about certain “classic” work tasks, one can certainly notice an evolution in their performance. In the past, work automation meant higher productivity, lower production costs, as well as the possibility of achieving better working conditions. Algorithmic management certainly provides all of these benefits. However, at the same time, new risks arise regarding workers' rights, since the pre-programmed work process depends on the data inputs of humans and can be used for purposes that are exclusively aimed at increasing profits and greater exploitation of workers, rather than improving the conditions in which work is performed. In the last decade, several problems have arisen related to the deterioration of the working conditions of workers who work using new technologies, although they perform tasks in the domain of “classic” jobs, such as providing services for the transportation of people and goods, courier services etc. Furthermore, certain aspects of the new technologies enable erasing the line between private and professional life, work and free time, practically in every occupation. Some of these problems could be directly related to algorithmic management.

Available at: <https://www.ilo.org/legacy/english/intserv/working-papers/wp062/index.html> (1. 10. 2024). However, even though years have passed since this regulation was adopted, the situation in practice shows us that employers are still “struggling” to implement the principles provided by the Regulation. European Commission, Can my Employer Require me to give my Consent to Use my Personal Data? n. d. Available at: https://commission.europa.eu/law/law-topic/data-protection/reform/rights-citizens/how-my-personal-data-protected/can-my-employer-require-me-give-my-consent-use-my-personal-data_en (1. 10. 2024).

¹⁶ Even though digital platforms also existed before the COVID-19 pandemic, it seems that the pandemic period has changed so much in the world of work, including the increase in the number of digital platforms and in the development of the role they play in the world of work. Together with the digital platforms, algorithms started to gain more “popularity”. Rani, Pesole & González Vázquez, 2024, pp. 5, 12.

¹⁷ Precisely because of hiding many risks that are primarily related to privacy and data, but also other risks that are closely related to this issue, including the risk of discrimination, algorithms are referred to as “black boxes”. For more in this regard, see: Wischmeyer, 2020, pp. 75–103.

Working time is one of the issues most threatened by the digitization of the work process. The possibility of constant electronic communication between the employer and the employee effectively reduced the free time of the employee and led to a continuous state of stand-by time (Reljanović & Misailović, 2021, pp. 414-416). It is not surprising that, as one of the consequences of this development of events, there is also the standardization of the “right to disconnect” in national labour laws (Reljanović & Misailović, 2021, pp. 414-416). Although Directive 2003/88/EC concerning certain aspects of the organisation of working time leaves no room for the existence of “inter-categories” and clearly distinguishes between what is meant by working time and what is free time (Maison Fontecha, 2022, pp. 1-6), in practice this distinction is not always the clearest when it comes to specific jobs. In recent cases C-344/19 (D.J. vs. Radiotelevizija Slovenija, Judgment of the Court (Grand Chamber) of 9 March 2021) and C-580/19 (RJ v Stadt Offenbach am Main, Request for a preliminary ruling from the Verwaltungsgericht Darmstadt, Germany), Court of Justice of the European Union (CJEU) declared that “stand-by time must be regarded as working time in its entirety when the constraints imposed on the person during stand-by time significantly affect that person’s ability to freely manage his time during which his professional services are not required” (Hadžić, 2021; CJEU C-344/19, para. 36-38). Furthermore, “a period of stand-by time must be classified as working time automatically when a person is obliged to remain at his/her workplace and the disposal of his/her employer” (Hadžić, 2021). This raises a few important questions regarding algorithmic management and working duties. Namely, if the working time of the delivery person is managed by the algorithm in the usual way – the algorithm “decides” in which order it will assign existing requests for delivery to currently free couriers (on stand-by), the question arises whether the time that passes between two deliveries must be included in the working time. If the answer is positive, and based on the analysis of the CJEU’s decisions it will be so, we come to the conclusion that algorithmic decision-making can significantly affect working time restrictions and workers’ free time. This is because the worker is sometimes on stand-by time for several hours. The worker can certainly be excluded from the platform, if the platform itself allows it. This issue was resolved by adopting a special Directive regulating the work of platform workers. In countries outside the EU, especially those that ignore the existence of platform work in their legislation, this question is still open. In such a case, the worker can choose to significantly extend working hours, but without being paid for it, because payment is made according to the number of deliveries, and not according to the total time spent available for making deliveries. If the worker goes offline, there is a risk of discriminatory treatment due to insufficient hours spent on the platform, while he/she/they also cannot earn in pay-for-performance modes of engagement. In this way, the predictability of working hours, the limitation of the number of working hours, as well as the payment in accordance with the work performed, are deeply explored and extended beyond legislative limits. The business risk, i.e. the number of deliveries that will be available through the platform, in this way is completely transferred to the worker – the platform practically regulates workers’ working hours, but does not respect any of the legal restrictions, because it claims that the worker is in a business relationship and not in an employment relationship.

Automated algorithmic decision-making can lead to discrimination against a certain group of workers. This happens both in cases where the algorithm is based on discriminatory assumptions and in cases where indirect discrimination occurs, i.e. there is an unjustified treatment of workers using seemingly neutral criteria. One of the examples of such illegal behaviour was created by the application of selective rules for assigning work tasks in a company that deals with the delivery of goods in Serbia.¹⁸ Namely, this company, using shortcomings in labour legislation, hires couriers in two modalities. The first is through “false self-employment”, and the second is through the contracts on business cooperation with certain companies (not registered as temporary work agencies) that hire couriers who work exclusively for the platform. The first group of workers is paid according to performance (per delivery), while the second has a fixed salary regardless of the number of deliveries. While in the first category, there are mostly workers from Serbia, in the second, as a rule, there are workers who came from abroad. According to domestic couriers, the company’s algorithm is set to favour workers coming from “partner companies” because they are economically more profitable – they are paid the same regardless of the number of deliveries they make. The protesting workers, however, perceived this problem as a problem of discrimination based on nationality – which is a consequence of the connection between the modality of work engagement and citizenship, that is, the country of origin of the worker. Thus, algorithmic management is used to increase profits (which, of course, is also illegal), but it also results in direct discrimination of workers according to labour law status, i.e. indirect discrimination according to the country of origin. However, this case should be viewed from another angle – foreign workers who are “favoured” in the described way do not benefit from it. On the contrary, they are also discriminated against because their work is worth significantly less (calculated according to individual deliveries, i.e. delivered kilometres) than the work of workers who are “falsely self-employed”. In this way, multiple intertwined layers of discrimination of all workers were created, due to the fact that the algorithm for assigning jobs was written in a way that violates the equal treatment of delivery workers. There are, of course, other ways to discriminate through algorithms – for example, the algorithms that calculate salary can be set to deny certain types of bonuses to workers who have used their legal rights to leave work – for sick leave, childcare, annual leave, etc. It can be said that in fact, any automated “inference” and “decision making” that produces a certain type of inequality for which there is no and cannot be a rational and objective justification is discriminatory, regardless of the fact that it is supposedly “objective”. Machine decision-making does not affect the existence of discrimination, as well as the employer's objective responsibility for it. In situations where decision-making software was intentionally fed with data that led to discrimination, the scope of employers’ responsibility only expands – but it exists in any case.

Excessive supervision of workers in the work process is primarily reflected in their location monitoring. This mode is typical for courier services, as well as all workers who

¹⁸ See: Popović, P. V. 2024. Domaći „protiv” stranih radnika dostave: Šta muči koga, a šta kaže Wolt Available at: <https://n1info.rs/biznis/domaci-protiv-stranih-radnika-dostave-sta-muci-koga-a-sta-kaze-wolt/> (1. 10. 2024); Kompanija Wolt uvela diskriminatorna pravila za strane radnike – 2024. Available at: <https://www.masina.rs/kompanija-wolt-uvela-diskriminatorna-pravila-za-strane-radnike/> (1. 10. 2024).

perform work tasks in the field and outside the employer's premises. Workers are subjected to a regime in which the software calculates the shortest/fastest route the worker must travel through the GPS, monitors his effective movement during the entire working time, and measures work efficiency and labour costs based on the distance travelled.¹⁹ The main problem with this way of monitoring the work process is the lack of complete information for the software to process the current working conditions. For example, if there is a traffic jam or a car breakdown, there is no way, without the involvement of the human factor, to correct the work efficiency of a certain worker based on circumstances beyond his/her/their control. If there is no such correction, and most often it does not exist, the specific work performance of the worker will appear significantly worse than it really is.

The efficiency of the work process determined by the software is not characteristic only of courier services. On the contrary, its use in the production and service sector is common and happening every day. So it happens that the software, using the data it is being “fed” with, calculates the speed of the production line in the factory, the number of manufactured units of goods per worker (or group of workers) that represents the working norm, as well as the number of contacts that online service providers can make during working hours. The problem with this type of management has the same roots as in the previous cases – the software does not consider factors that are the result of objective problems that may arise in the work process. The algorithm has only one task, which is devoid of judgment – to make the work process as efficient and cheap, as possible. In order to perform that task, it uses exclusively the data provided by the employer, i.e., the goals that the employer wants to achieve, without the possibility of reasoning whether these goals are realistically achievable. This can lead to a significant increase in the work pace that cannot be objectively achieved. Even more significant is the absence of subjective factors when arranging the work process. Algorithmic management does not recognize the fact that, for example, not all workers are present on the production line on a certain working day (for example, one is absent due to illness) – the algorithm will not adapt to new circumstances until a human adjusts it. If this does not happen, and as a rule it does not happen, it may happen that an impossible work norm is demanded of workers, as well as that the work process is organized according to ideal conditions that do not exist at that moment, and therefore cannot be performed in the way that the software has arranged it.

Algorithmic collection of data about workers may constitute a violation of the GDPR, especially its article 22, which refers to automated individual decision-making, including profiling. The existence of such practice is clear from the judgment of the Italian court in the “Foodinho” case when the platform was punished for violating Article 22 with a severe fine (Agosti *et al.*, 2023).

¹⁹ Even GPS monitoring carried out for those purposes will be considered illegal from the point of view of violation of the right to protection of personal data and violation of the right to privacy of workers, if the worker has not been introduced to the details of monitoring and the way data is being processed, or if it is carried out with the actual aim of monitoring the activities and behavior of workers. See: Reljanović, 2020, p. 79.

Based on the previous problems, it is clear that in situations where the decision on the rights of workers is left exclusively to the program management, there will be a significant chance for potential violation of regulations. The main problem will be that the software decision-making method is automated and devoid of human supervision, which leads to the interpretation of circumstances in a way that does not respect parameters which are not part of the basic computer program that makes decisions. Thus, the algorithm can calculate that the worker is insufficiently efficient based on poor work results that are not in accordance with the set work norm and optimized work process, although in specific circumstances there were no pre-conditions set for the worker to perform work tasks in such a manner. This can lead to workers being sanctioned and even fired (Baiocco *et al.*, 2022, pp. 16-17).

3.2. Algorithms in a Transformed Work Environment

Unlike “traditional” jobs, new digital jobs are exclusively tied to the latest technological advances. These are jobs that did not exist before and that developed only recently. They can be characterized by exceptional flexibility in the choice of employer, specific work tasks and work schedule (“freelance” type of work), but they can also be performed in “classic” forms of work (programming jobs that are performed based on an employment relationship in the employers’ premises).

The supervision of workers in these jobs can be even more intensive than in traditional occupations. For example, there have been cases in which employees are constantly recorded by cameras on their computers, when recorded which websites they visited during working hours when the employer has access to their mobile phone listings, and even when special software records what the employee has typed on the keyboard while working. It goes without saying that these actions of the employer are prohibited in the vast majority of countries, primarily because the worker is seen as someone (or even something), who, during working hours (and even after regular working hours) is obliged to completely ignore any aspect of his/her/their private life. However, the boundaries between the right to monitor the work process and the right to privacy, which is one of the respective human rights and which the worker certainly retains at the workplace, are very clearly defined (Reljanović, 2020). Therefore, any automatic processing of data that can be considered personal data and/or part of the employee's private life is prohibited by the employer. Software that deals with the collection of such data must be limited to information that is relevant to the work tasks being performed at that moment – any overstepping of these limits can lead to a violation of the law, and even finding the person to be criminally responsible, in more serious cases. However, despite the obvious inherent limitations in monitoring the work process in this way, the over-surveillance of workers by algorithms persists in several employers.

Digital workers are also subject to the same rights violations as “traditional workers” described in the text above. This refers to cases of discrimination, excessive working hours and deciding on employment rights through algorithms, including breach of the right to privacy and collection of workers’ personal data.

Another consequence of algorithmic management, which may not be as direct as previous ones, but indirectly affects the realization of workers' rights, is the separation, i.e., individualization of digital workers. Regardless of whether the work is done remotely or from the employer's premises, algorithmic management effectively affects the micro-division of jobs in ways that have not been recorded before. Workers do not have to be aware of the existence, number, or any other characteristics of other workers – this will usually happen with remote work. But even when working in the same space, algorithmic management aimed at micro-businesses (and micro-management) provides individualization that is (still) not possible in some “classic” professions. The direct consequence of this is not only the lack of awareness of the existence (and aspirations, positions, and working conditions) of other workers but also the lack of the possibility of joining together to achieve collective goals, in the traditional sense of the struggle for labour rights. Unionisation, as well as collective bargaining, seem mission impossible in such a highly individualized environment (Kim, 2023, pp. 18–20). Some authors also refer to the misuse of algorithms, when location data (cross-locations of multiple workers) is collected in order to create a profile which shows how much time these workers spend together (for example, delivery workers between tasks) in order to assess whether there is a danger of them unionising (De Stefano, 2018, p. 7).

4. “HUMAN TOUCH” IN ALGORITHMS ACTING IN THE WORLD OF WORK

Algorithms have made a lot of changes in the world of work – from the work organization to the perception of industrial relations (European Commission, n. d., Algorithmic management and digital monitoring of work). Having in mind the mentioned, both in terms of the recruitment process, but also work environments that are transforming and the ones that have already been transformed, we may draw some conclusions. The key conclusion in this regard is that the question that imposes itself is not whether or not we should introduce algorithms in employment, but in what way should algorithms be introduced, so that their positive sides become emphasized, and the negative sides, as much as possible, downsized.

Therefore, we must look at algorithms not as (completely) autonomous and not as a governing system, but as a tool, like any other tool that is used by individuals in recruitment.²⁰ Such opinion is confirmed in a judgement of the Supreme Court of Spain dealing with courier workers, from 2020, that sets the ground for further use of algorithms in the world of work. The labour dispute concerned a worker who started working in 2015, based on a service contract, as a self-employed person, for the company Glovo in Spain.²¹

²⁰ Certainly, “the use of algorithms to make decisions does pose some questions about the extent to which accounting professionals versus the algorithms can be held accountable for ultimate outcomes in business or on audits”. Murphy & Feeney, 2023, p. 43.

²¹ Decision of the Supreme Court of Spain: Tribunal Supremo, Sala de lo Social, 25. 9. 2020, STS 2924/2020 - ECLI:ES:TS:2020:2924. This company was founded in 2014 with the goal to provide delivery services with the help of computers and in the digital context, widely speaking. In other words, Glovo acts as a sort of commission agent, i.e., an intermediary between customers and the places and employers from where

In the further development of events, the plaintiff signed a contract with Glovo by which he was considered an economically dependent self-employed worker. Working for Glovo meant, i.e., that tasks were distributed either in an automated mode of distributing tasks (that could be rejected by the worker) or in a manual mode. Anyhow, the tasks are *distributed by an algorithm which has the goal to make the most cost-efficient combination in terms of performing the tasks*. The tasks could be rejected by the worker once already accepted and in such a case, the task would be reassigned to another worker. What is important to emphasize in this regard, when it comes to the worker in question, is that the remuneration which a worker receives is consisted of precise rates which were regulated in Annex 1 of the contract the worker had, as well as the added sum based on miles crossed and the waiting time.

On the other hand, it is also important to have in mind within that, in the system Glovo applied, there were categories of beginner, junior and senior worker, and that not accepting a single order for more than three months could result in downgrade of the person in question. Having in mind the mentioned, the score for each worker was based on the following: the customers' score, the demonstrated efficiency in fulfilling tasks and the performing the tasks in the so-called "diamond hours", i.e., hours of the highest demand.²² The said has put workers, so to say, in the state of constant competition in terms of performing the most demanding requests, i.e., working in the most demanding hours. In relation to the "working hours", or more precisely, the previously already accepted tasks, the grading system in the case at hand, "reduces" 0,3 points (out of the maximum five) to a worker that turned out not to be operational in the time slot that he/she/they previously reserved. However, the exception to this rule were the cases in which there was a justified reason for not performing the task and, in such cases, there was a procedure to communicate the mentioned.

Understanding the said context is of key relevance when it comes to dealing what specifically happened in the case at hand and how it has shed a (new) light on the use of algorithms in the world of work. On October 19, 2017 the plaintiff has sent a message to defendant about staying at home due to a fever, while in the next couple of days, the plaintiff has again texted about health problems which prevented him from performing work tasks, and each time has received a reply from the defendant that everything is all right. Then, on October 24 and 25, the plaintiff has returned to work, but has again, on October 27, written that he is not feeling well and is not capable to perform work. The response he has received from the defendant was delayed, and after that he was not regularly assigned tasks, his scores were degraded, and he was ultimately left without work.

The worker has filed a complaint stating that, due to the nature of work he performed, he was in a *de facto* employment relationship and that he was discriminated, and in that sense, subject to a discriminatory dismissal, based on health reasons. Glovo, as the defendant, referred to the freedom to provide services based on Treaty on the

the customers would like their delivery to be from. In order to perform such activities, Glovo uses a website and a mobile application.

²² In that regard, the workers are free to use the route they consider best but are constantly located by a GPS located on their mobile phones.

Functioning of the EU (Articles 49 and 56 of the Consolidated versions of the Treaty on the Functioning of the European Union, 26. 10. 2012, Official Journal of the European Union, L 326/47-326/390), but also the right to freely chose a profession based on the Charter of Fundamental Rights of the EU (Articles 15 and 16 of the Charter of Fundamental Rights of the European Union, 18. 12. 2000, Official Journal of the European Union, C 364/1– 364/22), and asked the case to be referred to the CJEU for a preliminary ruling. However, the Spanish court refused such a request by the plaintiff.²³ So, the Spanish court took upon itself to determine whether this case actually encompassed the existence of an employment relationship, and in relation to that, the prohibition of the discriminatory dismissal. In other words, the opened question related to the existence and the degree of subordination based on which an employment relationship can be distinguished from self-employment. In that sense, the criteria that the Spanish court has taken into account refer to working under a certain brand name (and reputation), then the question of whether the digital platform in fact represents a means of production rather than just an intermediary (which Glovo does), while digital rating, i.e., the surveillance the employees is also a relevant factor that should be considered when addressing this issue. Having in mind all the facts on the case, the Court concluded that the plaintiff was in fact in an employment relationship with Glovo. In that regard, the Court stated that Glovo is a delivery and not only and intermediary company and has explained this stance by relying on various facts, including: the fact that the company makes all the commercial decisions²⁴, the fact that the workers were not, in any way, included and relevant in the agreements between Glovo and the business that the goods are delivered from, as well as the fact that the workers were not paid directly by the customers, but by the platform (Glovo). By taking the stance that in this case there is an employment relation, the Court has put an end, at least to some extent, to dilemmas and disputes which were opened in previous years and cases and has also widened the scope the understanding the concept of employee and employment relationship in a “new” context.

From the algorithmic perspective, this case is greatly relevant as it has addressed the risks that “participation” of algorithms in employment bears, by recognizing the failure of the algorithm to take into account the justified (health) reason for not performing the working tasks. Therefore, this case is considered a landmark case when it comes to the so-called *human-in-command approach*, which emphasizes the need to have a human who would look into more detail into the decisions made by an algorithm and would

²³ The Court took the stance that “it is debatable whether the defining notes of the contract of employment between a Glovo delivery rider and this company are fulfilled” and that in this context “there is no reasonable doubt as to the application of the law”. Furthermore, the Court recalled the Reasoned Order of the CJEU of 22 April 2020, Case C 692/19, which dealt with the application of the Directive 2003/88/EC, and where the CJEU concluded that the national court should determine whether a relationship that exists with the service provider is in fact of subordination nature. Finally, by recalling this decision of the CJEU, the Court addressed the stance of the CJEU in the said case, which was such that no preliminary ruling was needed.

²⁴ In that sense, we would like to reiterate that the particularity of the employment relationship is manifested precisely in the fact that the employer bears the economic risk of business, which creates balance with the subordination, i.e., the fact that the employer has normative, controlling and disciplinary prerogatives.

present sort of the “higher instance” of control. In this sense, the terms we would like to draw your attention to are human-on-the-loop and human-in-command. While the first refers to human intervention in all aspects of creating and functioning of the system, the human-in-command approach refers more to the overseeing of the process and making a decision in the final instance. In other words, the final assessment would be the one made by a human, while the algorithm is a tool.²⁵ In relation to the mentioned, we would also like to underline that European Trade Union Confederation (ETUC) has taken the stance that that AI innovations are not “*per se* good and do not *per se* deliver positive outcomes for society”, while the human-in-command approach is of crucial importance in this sense (ETUC, 2020).

Here, when dealing with the human-in-command approach, we encounter something that could be addressed as “innovation paradox”, where we have a constant development from a technological point of view, and still, it is only in this development, where we see the need for a “human touch”. In other words, it turns out that the more knowledge technology has, the more we recognize the need to have “faith” in human knowledge in terms of commanding the technology, i.e., algorithms (Adams-Prassl, 2019, p. 2). In relation to human-in-command approach, i.e., “controlling the algorithms” we would like to emphasize the importance of labour legislation or recognizing algorithms in labour legislation, as a first step in addressing the risks they bear in the world of work. The second step refers to introducing this, human-in-command approach in legislation, and recognizing the risks that can be prevented or at least reduced with the application of this approach. Application of this approach is relevant in relation to different labour law rights and guarantees, starting from the recruitment procedure, up until dismissals, individual and collective. When it comes to the recruitment process, without introducing the human-in-command approach, we run the risk of discrimination. Therefore, “subsequently, employers can disqualify high-quality candidates over minor and unimportant features that are detected by machine algorithms” (Špadina, 2023, p. 177). Furthermore, it can be stated that “human evaluation of shortlisted candidates during the interview phase is crucial to ensure a human review of machine-based decisions on the initial vetting of job applications” (Špadina, 2023, p. 177).

It is interesting that the Directive in the preamble deals with the issue of algorithmic management, focusing on the importance of transparency and accountability. Certainly, achieving such goals is not possible without a human-in-command approach. Special attention to this issue is dedicated to Articles 7 and 8 of the Directive, which deal with human monitoring of automated systems, and stipulate the need for a human review of decisions made by an algorithm. Certainly, the person “in charge of the algorithm” must have the adequate competence to assess the decision made by an algorithm”, and, in our understanding, the knowledge of the person must be such that it entails the legal, as well as the technological aspects. Also, the Directive stipulates the right of the platform

²⁵ In a strict sense of a word, in a scenario in which the decision is made by a human, we cannot speak of the algorithm decision-making, but rather of algorithms as tools helping humans to make decisions. What is more, it is especially important that such a decision was made in an employment law context, and the case which included multiple layers of complexity.

worker to request information which would clarify the facts and circumstances that have influenced the decision that affects the working conditions of a (platform) worker. Furthermore, “where the explanation obtained is not satisfactory or where platform workers consider their rights infringed, they also have the right to request the digital labour platform to review the decision and to obtain a substantiated reply within a week” (Article 8 Paragraph 3 of the Directive). In relation to this, when it comes to the human-in-command approach, of relevance is also Article 9 of the Directive which stipulates the necessity of the digital platforms to inform and consult workers’ representatives, and if there are no representatives, the platform workers themselves. The goal is to introduce social dialogue (also) in the sphere of platform work and by that reduce the risks that algorithms and algorithmic management bear.²⁶

Besides the mentioned, as we argued, the use of algorithms “includes the collection and processing of a huge amount of data, which raises questions regarding the protection of personal data and privacy” (Bagari & Franca, 2023, p. 142). While the right not to be subject to automated decision making, without the “human touch” is also regulated by Article 9 of the revised Council of Europe’s Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data, as well as the Article 88 of the GDPR, the fear of abusing data by algorithms in the world of work remains. Therefore, the human-in-command approach can be also beneficial in this regard, i.e., in the aspect of reducing the risks of personal data breaches. “Negotiating the algorithm, should, therefore, become a central objective of social dialogue and action for employers’ and workers’ organisation” (De Stefano & Taes, 2023, pp. 21-36).

5. CONCLUSIONS

Algorithms are very much present in the world of work and we can no longer consider whether they can be avoided or their impact should be somehow limited. These questions could be more hypothetical and relate to historical context, i.e., the moments when the answer could be different. The introduction of algorithms into various spheres and aspects of life, including the world of work, brings a new kind of “enthusiasm” that is largely justified when we take into account all the positive innovations that the use of algorithms enabled or could provide in the future. On the other hand, the fear of algorithms is well-founded and justified, bearing in mind certain negative experiences in the last ten years. So, algorithms are neither good nor bad in themselves – the way they are used is good or bad.

²⁶ This article is without prejudice to existing information and consultation requirements under Directive 2002/14/EC. Article 10 – Persons performing platform work who do not have an employment relationship This provision ensures that the provisions on transparency, human monitoring and review of Articles 6, 7 and 8 – which relate to the processing of personal data by automated systems – also apply to persons performing platform work who do not have an employment contract or employment relationship, i.e. the genuine self-employed. This does not include the provisions on health and safety at work, which are specific to workers. This is without prejudice to the provisions of the Platforms-to-Business Regulation (2019/1150).

When used for the purposes of increasing efficiency, they can save a lot of time and energy for the employer, that is, result in the optimization of work processes in every segment where there is a need for automatic processing of large amounts of data. However, this processing must be based on lawful parameters and cannot lead to a violation of workers' rights or any other violation of regulations. As we have shown with practical examples, the usage of algorithms based on insufficiently precise data that the algorithm is being "fed" with, that is, the creation of a base for automatic decision-making that is not aligned with the basic principles of enjoying the labour rights and the human right to dignity, can lead to the appearance or the extension of illegal practices, both of those which are already present in the classic way of decision-making of the employer, as well as many new ones that are specifically related to decision-making by automatic information processing. Using algorithms to hide the direct link between the employer's actions and the violation of workers' rights is a naive construct that will not bring any advantage to unscrupulous employers. On the contrary, when algorithms are used incorrectly, the employer is objectively responsible for the damage that occurs, as well as for any other behavior at work and in connection with work that leads to the creation of damage to the employee. The objective responsibility of the employer in this case is not reduced due to the fact that the decision is made by some intangible electronic entity, because that entity is under the complete control of the employer, thus making it the only one responsible for the entity's performance and outcomes.

In order to prevent abuses of algorithmic decision-making, one should take into account bad practices from the past and objective and subjective difficulties that occurred in its application. In this sense, appropriate definitions of algorithms and algorithmic decision-making should be introduced into the labour law, and the concepts defined in this way should be determined in relation to the responsibilities of employers and the rights of the employees. As already emphasized, even without special normative interventions, the employers' responsibility is unquestionable. But if the employer can show that it did everything in its objective power to prevent some negative consequences from occurring, this will certainly be taken into account when determining responsibility for certain types of harmful actions towards workers (such as the case of indirect discrimination that was a result of the employer's unconscious actions without the intention to produce discriminatory results). That is why it is necessary to accept these modern concepts in the labour legislation as reality, and to clearly limit the domain of what is permitted from the domain of what is prohibited.

Also, the presence of the human (preventive and corrective) factor in decision-making and the transparency of the algorithms' application are two basic assumptions to ensure their lawful usage. Namely, everyone who is evaluated by the algorithm must have access to the parameters of their evaluation, as well as the possibility to influence final decisions regarding their work-related rights, through the appeal procedure. Human control over algorithms must therefore be expressed twice: as a predictive correction of the database on the basis of which the algorithm decides, and as a subsequent correction mechanism of the decision made by the algorithm when it is clear that it does not correspond to the letter of the law, i.e. that it is a consequence of the inability of the algorithm to take into account all relevant circumstances during the decision-making process. We see the advantages and disadvantages of algorithms, as well as the persons who manage algorithms through all of the

above. Which flaws or virtues will grow or decrease in the future, remains to be seen. At this moment, we need a human-in-command approach. However, the speed of changes in the world of work requires constant re-examination of every standpoint, including this one.

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