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STOCK-TAKING REPORTS

Developments in Algorithmic Management from an IR-perspective

Spain

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Content

Introduction

Though Spain is the third European country with the greater usage of AI (Artificial Intelligence) technologies among large companies (35%), only 7% of SMEs applies AI solutions (PwC, 2019). That is particularly relevant considering that 89% of companies in Spain are small and medium. According to the National Institute of Statistics, that usage of AI among companies with more than 10 employees is around 8.32% in the first quarter of 2021 (INE, 2022). Most of them to identify objects or people based on images (40.56% of companies applying AI technologies), automate of workflows or decision-making support (38.57%), convert spoken language into machine-readable form (31.70%) and for data analysis (30.42%). A fewer 7.67% of Spanish companies use AI technologies for Human Resource management and recruitment processes. Moreover, there is a clear difference between economic sectors: 9.34% in services, 4.72 in industry and 0.23 in construction sector (INE, 2022).

One of the sectors where the use of AI is more widespread and where we could find the closest to forms of algorithmic management are digital platforms. These platforms have accelerated its importance in the Spanish economy (even prior the pandemic). The number of users tripled from 2016 (1,282,197) to 2018 (3,249,309). In 2018, the total GDP contribution of digital platforms was €643 million (0.1% of GDP) (Adigital, 2019). In 2020, some specific businesses such as delivery platforms increased their turnover by 193% due to mobility restrictions (Tello et al., 2022). In any case, the growth of the platform economy has been sustained during 2021, rising also social awareness on inequalities between employees and (bogus) self-employed providers.

Growing attention in the media and policy making debate to AI contrasts with the limited empirical evidence and data available on its use and impact. The platform economy, and more specifically, logistics and food delivery platforms, have contributed to increase the salience of AI and place it to the top of the public policy agenda. However, much of the debate remains vague and unsubstantiated due to the lack of reliable sources of information. In contrast, there is an evident lack of empirical evidence on the effects of these technologies in working conditions and, even less, industrial democracy. In order to support upcoming evidence-based policymaking, this stock-taking report aims to provide a first overview of the state of the art summarizing recent research on the topic, social partner's position, and main developments in national regulatory frameworks and collective bargaining processes at sectoral and company level in Spain.

Section I – Research and data sources in relation to the use of algorithms, artificial intelligence and algorithmic management

Over the last five years, Spanish media have started to cover the irruption algorithmic management that is taking place in the world of organizations and work (CincoDías, 2021; De La Fuente, 2021). An important

stakeholder in the debate, as well the social as the scholarly, is the Eticas Foundation; an organization that, although based in Barcelona, focuses on the consequences of AI for the lives of citizens and societies worldwide in a wide range of fields of society (from the appearance of Smart Cities to fields like education, migration and gender). They collaborated in various occasions with Spanish trade unions to stress the need to regulate AM (Algorithmic Management) in the field of labour and employment, and warned about the risks it might pose to workers, whether by attending and interventions trade union conferences or in conjoint publications (Galdón et al., 2018). Moreover, they are in the process of implementing the so-called Observatory of Algorithms with Social Impact (OASI), which is aimed at indexing all algorithms used by organizations worldwide in different kind of fields, including labour and employment[1]. During the Global Forum on Democratizing Work[2], organized in October 2021, the founder and president (Gemma Galdón) participated in the Spanish Round Table about the Government of Algorithms within work spaces, discussing with other experts the challenges the phenomenon poses for the organization of work (Chávez, 2021).

Research upon the impact of algorithmic management on working conditions has been conducted mainly within the scope of the platform economy, and in particularly related to the case of the food-delivery Riders. A considerable amount of research focuses on the flexibility and autonomy-discourse that surrounds the platforms economy, and the algorithmic control and management behind the applications in use (Revilla & Blázquez, 2020; Morales & Medina, 2020; Díez-Prat & Ranz, 2020). The features of these applications like the control of productivity and measurement of satisfaction-level of the client – factors that play a role in the penalties or even "disconnection" of Riders – call into question their status as self-employed (a topic that has received a lot of attention from legal scholars (López, 2017)). Other platforms have been studied to a lesser extent. Álvarez-Hernández and Pérez Zapata (2020) studied the "platformization" of more qualified sectors of the labour market, like the VIPkids-platform that brings together students and teachers. An analysis of the reviews of teachers (previously) employed by the platform discusses the lack of understanding the logics behind the algorithm and the shared sense of impotence to manipulate it. Research in organizations not pertaining to the platform economy (like, for example, industrial sector or the care services), however, has proven to be limited so far. A novice analysis was carried out to measure the degree to which journalist are aware of the use of algorithmic and AI in their field of work - which, as the study concludes, is limited -, but the impact upon their labour conditions or the organization on work were not taken into consideration (Túñez-López et al., 2018).

The impact of algorithmic management has been mainly approached from a legal point of view. For years, legal experts are emphasizing the urgency to regulate AM in work spaces, pointing out the risk associated to it: risks related to the employment conditions – an intensification of work, a permanent surveillance and the lack of autonomy – and challenges they pose for constitutional guarantees that prevent discrimination and privacy rights (Todolí-Signes, 2019; Olarte, 2019; Goñí, 2019; Sáez, 2020). By expanding the rights of the Work Council's regarding AI-based systems and AM (see more information in Section III), Royal Decree Law 9/2021 took a first step to, "diminish the presence of punishment by algorithms, penalizes performance, interpreted in a biased way, or the organization of a strike" (La Moncloa, 2021). This reform was part of an agreement that sought to address the self-employment status of the Rider-case, underlining, once again, the close link that exists between the platform-economy and AM. However, the right to be informed about the use of algorithm

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[1] Currently, for Spain the only algorithms included are the ones used by the Spanish Public Employment Service to determine services and offer relevant employment search results.

[2] An online international conference held from 5-7th of October, counting with more than 3.000 attendees and 348 experts from 16 different countries. Spain participated with 7 online-Round Tables addressing several topics related to the democratization, decommodification and remediation of work, being one of them focused on the Government of Algorithms.

is not only applicable in companies pertaining to the platform-economies, but rather to all companies with a Worker's Council at their centre.

In Section III we will further discuss the implications of this decree. For now, it is important to know that the expansion of the information-rights of the workers representatives on AI-based systems and AM affecting HR decision-making has been object of review from legal experts, pointing out the various weaknesses and strengths. First, the law does not automatically endows workers' representatives with a right to be informed. Thus, leaving it up to the willingness of employers to collaborate. Moreover, the fact that in companies that do not count with a Worker's Councils the right to be informed ceases to exist further, is considered a further limitation of the right (Pérez, 2021; Gómez, 2021). This might especially be a problem for (new) sectors where industrial action has not yet been consolidated and channels of worker representation are lacking. For example, the case with companies operating in the platform economy. However, despite the small scope, experts do expect that, now that the topic is regulated by national legislation, the door is opened for social partners to address it in collective bargaining processes at sectoral and company level (see section III).

In conclusion, within the Spanish scholar literature a lot of research was carried on the consequences of AM for workers within platforms like Deliveroo, Glovo, VIPkids, etc., but literature about its impact on employment conditions in other sectors or activities is rather limited so far. Hereby, we identify an important research gap. AI-based systems and AM has been mainly studied from a legal perspective, considerably more during the last year, which can be explained by the extension of the rights on information regarding the use of algorithms.

Section II – Main policy issues and challenges in relation to the use of algorithms and algorithmic management by companies: views from Social Partners and the government

The public debate on the labour market implications of AI in Spain has focused mainly on its impact on employment relations and conditions, though with a narrow focus on platform work. Regarding specifically to the human consequences of automation, digitization and AI, stakeholders have paid particular attention to several key issues: the ethical management of workers data; the transparency of algorithmic management of work; the review of tax schemes for digital services and companies to compensate the negative effect of digitalization over employment; the use of data analytics to control work performance, and the digital gap within the labor market and its impact over polarization of employment. Many of these issues were addressed by a committee of experts assigned by the Spanish Government in 2017 to create a white paper on the ethical dimension of Big Data and AI. However, its elaboration was interrupted by the National Government change in 2018 (Buenadicha et al., 2019). Nevertheless, the new Government headed by Mr. P. Sánchez published at the end of that year the Organic Law 3/2018 on personal data protection and guarantee of digital rights (2018), regulating the right to digital disconnection in the workplace, to privacy before the use of geolocation systems in the workplace, and digital rights in collective bargaining.

Moreover, the Ministry of Work (headed by the Minister Yolanda Diaz since January 2020) has paid particular attention to the recognition of the right of information and consultation of algorithmic management at work. Concretely, the Minister Díaz has repeatedly assured that technological progress cannot mean a step backwards in working conditions. "Algorithms are not abstract entities, there are processes behind them that

must be analyzed, assessed and monitored" (El País, 2020). That policymaking agenda turned into the Royal Decree-Law 9/2021 (Real Decreto-ley 9/2021, 2021) amending the Workers' Statute Law to guarantee the labor rights of people dedicated to delivery in the field of digital platforms and introducing rights of information and consultation of algorithmic management at work (see more information in next section).

Before that Law, the Government also published the Spanish Strategy for R&D in AI (Spanish Ministry of Science, Innovation and Universities, 2019) and the Digital Spain 2025 agenda (Ministry of Economic Affairs and Digital Transformation, 2019), addressing labour concerns of AI just to announce further details in a forthcoming code of ethics on the use of these technologies. That was the purpose of the Charter of Digital Rights, published in July 2021 under the framework of the Spanish Recovery Plan (Government of Spain, 2021). Its article XIX focuses on rights at work, basically articulating rights previously regulated (e.g. right of privacy before geolocation devices or the right of information and consultation of algorithmic management at work).

Besides, the Government has tasked the ONTSI (National Observatory of Technology and Society), headed by Lucía Velasco, to advice for public policies (but also for companies and citizens initiatives) on issues related to technological development and its impact in several fields, including employment and rights. However, its most recent reports do not consider ethical concerns (for example, its 2019 annual report on the digital transformation of Spain (ONTSI, 2020)). Its third section addresses the issue of automation and robotization of economic processes in relation to the implementation of AI system to enhance workers productivity and the impact on employment. But the view is techno-optimistic, basically highlighting upskilling trends.

On the trade union side, the 1 de Mayo Foundation (think tank of CCOO) highlighted some trends associated to digitalization that may imply certain ethical and working conditions' consequences in the coming years. For example, intensification of pace of work due to the algorithmic management of labour productivity, increase of management's ability to control and monitor workers, and the erosion of data protection (Rocha and De la Fuente, 2018). After the impact of the COVID-19 crisis, CCOO emphasized that policymakers should play a crucial role in the regulation of these issues. But, in the absence of national regulatory frameworks, social partners should play that role through collective bargaining mechanisms to promote a fair and inclusive transition helping the creation of decent work in all areas and contributing to anticipate and mitigate the risks of segmentation and social exclusion (CCOO Confederal Secretariat for Trade Union Action, 2020). Similarly, the General Union of Workers (UGT), second largest union in Spain, has repeatedly stressed the risks of automation and robotization over low and middle qualified workers. The union illustrates it with the example of transformations in the retail sector: the impact of the ecommerce has fostered monopolistic models where a handful of multinational companies drive their national competitors out of the market. This impacts on employment by destroying permanent full-time jobs to create temporary, part-time and low-paid employment, with very high turnover and very demanding working shifts and schedules (Secretaría de Política Sindical UGT, 2019).

In the case of employers, the Spanish Confederation of Employer Organizations (CEOE) has recommended during last years to strength the social dialogue by initiating a new debate on the technological impact on the work of the future, specifically through the creation of a commission with the Government, unions, civil organizations, and professional associations in the technological field (CEOE, 2016). More recently, in face of the digital acceleration due to the COVID-19 crisis, CEOE has established several proposals to identity and act about possible risks of digital exclusion of certain groups. Specifically, developing a Digital Divide Observatory and adopting employment policies that enable the coexistence of employees with sectoral experienced and new native employees in data analysis and Artificial Intelligence (CEOE, 2020). Finally, the General Manager of COTEC (a private non-profit business organization whose mission is to promote innovation as a driver of economic and social development) has recently assured that the "machine age" (referring to AI, Big Data,

etc.) can lead us to a more supportive world, but with the right policies. In that regard, Spain needs reforms in several fields, including labour regulation to ensure rights. For that purpose, the foundation has promoted the initiative #miempleomifuturo (#myemploymentmyfuture) in order to facilitate technological change to replace certain tasks without impacting over employment neither enhancing precarious work (COTEC, 2021).

Section III – The governance of algorithmic management; the role of collective bargaining

Spain lacked specific regulation on algorithmic management at work until 2020, even delaying the adaptation EU rules in other similar fields. That is the case of the Directive 95/46/EC on General Data Protection Regulation (1995), not adapted to the Spanish regulatory framework until 2018 with the Organic Law 3/2018 of personal data protection and guarantee of digital rights (Ley Orgánica 3/2018, 2018). This law regulated right to privacy before the use of geo-location devices at work, transparency rights before the use automated processing of personal data and profiling, and the right to disconnect. The law did not involve social partners in any of its stages. Thus, CCOO and CEOE assessed that the law works well as to harmonize GDPR at European level and to reinforce data protection rights, but lacking precision. So, it takes to regulate at sectoral level regarding issues as transparency and the access to personal data (CCOO Industria, 2018; CEOE, 2021).

In the meantime, labour conflicts generated by algorithmic management (particularly delivery platform work) were strongly judicialized (more than 50 court (mostly favorable) sentences). Some months later, the Ministry of Work and Social Economy promoted in May 2021 the Royal Decree-Law 9/2021 guaranteeing the labor rights of people dedicated to delivery in the field of digital platforms. This law was promoted before the acceleration of platform economy, algorithmic management and AI systems due to the pandemic shock. The law was negotiated and agreed at national level by CCOO and UGT in the union side, and CEOE and CEPYME (Spanish Confederation of Small and Medium-sized companies) on the employer side. Nevertheless, this agreement was not supported by Adigital, the EO representing platform delivery companies (e.g., Glovo and Deliveroo). The law was primary aimed to recognize the direct employment of platform delivery workers. Remarkably, the law also included a second section to establish the workers (representatives) information right on algorithms or AI based-systems instructions influencing decision-making and affecting access to employment, working conditions and measurement of efficiency in all sectors of the economy. Concretely, the law regulates the collective right to access to the parameters, rules and instructions on which algorithms and AI systems are based that affect this decision-making, and that may have an impact on working conditions, access to and maintenance of employment, including profiling of workers and applicants. The law also enforces the role of collective bargaining at company level (concretely the role of workers representatives) to supervise the use of these technologies.

About next expected regulatory steps, the National Government has offered Spain for a pilot test of the European Commission proposal on AI regulation (presented in April 2021). The European proposal would begin to be applied with certain companies in the Spanish economy before it becomes mandatory at EU level. Participants in the programme will be able to convey implementation problems or ways to speed up compliance. At the moment, the plan is under negotiation with the European Commission's Joint Research Centre (JRC). In addition, the Spanish Government has also announced the creation of the "Social impact of Algorithms Observatory" (Obisal), aimed to prepare methodology for algorithmic audits, serve as public sector algorithm register, and the creation of an algorithm quality label. This new body is currently recruiting its team and designing work plan.

Regulatory mechanisms on these issues are much more absent in collective agreements. The most relevant case is the last CA of the banking sector at national level (March 2021, before the approval of the Royal Decree-Law 9/2021) regulating the right before AI: recognition of the rights not to be subject to decisions based only on algorithms, to non-discrimination in relation to these decisions and to request mediated intervention in case of disagreement. The agreement also establishes the obligation of employers to inform workers representatives in case of these automated decisions influencing HR and IR decision-making processes, particularly in relation to data feeding algorithms, operating logic, and evaluation of the results. Nevertheless, since the approval Royal Decree-Law 9/2021, there are two potential future scenarios: the automatic extension of the information right regulated in the law or the introduction/adaptation of the right in the collective agreement at sectoral or company level. Relevantly, this agreement seems to become a pattern-settler within financial services: the national collective agreement of financial credit entities (October 2021) copied the example of the banking sector, introducing exactly the same rights before AI. Then, the national CA of insurance and reinsurance companies and mutual insurance companies collaborating with the Social Security (December 2021, after the approval of the Royal Decree-Law 9/2021) introduced an article on the usage of AI in industrial relations, applying much of the ethical aspects of the agreement of sectoral social partners at European level (Amice, 2021). But mostly introducing the right to access to information on AI-based systems affecting HR decision making processes. That is, being the first agreement adapting at sectoral level the right established by the Royal Decree-Law 9/2021. Besides sectoral bargaining processes, just one company level collective agreement has regulated how HR algorithmic management affects employees (Grupo Acha Movilidad, specialized on bus renting), although not introducing the information right of workers representatives.

As far as platform delivery workers have been in eye of the storm as regards HR algorithmic management, unions were particularly proactive mostly demanding employment contracts for (bogus) self-employed workers as far as algorithmic management of their activity implies a dependency and hierarchical relation. As a result, one company have developed already bargaining processes to regulate these issues. That is the case of the CA of "Just Eat", that prior the Royal Decree-Law 9/2021 was the first platform delivery company to directly contract its deliverers. Management and unions have already reached an agreement (pending of publication) that introduces also the transparency right of workers on AI based-systems affecting human resource management.

Although manufacturing companies seem to be leading the application of AI-based systems in work processes (mainly through the use of enterprise resource planning (ERP) applications), there are not relevant agreements regulating these specific issues at sectoral neither at company level. Nevertheless, some other agreements do introduce some general aspects that may entail the same regulation. The national collective agreement of industry, new technologies and metal sector services (2022) includes an article on the regulation of digital transformation, stipulating that companies must inform workers' representatives in due time before decisions are taken on proposals for digital or technological transformation that do not entail a substantial change in working conditions, but which could have any effect on employment and work processes. This provided information must accompany new operating methods and technological modifications. In the case of the collective agreement of the mobility manufacturer Alstom (2018), it establishes that the introduction of new technologies affecting work organisation must be communicated to the works councils and workers representatives in every establishment of the company (without further detail). The collective agreement of the automotive manufacturer Ford established in 2019 that one of the responsibilities of the joint advisory commission is receive information and suggest recommendations on the introduction of new technologies and new work organization methods. The more recent agreement of the also automotive manufacturer Renault (2021) establishes the creation of a commission of new technologies. Within this joint committee, the

Management undertakes to provide prior and sufficiently detailed information on new technologies to workers' representatives as well as the possible effect on employment and working conditions.

Conclusions

Spain seemed to be delaying regulatory steps tackling with new technologies affecting workers participation, but maybe it was a blessing in disguise: most recent national legislation shows the case of Spain as one of the leading national legislations at European level leading with these issues. The rapprochement between social partners on the disadvantage of labour conflicts rising from AM biases together with the negative perception among most of employer organizations on social dumping of platform companies have facilitated collective agreements regulating AI-based systems affecting employees. Furthermore, some sectoral agreements started before to recognize these information and participation rights. And some others at sectoral and company level are starting to include these rights in order to enhance the transparency in the implementation of these technologies in recruitment processes, efficiency evaluation and discipline procedures.

References

Adigital (2019). *Propuesta normativa en materia de trabajo en plataformas digitales.* Adigital. https://www.adigital.org/media/propuesta-regulatoria-plataformas-digitales.pdf

Amice (2021). *Joint declaration on Artificial Intelligence by the European social partners in the insurance sector.* Amice. https://amice-eu.org/app/uploads/2021/04/2021-03-16-ISSDC-Joint-declaration-on-Artificial-Intelligence.pdf

Álvarez-Hernández, G., & Pérez Zapata, O. (2020). Plataformización y gestión "platafórmica": una discusión de las condiciones de trabajo en una plataforma cualificada. *Revista Española de Sociología*, 30(3), a67. https://doi.org/10.22325/fes/res.2021.67.

Balaguer, M. L. (2018). Trabajo en plataformas digitales en España: primeras sentencias y primeras discrepancias. *Labour & Law Issues*, 4(2), C. 51–78. https://doi.org/10.6092/issn.2421-2695/8799.

Buenadicha, C., Galdón, G., Hermosilla, M.P., Loewe, D. and Pombo, C. (2019). *La gestión ética de los datos. Por qué importa y cómo hacer un uso justo de los datos en un mundo digital.* Banco Interamericano de Desarrollo. http://dx.doi.org/10.18235/0001623.

Tello, C., Ureña, C., Rillo, R., Colado, J., Claver, P., Marmolejo, M., Martín, I, and Gómez, R. (2022). *Economía digital en España. 2ª edición.* Adigital and Boston Consulting Group. https://www.adigital.org/doc/202202_informe-economia-digital.pdf

CCOO (2021). *Acuerdo marco europeo de los interlocutores sociales sobre digitalización.* CCOO. https://www.ccoo.es/noticia:577640--Acuerdo_marco_europeo_de_los_interlocutores_sociales_sobre_digitalizacion&opc_id=8c53f4de8f8f09d2e54f19daf8d8ed95

CEOE (2016). *Plan digital CEOE 2025. La digitalización de la sociedad española.* CEOE.

CEOE (2021). *Plan Digital 2025. La digitalización de la sociedad española (Actualización Octubre 2020).* CEOE.

CEOE (2021). *Acuerdo marco de los interlocutores sociales europeos sobre digitalización.* CEOE. https://www.ceoe.es/es/publicaciones/laboral/acuerdo-marco-de-los-interlocutores-sociales-europeos-sobre-digitalizacion

Chavez, P. (2021, October 27). *Gobernar El Algoritmo: Democracia Y Relaciones Laborales.* Round table at the Global Forum on Democratizing Work [Video]. YouTube. https://www.youtube.com/watch?v=QYr8YjH96W4&t=4559s

COTEC (2021). *Entregamos a la presidenta del Congreso las 135.000 firmas de apoyo a #MiEmpleoMiFuturo.* COTEC Noticias.

De La Fuente, A. (2021, May 20). Algoritmos, los nuevos jefes en las empresas: así son y así pueden afectar a los trabajadores. *Público.* https://www.publico.es/economia/algoritmos-nuevos-jefes-empresas-son-afectar-trabajadores.html

Díez-Prat, F. D., and Ranz, R. (2020). Mi experiencia como repartidor de Deliveroo y el intento por articular nuestra lucha desde la estructura sindical de UGT. *Teknokultura*, 17(2), 187-193. http://dx.doi.org/10.5209/TEKN.69532

Iglesias Fraga, A. (2020, September 2). Nadia Calviño: "La digitalización es la principal palanca para aumentar la productividad de la economía". *El Español.* https://www.elespanol.com/invertia/disruptores-innovadores/politica-digital/20200902/nadia-calvino-digitalizacion-principal-aumentar-productividad-economia/517699788_0.html

García Vega, M. A. (2020, July 25). *Yolanda Díaz: "El avance tecnológico no puede suponer un retroceso en las condiciones laborales al siglo XIX".* El País https://elpais.com/retina/2020/07/16/tendencias/1594862095_335469.html

Galdón, G., Delcòs, C., Zamorano, M., and Molina, A. (2018). *Trade unions, labour rights and technological change.* Eticas Foundation. https://eticasfoundation.org/wp-content/uploads/2020/03/Sindicatos_eng.pdf

Galdón, G., Zamorano, M., Castillo, C., Smith, O., and Matic, A. (2020). *Auditing algorithms: On lessons learned and the risks of data minimization.* In: Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society (pp. 265-271). https://dl.acm.org/doi/pdf/10.1145/3375627.3375852

Goñi, J. L. (2019). Innovaciones tecnológicas, inteligencia artificial y derechos humanos en el trabajo. *Documentación Laboral*, (117), 57-72.

Gordillo, R. G. (2021). Algoritmos y derecho de información de la representación de las personas trabajadoras. *Temas laborales: Revista andaluza de trabajo y bienestar social*, (158), 161-182.

Government of Spain (2021). *Carta de Derechos Digitales* [Charter of Digital Rights]. https://www.lamoncloa.gob.es/presidente/actividades/Documents/2021/140721-Carta_Derechos_Digitales_RedEs.pdf

Industry Talks (2021, 29 March). Pepe Álvarez, UGT: "El Plan de Recuperación resulta esperanzador, pero provoca dudas sobre empleo y fiscalidad". https://www.ugt.es/el-plan-de-recuperacion-resulta-esperanzador-pero-provoca-dudas-sobre-empleo-y-fiscalidad

La Moncloa. (2021). *El último acuerdo social sitúa a España en cabeza de la Unión Europea en el reconocimiento de los derechos laborales de las personas que trabajan en reparto de plataformas digitales.* Retrieved from: https://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/trabajo14/Paginas/2021/110321-acuerdo_social.aspx

Lara, C. S. (2020). El algoritmo como protagonista de la relación laboral. Un análisis desde la perspectiva de la prohibición de discriminación. *Temas laborales: Revista andaluza de trabajo y bienestar social*, (155), 41-60.

Ley Orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales. BOE, 294, §§ 119788–119857 (2018). https://www.boe.es/buscar/doc.php?id=BOE-A-2018-16673

Ministerio de Ciencia, Innovación y Universidades (2019). Estrategia española de e I+D+i en Inteligencia Artificial. Gobierno de España.

Ministerio de Asuntos Económicos y Transformación Digital (2019). *España Digital 2025.* Gobierno de España.

Muñoz, K., and Medina, P. A. (2020). Precarización de plataformas: El caso de los repartidores a domicilio en España. *Psicoperspectivas*, 19(1), 1-12.

Olarte, S. (2020). La aplicación de inteligencia artificial a los procesos de selección de personal y ofertas de empleo: impacto sobre el derecho a la no discriminación. *Documentación Laboral*, (119), 79-98.

ONTSI (Observatorio Nacional de Tecnología y Sociedad) (2020). *La Sociedad en Red. Transformación digital en España. Informe Anual 2019.* Red.es., Ministerio de Asuntos Económicos y Transformación digital., ONTSI

Pérez, R. (2021). Algoritmos y derecho de la información de la representación de las personas trabajadoras. *Temas laborales*, 157, 161-182.

Proyecto de Ley 121/000001, de 28 de febrero, del Impuesto sobre Determinados Servicios Digitales. BOCG, 14-A, §§ 1-1 (2020). https://www.congreso.es/public_oficiales/L14/CONG/BOCG/A/BOCG-14-A-1-1.PDF

PwC (2019). *European Private Business Survey 2019.* PwC. https://www.pwc.es/es/publicaciones/economia/descarga-european-private-business-survey-2019.html

Real Decreto-ley 9/2021, de 11 de mayo, por el que se modifica el texto refundido de la Ley del Estatuto de los Trabajadores, aprobado por el Real Decreto Legislativo 2/2015, de 23 de octubre, para garantizar los derechos laborales de las personas dedicadas al reparto en el ámbito de plataformas digitales. BOE, 113 §§ 56733 – 56738 (2021). https://www.boe.es/eli/es/rdl/2021/05/11/9

Ranz, R. (2019). *El trabajo en las plataformas digitales de reparto. Servicio de estudios de la Confederación de UGT.* UGT. https://www.ugt.es/sites/default/files/el-trabajo-en-las-plataformas-digitales-de-reparto-ugt.pdf

Revilla, J. C., & Blázquez, V. (2020). Uneasy riders: contradictorias lógicas disciplinarias para una posición laboral imposible. *Revista Española de Sociología*, 30(2), 1-19. https://doi.org/10.22325/fes/res.2021.35

Secretaría de Política Sindical UGT (2019). *UGT ante la digitalización: tres años de acción sindical.* Comisión Ejecutiva Confederal.

Secretaría Confederal de Acción Sindical de CCOO. (2020). *Guía Negociación colectiva y digitalización 2020.* Confederación Sindical de CCOO

Sempere, P. and Jiménez, M. (2021, May 13). Los algoritmos que rigen las relaciones laborales: así son y así se regulan. *CincoDías.* https://cincodias.elpais.com/cincodias/2021/05/13/companias/1620936778_868244.html

Todolí-Signes, A. (2019). Algorithms, artificial intelligence and automated decisions concerning workers and the risks of discrimination: the necessary collective governance of data protection. *Transfer: European Review of Labour and Research*, 25(4), 465-481. http://dx.doi.org/10.2139/ssrn.3316666.

Túñez-López, J. M., Toural-Bran, C., & Cacheiro-Requeijo, S. (2018). Uso de bots y algoritmos para automatizar la redacción de noticias: percepción y actitudes de los periodistas en España. *Profesional de la información*, 27(4), 750-758.