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Gig Economy: Apparent Autonomy and Algorithmic Control

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Introduction

In recent years, the development of digital technologies has profoundly transformed the labor market, giving rise to new forms of employment associated with the so-called *gig economy*. This phenomenon has redefined both forms of production organization and the relationship between employer and employee. Within this context, the food delivery sector has taken on an emblematic role: on the one hand, it represents one of the areas of greatest economic and technological expansion; on the other, it raises crucial concerns about rights, protections, and new forms of control. In fact, it embodies many of the typical dynamics of the new digital economy, such as flexibility, the promise of autonomy, the intensive use of technology and, above all, the use of algorithmic systems in work management.

The focus of this study is precisely the algorithmic system. The algorithm does not perform a purely technical function of logistical coordination but takes on the role of 'digital manager', significantly influencing the way work is carried out. This aspect makes it necessary to question the nature of the employment relationship between riders and platforms: a relationship which, although formally classified as self-employment, displays several features that resemble subordination.

First, the issue is crucial from a legal perspective, as it is essential to properly classify these new forms of work and avoid inadequate legal categories that would deprive workers of rights and protections. At the same time, it is also a social and economic problem: the power asymmetry between platforms and workers, combined with the new forms of dependency created by digital technologies, reflects a structural imbalance that characterizes the entire platform work sector.

The research question that guides this study can be formulated as follows: To what extent does the algorithmic system influence the management and control of riders in food delivery platforms?

This question gives rise to the main objective of this study, namely, to examine how algorithmic mechanisms shape riders' work, influencing both their autonomy and the forms

of control to which they are subjected. This objective is accompanied by the analysis of a further aspect, which is the legal and regulatory implications of these dynamics, considered in the context of the transformations taking place in labor law both at the national and European levels.

In order to answer the research question, a mixed methodology was adopted. On the one hand, a regulatory and jurisprudential analysis was conducted to reconstruct the evolution of the debate on the legal classification of riders, with particular reference to the Italian context – through various decree-laws and key court rulings – and the Spanish case with the *Ley Rider* – legislation designed specifically for this category of workers – leading to an analysis of the content of the new Directive (EU) 2024/2831 on improving working conditions in platform work, which also represents the first legal regulatory attempt at European level dedicated to this constantly evolving sector. On the other hand, a review of the international literature on the subject of algorithmic management was carried out, supplemented by an exploratory empirical survey based on a questionnaire addressed to riders.

Naturally, the research presents certain limitations: in particular, the non-representative nature of the sample and the rapid technological evolution of the sector are factors that make it necessary to constantly update the studies.

This study forms part of the interdisciplinary debate on labor law while also contributing to the ongoing political and institutional debate. To pursue these objectives, it is structured into three main sections, each addressing a specific aspect of the problem and contributing to the overall analytical framework.

The first chapter reconstructs the theoretical and regulatory framework, with the aim of clarifying the fundamental categories of the legal debate on platform work. It examines the main theories on the relationship between autonomy and subordination, together with the first regulatory responses developed by the Italian and European legal systems. This analysis provides the conceptual basis necessary to understand the tensions between traditional models of work classification and the new dynamics introduced by digital platforms.

The second chapter explores the role of the digital manager, a central element of algorithmic management and one of the most innovative and yet problematic aspects of platform work. It analyzes the main control mechanisms – such as order allocation, ranking systems, penalties, and the use of GPS – which significantly influence riders' behavior, generating forms of dependence and constant pressure. This theoretical discussion is complemented by an empirical section, based on a survey of riders, which makes it possible to compare the data collected in the field with the interpretative categories developed in academia, thus offering a direct perspective on workers' experiences and providing a more nuanced and problematized picture.

The third chapter is devoted to the analysis of Directive (EU) 2024/2831, focusing on its content and the main innovations it introduces. Particular attention is paid to the national transposition phase, with a focus on Italy and Spain: two legal systems which, while both required to adapt to the European framework, have developed different approaches. This section therefore makes it possible to evaluate the extent to which European legislation is able to fill the regulatory gaps in the sector, respond to the critical issues identified in the previous analysis, and have a concrete impact on riders' working conditions.

Finally, the study concludes by summarizing the main findings, highlighting the limitations of the research, and outlining possible avenues for future study. Taken as a whole, the study underscores the importance of the issue addressed, showing how the analysis of platform work provides valuable insights not only for legal debate, but also for broader social and political reflection on the future of work.

CHAPTER I

The Employment Status of Riders: Autonomy vs. Subordination

The concept of labour market has been developed over the centuries by numerous economists, scholars, and schools of thought, evolving from the theories of classical economics in the 18th century to contemporary analyses of digital labour. There is no single definition of the labour market, as each perspective is shaped by the historical, cultural and economic context in which it emerges.

One of the earliest and most influential contributions came from Adam Smith who, in 1776, in his seminal work, *The Wealth of Nations*, defined labour as the "real measure of the exchange value of all goods", emphasizing the central role of labour power in determining economic value (Smith, 1776, cit. in Martini, 2021). Over time, the analysis of the labour market has been enriched by neoclassical, Marxist and Keynesian theories, leading to contemporary interpretations that incorporate factors such as globalization, digitalization and structural changes in production and employment.

In the current economic scenario, the concept of the labour market is no longer confined to a physical space where labour supply and demand meet but rather encompasses digital and algorithmic dynamics that are reshaping employment patterns. An emblematic example of this transformation is the gig economy, which has introduced new forms of employment characterized by apparent flexibility, on-demand work and algorithmic labour management. This model, increasingly widespread in the food delivery and mobility sectors, raises important questions about the employment status of platform workers, placing the distinction between autonomy and subordination at the center of the current debate.

1.1 The Dichotomy Between Autonomous and Subordinate Work in an Evolving Legal Framework

Legislators have always encountered difficulties in defining and interpreting the relationship between autonomy and subordination in labour law. These difficulties have increased over time with the growing complexity of contractual and organizational models, accentuated by the impact of technological innovations. However, before analyzing the reasons why the traditional dichotomy between autonomous and subordinate work now appears less adequate to describe contemporary labour realities, it is essential to examine the legal basis of these concepts.

Article 2094 of the Italian Civil Code defines the subordinate worker as:

> "[…] chi si obbliga mediante retribuzione a collaborare nell'impresa, prestando il proprio lavoro intellettuale o manuale alle dipendenze e sotto la direzione dell'imprenditore."

This refers to individuals who provide their labor, receive remuneration, and operate under the direction of an employer. Subordinate employment represents the central concept of labour law, but it is a notion that is difficult to define precisely, especially in light of the socio-economic changes that have occurred over time. Its importance derives from the protective function that labour law has always attributed to subordination relationships, since they guarantee workers access to regulatory and social security protections (Fraioli, 2022). It is no coincidence that one of the main debates in the food delivery sector concerns precisely the protections afforded to workers, but the central problem with subordination, within the legal debate, is that the Italian legal system – like many other European systems – has developed the notion of subordinate employment based on the manner in which the work is carried out, namely its continuity and the worker's subjection to the directive power of the employer. However, this approach overlooks the social and economic conditions of the worker, creating a disparity in protection for those who, although formally self-employed, are economically dependent on their employer (Fraioli, 2022).

Alongside subordinate employment, the Italian legal system also recognizes the figures of the self-employed worker, primarily governed by Article 2222 of the Civil Code, which regulates the contract for work (*contratto d'opera*). According to this provision, a contract for services exists when a person undertakes to carry out a task or provides a service without any hierarchical subordination, predominantly using their own labour and assuming the economic risk associated with the performance. However, the Civil Code does not provide a unitary definition of self-employment, but rather regulates it through various legal categories, distinguishing it from both subordinate employment and small entrepreneurship (Mazzotta *et al*., 2016). In this regard, Article 2083 of the Italian Civil Code identifies the categories of small entrepreneurs, further differentiating them from other types of workers and businesses. Self-employment is not a rigid category but lies in an intermediate space between business activity and subordination, making it necessary to identify distinctive criteria for its qualification. From both jurisprudential and doctrinal perspective, the most significant criterion is the absence of *etero-direzione*, meaning the lack of constant control by the employer, which distinguishes the self-employed worker from the employee.

The difficulty in defining the boundaries between self-employment and subordinate work led the legislator to introduce *Articolo 2 del Decreto Legislativo 81/2015* (hereinafter referred to as "D.Lgs. 81/2015"). This provision represents an important innovation in labour law, as it extends the protections typically associated with subordinate employment to certain forms of collaboration that exhibit three key characteristics: the work is performed personally and exclusively by the worker, it is continuous in nature, and the methods of execution, including working hours, are organized by the employer. This provision gave rise to a new legal category: *Lavoro etero-organizzato* (hetero-organized work), which occupies an intermediate position between autonomy and subordination. This classification applies to workers who, although formally self-employed, are in fact bound by an organization imposed by the employer. However, the concept of hetero-organized work does not redefine subordination in a strict sense; rather, it provides intermediate legal protection to those workers whose conditions closely resemble those of subordinate employment.

Some scholars have pointed out that hetero-organization may generate interpretative uncertainties, since the distinction between this category and *collaborazioni coordinate e*

continuative (coordinated and continuous collaborations) is not always clear. The latter constitutes a form of self-employment in which the worker operates on a continuous basis, with agreed coordination with the client (or principal), but without being subordinate. According to Pessi (2015), the main risk is an overlap with Article 409(3) of the Italian Code of Civil Procedure, which regulates coordinated and continuous collaborations, assigning them to the jurisdiction of the labour courts while not classifying them as subordinate work. The substantial difference lies in the fact that, whereas coordinated and continuous collaborations are based on coordination mutually agreed upon by the parties, hetero-organized work involves a unilateral organization imposed by the client.

In fact, this unilateral organization, highlighted by Fraioli (2020) and considered by the author to be more invasive than traditional work, is based on an algorithmic system that manages the entire work process. After accepting an order from the customer, the algorithm identifies the most suitable worker, monitors his location, suggests alternative routes, and reports on calls and possible refusals of assignments. Some of these systems reward riders on the basis of their work performance, giving them a series of advantages, such as access to time slots that are more remunerative and to the most advantageous deliveries, consequently excluding those who are deemed to be less performing in the course of their work. As can be seen, these functions are managed unilaterally by the platform. without any agreement with the worker.

Subsequently, *Decreto Legislativo 81/2017* (Legislative Decree 81/2017) introduced several updates to D.Lgs. 81/2015, including the regulation of smart working and an expansion of worker protections. However, its core approach remained unchanged, continuing to offer intermediate protection for those workers who, although not subordinate in the classical sense, are highly dependent on the client's organization and follow its operational directives.

The regulatory evolution continued with Law 128 of 2019, which paid special attention to the figure of riders and hetero-organized forms of self-employment. The most significant change concerned Article 2 of D.Lgs. 81/2015, replacing the term 'exclusively' with 'predominantly', thus broadening the scope of the rule. In addition, the explicit reference to the time and place of work was eliminated, acknowledging that the client's control may also

be exercised in less rigid forms than those typical of classic subordination. Additionally, the introduction of Chapter *V-bis* has defined a specific regulatory framework for workers on digital platforms, guaranteeing minimum levels of protection for self-employed gig economy workers, with particular reference to algorithmic transparency and the determination of a minimum remuneration.

The legislative changes analyzed show how the legislator is trying to adapt labour law to the new forms of employment imposed by digitalization. However, the evolution of the gig economy still poses significant challenges, making it necessary to constantly monitor the effectiveness of the protections introduced.

1.2 The Role of Algorithmic Control in The Definition of Employment Relationship

One of the most relevant questions regarding digital platforms concerns the nature of the legal relationship between the worker and the digital system that organizes their work. This relationship is set in a context of profound transformation of the labour market, where the traditional distinction between autonomy and subordination appears less and less adequate to describe the contemporary labour reality (Perulli, 2017). In particular, within the gig economy, the organizational model of platforms often entails working conditions characterized by occasionality, low remuneration and informality, elements that raise questions about the need for adequate protection for workers.

To better understand these dynamics, it is crucial to distinguish between different types of digital platforms. According to Raimondi (2019), there are two main categories: ‘product platforms’, which offer goods or services via subscription (e.g. Netflix), and ‘lean platforms’, which act as digital intermediaries for the buying and selling of goods and services without directly owning them (e.g. Uber). Gig economy platforms, particularly those operating in food delivery, fall into this second category. They create a digital marketplace where workers make themselves available to provide a service, while the management of operations is delegated to the platform through algorithms that coordinate the matching of supply and demand.

This configuration raises questions about the actual autonomy of workers operating through these platforms. Although the gig economy's organizational model promotes flexibility and independence for riders, in practice, dynamics emerge that challenge this interpretation.

At first sight, food delivery platforms seem to be based on a model of labour autonomy as riders have the possibility to accept or refuse assignments and choose when to work. However, this interpretation is challenged by the actual organization of work, which is strongly conditioned by the platforms' algorithmic management – a topic that will be explored in the following chapter – as this system directly influences their choices regarding how, when and how much to work (Censi, 2023). Although riders are formally free to accept or refuse a task, algorithmic ranking, penalty system, and incentives push them to adopt behaviors comparable to those of subordinate workers. As Huang (2023) highlights, the entire activity is organized through an algorithmic system that monitors and assigns tasks to riders based on non-transparent parameters. As a result, workers cannot choose the clients they work for, nor can they negotiate the rate of their service.

These elements show how the working relationship is strongly conditioned by the platform, making it difficult to speak of actual autonomy. If riders' autonomy is constrained by an algorithmic system that determines their behavior, can we still consider them autonomous workers?

A concrete response to this question came in 2020 with Judgement No. 1663/2020 of the *Corte di Cassazione* (Italy's Supreme Court of Cassation), better known as the Foodora ruling. This decision took place within a legal and social context already marked by disputes over the recognition of riders' rights and had a significant impact on the food delivery platform sector. The Court established that the concept of hetero-organization (D.Lgs. 81/2015) may constitute a sufficient criterion for granting certain protections typically associated with subordinate employment, without the need to prove the existence of a traditional hierarchical relationship. The Foodora case, in particular, was one of the first legal challenges by riders and contributed to reshaping the debate around their actual legal classification.

The case began in 2016, when the riders working for *Foodora* platform (German food delivery, which operated in Italy from 2015 to 2018 in cities such as Milan and Turin) challenged their contractual classification, demanding greater labour protection. Initially, they were considered self-employed workers, with the freedom to choose when and how much to work. However, later that year, riders organized a public protest, denouncing several issues related to their working conditions. This mobilization led to the first legal action against the platform, with the riders requesting to be recognized as subordinate workers – a status that would have entitle them to the protections granted to employees under Italian labour law.

The legal action was based on the argument that the riders were subject to effective control by the platform, despite their formal status as self-employed workers. This control was exercised through an algorithmic management system, which regulated the assignment of deliveries and influenced workers' choices. In 2018, the Court of Turin, in judgement No. 778/2018, dismissed the claim, stating that there were not sufficient grounds to recognize the riders as employees. However, in 2019, the Court of Appeal of Turin (judgment no. 26/2019) partially overturned the decision, ruling that, while riders could not be considered subordinates in a strict sense, they could not be qualified as fully self-employed workers either. In 2020, the Supreme Court of Cassation confirmed the position of the Court of Appeal, stating that the high degree of organization and control exercised by the platform justified the application of protections typically associated with subordinate employment.

This ruling represented a turning point in the legal debate on riders, as it clarified that platform work does not fit neatly into the traditional categories of autonomy and subordination. On one hand, Article 2 of D.Lgs. 81/2015 took a central role in the decision, on the other, the ruling introduced a fundamental principle for food delivery platforms and their workers, fostering both the creation of new regulations and increased union pressure for broader protections. It is no coincidence that, following this ruling, other courts also addressed the issue, contributing to a more articulated regulatory framework for platform work and reinforcing the need for consistent regulation across the sector.

In 2021, the Court of Milan launched an investigation into *Deliveroo Italy* (UK-based food delivery platform, operating in Italy since 2015) to examine the working conditions and

legal protections afforded to riders. The investigation revealed several contractual irregularities, including the company's failure to comply with labour inspection reports that required the reclassification of riders.

During the proceedings, it emerged that Deliveroo had failed to pay social security contributions amounting to over EUR 68 million for the period 2016-2020. In addition, the court acknowledged that the platform exercised organizational control over riders through its algorithmic system, which determined the task allocation, the most convenient time slots, and penalties for those who refused deliveries. These elements significantly limited the workers' autonomy, bringing their conditions closer to those of subordinate employment.

Judgment No. 6772/2021 of the Court of Milan ruled that the relationship between riders and Deliveroo fell within the category of hetero-organized work, as provided for by Article 2 of D.Lgs. 81/2015, consequently, riders were entitled to the protections typically granted to subordinate workers. This ruling represented an important legal precedent, reinforcing the principle that, even in the absence of a formal hierarchical relationship, the organization and control exercised by digital platforms may justify the extension of the protections normally associated with subordinate employment.

The Deliveroo case in Italy is not an isolated case, as courts in other European countries have also addressed the issue related to the legal qualification of riders. Among the most significant decisions are the Spanish Supreme Court's ruling in the *Glovo case* (food delivery platform founded in Barcelona in 2015), which led to the approval of the *Ley Rider*, and the British Supreme Court's ruling in the *Uber case* (ride-hailing platform based in San Francisco and operating in more than 900 cities worldwide), which, although not concerning a delivery platform, addressed a similar issue.

In Spain, with judgement No. 805/2020, the Supreme Court ruled that Glovo's riders should be classified as employees rather than self-employed workers, since the platform directly organized and controlled the entire management of the service, determining working methods and task assignments through algorithms. This decision had a significant impact, leading to the approval of the Ley rider (Law 12/2021), which came into force in September 2021. The law introduced a presumption of subordination for digital platform workers in

the delivery sector, stipulating that if the platform directly organizes the service, riders must be considered employees. In addition, the law imposed an obligation of algorithmic transparency, requiring companies to disclose the criteria by which their automated systems manage and evaluate riders' work.

On the other hand, the Supreme Court of the United Kingdom, in *Uber BV v. Aslam and Others, [2021] UKSC*, confirmed that Uber drivers should be classified as workers, an intermediate category under the British system (Employment Rights Act 1996). This recognition granted drivers fundamental rights, including paid holidays, minimum wage and social security protection.

The Court's decision was based on several key criteria: the fares were determined by the platform, with no possibility for drivers to negotiate their remuneration; the contractual terms were unilaterally imposed, leaving no room for negotiation; drivers had limited freedom to refuse rides, and those who rejected too many tasks faced penalties; and their work performance was monitored through the algorithmic system. These elements led the Court to reject the notion that drivers were genuinely self-employed, recognizing instead that the level of control exercised by Uber was comparable to that of an employer. The reasoning adopted by the British Court is particularly relevant, as the criteria used to recognize subordination closely resemble those emerging in the Glovo and Deliveroo cases, thereby reinforcing the broader debate on the applicability of employment protections in the gig economy sector.

These judicial developments, both at the national and international level, have fuelled the debate on the need for a regulatory reform capable of adapting labour law to the new forms of digital subordination in the gig economy. In particular, these judgments have strengthened the idea that, regardless of the formal contractual classification, digital platforms exercise effective organizational control over workers, justifying the extension of rights and protections traditionally associated to subordinate employment.

1.3 Multidisciplinary Perspective on The Riders' Work

As a result of contractual developments and regulatory changes, it is evident that the labour law paradigm has undergone – and continue to undergo – a process of transformation (Perulli, 2021). The traditional approach, based on the dichotomy between subordinate and self-employment work, has progressively adapted to a new regulatory framework, introducing legal responses like Article 2 of D.Lgs. 81/2015. Although legal developments do not always follow a linear path, it is clear that traditional categories are no longer sufficient or adequate to define the contemporary working reality. It is no coincidence that various European legal systems have responded by seeking to extend protection to workers who, although formally self-employed, operate under conditions closely resembling subordination, as also noted by Perulli (2021).

Due to the difficulties in legally defining the role of riders, on the one hand it is challenging to frame these new forms of employment within traditional labour categories; on the other hand, it becomes essential to ensure adequate protection for those workers who are, *de facto*, economically and operationally dependent on the platforms.

As repeatedly affirmed by case law (Corte di Cassazione, judgment no. 1663/2020; Court of Milan, judgment no. 6772/2021), the platform's mechanisms for monitoring and evaluating work performance do not, in themselves, constitute a clear indicator of subordination. In this regard, Perulli (2021) illustrates the concept with a practical example: if a company selects a worker to manage a certain sector, it is natural for the client to assess the candidate's skills, punctuality and reliability based on their experience, without this necessarily implying legal subordination. It is, therefore, a "*comportamento razionale di un attore economico sul mercato*" [rational behavior of an economic actor within the market] (Perulli, 2021, p.65). The same reasoning, according to the author, can be applied to digital platforms, since the relationship between the rider and the platform is governed by algorithmic classification criteria.

However, the problem of subordination becomes evident when the platform, through algorithmic control, goes beyond merely evaluating riders' performance and engage in much more structured management. Specifically, the algorithmic system receives the

customer's request, processes it according to a series of pre-established parameters, and then sends the job proposal to the workers, providing indications on how the task is to be performed (Fraioli, 2020). This operational logic, although considered rational from an economic and organizational point of view, raises concerns regarding the actual autonomy of riders. The problem arises when algorithmic control does not merely assess performance but imposes rigid operational constraints, limiting the worker's decision-making power, determining rates, setting binding performance standards and applying penalties such as unilateral disconnection from the app (Raimondi, 2019). In these cases, the platform's economic model can no longer be considered solely a market-based system grounded in free competition but rather takes on features more closely associated with traditional subordination, leading courts to reconsider the criteria used to classify the employment relationship.

The legal debate is therefore strongly influenced by the tendency to recognize the subordination of riders, precisely because of the several forms of control to which they are subjected, forms that are not present in traditional self-employment. For instance, while a freelancer is not required to notify the client of any delays or non-performance, riders are continuously monitored via GPS, must comply with order acceptance criteria, and may face penalties in case of unavailability.

For these reasons, recent case law has adopted an intermediate position. On the one hand, it confirms the orientation that algorithmic control alone is not sufficient to qualify the relationship as subordinate; on the other hand, when such control becomes intrusive and significantly limits the worker's autonomy, it becomes necessary to apply the protections typical of subordinate employment, as provided for in D.Lgs. 81/2015 for hetero-organized collaborations.

However, a further problem arises when the legal framework governing riders' work provides for multiple contractual types, thus resulting in fragmentation. Indeed, several contractual categories applicable to riders can be identified (Fraioli, 2020):

a) Riders operating as self-employed workers under Article 2222 of the Italian Civil Code. These workers are covered by Chapter V bis of D.Lgs. 81/2015, introduced

by Law 128/2019, but benefit from minimal protections. Riders under this type of contract are not entitled to paid holidays or sick leave, remaining exposed to a high degree of economic precariousness.

b) Riders hired through coordinated and continuous collaborations under Article 409(3) of the Italian Code of Civil Procedure. These workers are also covered by Chapter V bis, but the main difference from the previous category lies in the continuity of the service, which is more prolonged in this case.

c) Subordinate workers within the meaning of Article 2094 of the Italian Civil Code. Just Eat, since 2021, has adopted this contractual model through the Scoober system, which provides for the direct hiring of riders as employees, offering them the protections and guarantees typical of subordinate employment (Just Eat, 2021).

d) Hetero-organized collaborations under Article 2 of D.Lgs. 81/2015, applicable to riders who, although formally self-employed, perform tasks organized by the client. Before 2017, Glovo and Foodora adopted this contractual model (Cavallini, 2017), under which the law recognized riders the protections typical of subordinate employment, despite the self-employment classification.

e) Contracts governed by collective bargaining pursuant to Article 2(2) of D.Lgs. 81/2015, with protections provided by collective bargaining. Since 2020, Glovo has signed the Rider National Collective Bargaining Agreement (*Contratto Collettivo Nazionale di Lavoro – CCNL*), the first of its kind in the sector, which guarantees riders broader protections and benefits compared to self-employed arrangements (Glovo, 2020)

This fragmentation gives rise to a situation where workers performing the same tasks may be legally classified in different ways. As Fraioli (2020) notes, while this fragmentation has made it possible to identify specific protections for different employment types, it has also made it difficult for legislators to create a unified protection system capable of adequately addressing the challenges posed by new digital employment models.

Unsurprisingly, such diversification has led to interpretative and practical uncertainties, generating a proliferation of legal sources and creating a scenario in which workers engaged in identical activities may face different levels of vulnerability depending on the contractual framework adopted by the platform for which they work. Therefore, a more coherent regulatory approach remains essential, one that is capable of balancing the flexibility traditionally associated with platform work with the fundamental rights and protections that workers are entitled to, regardless of the fact that these are new forms of employment emerging within an increasingly digitalized labour market.

CHAPTER II

Managing Labor Through Algorithms: The Food Delivery Platform Model

Today, it is increasingly evident that the boundaries of traditional work have been crossed, giving rise to new forms of employment that are profoundly influenced by digitalization and technological innovation. These changes have not only produced new types of employment but have also transformed the dynamics and roles of classic work, adapting them to a context in which technology plays a central role.

In this scenario, the role of the human manager is increasingly being replaced by algorithmic systems equipped with continuously evolving machine learning capabilities. This transformation raises not only technical concerns, but also ethical, social and legal ones. However, it is crucial to notice that this transformation does not represent a complete break from the past but rather constitutes the latest phase in a broader historical process of organizational evolution.

Since its origins, the organization of work has undergone profound transformations: from the transition from hunting to agriculture, to the industrial revolutions that introduced technological innovations and generated the main economic and organizational theories. This path also includes the so-called 'Fourth Industrial Revolution', which as Schwab (2016, p. 12) explains, "*builds on the digital revolution*", and is characterized by the pervasive use of internet, artificial intelligence, interconnected devices and increasingly sophisticated automated processes.

The advent of algorithmic management, therefore, does not represent an isolated change, but fits into a line of continuity with the organizational models of the past. To understand its deeper implications, it is necessary to start with the historical roots of managerial thinking and the theories that have shaped the concept of work control, starting with Taylorism.

2.1 From Classical Management to Algorithmic Control

2.1.1 Taylorism and the Rise of Scientific Management

The use of technology, especially algorithmic management systems, is profoundly changing the organizational models and practices of a large number of workers in various sectors (Noponen *et al*., 2024). Although these dynamics appear novel, they are rooted in classical managerial models, which over time have adapted to social, economic and technological transformations.

The industrial revolution of the 18th century marks a fundamental starting point for understanding the evolution of organizational models. The increase in production and the emergence of the factory as a place for standardized production made it necessary to rationalize work activities. In this context, the figure of the manager emerged as distinct from that of the worker, with the specific function of organizing and coordinating work. From this point onwards, the first systematic theories on work organization and production efficiency began to develop.

Among the main authors who contributed to defining the foundations of modern management, Henri Fayol identified five fundamental functions of management: plan, organize, command, coordinate and control. For Fayol, organizational effectiveness depended largely on the clarity of the hierarchy and the stability of decision-making structures (Shringi and Shrivastava, 2023). In parallel, Max Weber interpreted modern organizations through the bureaucratic model, characterized by specialized roles, fixed rules and a rigid hierarchy where power is based on legal rationality and standardization of procedures (Serpa and Ferreira, 2019). However, to understand the logic of control that continues to influence digital work today, Frederick Taylor's theory remains essential.

Central to Taylor's thinking is the idea that work can be scientifically analyzed to identify the optimal combination of time and movement required to perform each task (Dar, 2022). His theory, known as 'Scientific Management', proposed a clear division between the manager, who is responsible for planning and control, and the worker, who is responsible

for performing simple and repetitive tasks. This model envisaged a strict separation and standardization of activities, aimed at maximizing productivity and reducing waste.

Although Taylorism attracted considerable criticism – particularly for its mechanistic view of human beings and its reduction of worker autonomy – it profoundly influenced the organization of work throughout the 20th century. Subsequent organizational models, such as Fordism, the labor organization model developed in Ford factories in the 1920s and characterized by assembly lines, standardization, and high productivity, and post-Fordism, the model developed since the 1970s and characterized by greater flexibility, diversification of production, and decentralization, also incorporated some of its elements, albeit with significant variations. In particular, there was a gradual shift from direct control, based on observation and prescription, to indirect control, based on the assignment of objectives and the empowerment of workers.

As Armano *et al.* (2023) observes, in the post-Fordist models, the figure of the autonomous and responsible worker emerges, who formally enjoys greater margins of freedom, but who in reality remains subject to production constraints and more subtle control devices. The promise of autonomy is often accompanied by new forms of pressure and evaluation, anticipating some of the dynamics found in digital platforms today. The evolution of managerial practices can thus be read as a continuum: from the rigid hierarchy and standardization of Taylorism to the more flexible and technologically mediated forms of contemporary management.

The purpose of this work is not to pass judgement on the validity or contemporary relevance of Taylor's theory, but to identify it as a fundamental starting point for understanding the evolution of practices of control and organization of work. Analyzing the origins of managerial thinking, in fact, allows us to perceive the continuities and transformations that lead to the current configuration of digital work. In particular, it will be useful to explore how the principles of Taylorism are reinterpreted, adapted, or transformed within the gig economy, in the form of a digital Taylorism managed through algorithms.

2.1.2 Digital Taylorism and Algorithmic Management

Algorithmic management is radically transforming organizational practices, with millions

of workers worldwide – especially in the gig economy – subject to software systems that perform managerial functions (Noponen *et al*., 2024). As Lee *et al*. (2015, p. 1603) point out, algorithmic management consists of "*software algorithms that assume managerial functions and surrounding institutional devices that support algorithms in practice*", i.e. algorithms that not only replace the figure of the manager but also reorganize the entire decision-making infrastructure of the firm.

This new form of control has also been referred to as "s*cientific management 2.0*" (Schildt, 2016, p. 25), emphasizing continuity with traditional Taylorism: standardization, decomposition of activities, constant surveillance and intensive performance measurement. Duggan *et al*. (2023) reinforce this interpretation by showing how these algorithms feed off the data produced by the workers themselves, generating increasingly sophisticated and pervasive cycles of control.

One of the most distinctive aspects of this regime is its opacity: the algorithms operate around the clock, collecting data in real time and relying on rules that are non-transparent and difficult for workers to understand. This combination makes them instruments of control that are both pervasive and invisible (Bucher *et al*., 2021; Armano *et al.*, 2023). They impose criteria, assess performance, assign tasks, and can even exclude workers from platforms – without mediation or human interaction and with little opportunity for appeal – profoundly affecting workers' decision-making autonomy.

Newlands (2021) interprets this surveillance as a computational assembly that continuously collects and evaluates data generated during work activities. Here, the difference from traditional surveillance systems becomes evident: whereas classical supervision observed from the outside, algorithmic management is based on the capture model, in which the action itself produces data useful for real-time supervision. Examples of this logic include systems such as GPS or electronic check-outs, which transform work activity into a continuous flow of data. This technical infrastructure acts as a "*virtual automated manager*" (Huang, 2023, pp. 187–188), governing every stage of the work process without direct interaction, translating customer demands into precise tasks, and constraining workers' choices within opaque, automated logics.

Although the rhetoric of platforms promotes flexibility and autonomy, researches shows how this autonomy is heavily constrained. Wood *et al*. (2019) point out that although workers can choose when to connect to the platform, once active they are subject to severe constraints, precarity and constant pressure to simultaneously meet customer expectations and algorithmic metrics. Bucher *et al*. (2021) also confirm this contradiction: the autonomy granted is only apparent and subordinated to an invisible and incessant control.

In this sense, the concept of 'Digital Taylorism' emerges with particular force: platforms reintroduce, in an amplified and technologically mediated form, typical features of Taylorism, such as piecework pay, standardization, deskilling, intensive measurement, and decomposition of tasks (Schildt, 2016; Noponen *et al*., 2024). Rather than marking a departure from Taylorist principles, digital platforms amplify and extend them. Algorithmic systems intensify the fragmentation and standardization of labour, reducing workers to functional components within a fully automated and impersonal infrastructure. Control no longer operates through visible supervision, but through opaque, data-driven mechanisms that render managerial power diffuse, continuous, and difficult to contest.

However, as Noponen *et al*. (2024) notes that not all algorithmic systems assume a purely coercive function. Some digital tools can also have an enabling function, providing useful information and facilitating autonomous choices, as opposed to controlling systems, which rigidly constrain conduct. Gig economy platforms, however, tend to fall mainly into the latter category, imposing optimized behavior through the action of the algorithm.

2.2 Power Asymmetries in Platform Work

One of the most relevant issues highlighted in the literature on the gig economy – particularly in the food delivery sector – is information asymmetries. This expression refers to situations in which two actors involved in an economic relationship do not have access to the same relevant information: one of the two, usually the platform, has significantly more and higher quality data than the worker.

As Noponen *et al*. (2024) observes, many platforms – as in the emblematic case of Uber – exploit information asymmetry to strengthen their control over workers. Their study

demonstrates how platforms possess in-depth knowledge of users' behavior, while riders remain almost unaware of the decision-making logic that governs their work. Moreover, the information imbalance is no longer limited to digital platforms alone, but also concerns numerous companies that, especially after the Covid-19 emergency, have adopted tracking systems and productivity measurement software. It is, therefore, a contemporary reformulation of pre-existing power dynamics, consistent with the evolution of algorithmic management discussed in the previous section.

At the institutional level, information asymmetry is recognized as a critical element of the gig economy. In a report for the European Parliament, Schmid-Drüner (2016) highlighted how digital platforms have constructed markets that are often unregulated or only partially regulated, leading to new forms of vulnerability. The report points out that platforms do not provide information on supply and demand but employ opaque pricing algorithms. It is reported, for example, that workers on food delivery platforms can receive increased compensation for weekend shifts, but the algorithm only rewards those who work the entire time frame – Friday to Sunday – without clearly stating this condition. In this way, the remuneration rules are non-transparent and not understandable *ex ante*, generating unfulfilled expectations and frustration among workers.

It is also important to note that, despite significant technological advances, the algorithm cannot be regarded as a neutral tool (De Petris, 2020; Bucher *et al*., 2021; Newlands, 2021; Muldoon and Raekstad, 2023). On the contrary, it embodies and reproduces opaque forms of power that elude workers' understanding and control. Indeed, riders do not have access to the criteria by which orders are assigned or their performance evaluated. According to Noponen *et al*. (2024), the algorithm becomes a real management tool rather than a mere optimization device. Moreover, Armano *et al.* (2023) highlights how platforms construct pre-coded environments, in which actions, responses and decision paths are predetermine upstream by rigid, non-negotiable schemes. The systems that govern pay, ranking, and performance are imposed unilaterally, without workers' awareness or possibility of intervention. In this way, algorithms function as black boxes, embedding power logics that shape both the material conditions of work and the way workers and consumers perceive themselves (Armano *et al.,* 2023). In this context, the algorithm may be experienced as an

impersonal managerial authority, potentially opaquer and more unchallengeable than the traditional one.

Another factor that contributes to information asymmetries and decision-making opacity is the often invisible but central role of algorithm programmers and developers. As Noponen *et al*. (2024) observe, the technical power of the experts who design these systems allows them to exert a potentially enormous influence on working conditions, while remaining external to the direct relationship between platform and worker. The limited public and professional understanding of how algorithms function often leads to an overestimating of their objectivity, attributing neutrality to tools that, in reality, reflect human choices and logics embedded in codes and operating models. It is no coincidence that the operational consequences of this opaque architecture are evident in workers' daily experiences – for instance, in relation to the origin of decisions. Workers are often unaware whether the instructions they receive come from human beings or automated systems, nor do they know the criteria underlying organizational choices. The absence of a direct channel with management eliminates any possibility of dialogue, compromising those relational dynamics – such as compromise, mediation or request for clarification – that are typical of traditional working contexts.

Further reinforcing this dynamic of domination is the deliberate management of information asymmetry by platforms. As Muldoon and Raekstad (2023) point out, many ride-hailing and food delivery companies consciously withhold essential operational information, configuring a system of control that is not based on explicit coercion, but on the strategic deprivation of knowledge. The lack of access to fundamental data – such as order allocation criteria or evaluation logic – radically limits the ability of workers to exercise autonomous and conscious choices. In many cases, the degree of algorithmic interference exceeds that of a traditional human supervisor, generating a form of domination that is more pervasive precisely because it is impersonal, invisible and unchangeable.

This is further compounded by a growing technological and cognitive disparity. Platforms possess advanced digital infrastructures, while workers are often forced to empirically decipher the algorithm, relying on informal knowledge shared within social groups. In this context, the ability to challenge or anticipate decisions is drastically diminished, as is the

capacity to make informed choices regarding shifts and orders (Muldoon and Raekstad, 2023). The result is a constrained decision-making environment, in which alternatives are narrowed, and autonomy becomes meaningless.

Finally, information asymmetry is not limited to the relationship between workers and platform but also extends to the relationship with customers. While customers have a lot of information about the worker – location, delivery time – riders do not know the identity of customers, nor do they have tools to evaluate or reject them (Bucher *et al*., 2021; Muldoon and Raekstad, 2023). This one-sided transparency reinforces the workers' subordinate position, contributing to the construction of a system in which the asymmetry is not only informational, but also symbolic and relational.

2.3 Mechanisms of Algorithmic Control and Evaluation

In the current technological scenario, it is almost impossible to deny that digital innovation has brought significant benefits, simplifying various aspects of daily life and making production and organizational processes faster and more efficient than in previous decades. Indeed, the use of algorithms in multiple domains, including platform work, has made it possible to optimize decision-making processes, manage large data streams and automate operational decisions (Duggan *et al*., 2023).

Kaine and Josserand (2019) identify three main functions of algorithmic management, all based on the constant acquisition of data on workers' performance:

1. Disciplining and controlling: algorithmic systems record every activity, such as logging into the app, movements during the day, and delivery times. This generates a continuous surveillance mechanism that causes workers to self-discipline and behave as if they were constantly being observed. The aim is to ensure compliance with the rules without the need for a human supervisor.

2. Performance management: the algorithmic system encourages productive behaviors through continuous customer evaluations. Although positive evaluations may lead to rewards, negative ones can often result in punitive consequences for the rider.

3. Justifying operational decisions: for example, a worker's suspension is justified based on the data collected by the platform. However, the lack of transparency and the impossibility of challenging these decisions make the process highly unbalanced. The apparent objectivity of the system translates into a form of automated legitimization of often opaque decisions.

This framework is particularly useful to understand how platforms reproduce and intensify mechanisms of control typical of earlier managerial models, while masking them under the guise of objectivity and efficiency. They do not merely optimize operations, but actively influence workers' behavior and perceptions, often reinforcing power asymmetries and undermining autonomy.

The algorithms – not neutral and objective – represent a management tool that directly shapes the power relationship between the worker, the client and the platform. Numerous studies (Bucher *et al*., 2021; Duggan *et al*., 2023; Huang, 2023; Muldoon and Raekstad, 2023) highlight how algorithmic management exerts constant control over riders' behavior and gig economy workers, which directly conditions their choices. Due to the organizational system of the platforms, workers are forced to adapt to a reality quite different from the one promised by the platforms themselves – supposedly characterized by flexibility and autonomy – and to scale back their choices in order not to go against the algorithmic system, which is in fact a sophisticated mechanism equipped with tools that regulate and standardize performance.

A growing body of literature has raised substantial criticisms of how algorithmic systems are implemented in the workplace. Muldoon and Raekstad (2023) emphasize how the use of algorithms risks invading the decision-making space of the human being, reproducing inequality, injustice, and a reduction of freedom, rather than counteracting these phenomena. This happens through forms of organizational control in which platforms, by means of algorithmic policies and practices, invisibly and continuously guide, evaluate and regulate workers' behavior (Duggan *et al*., 2023). Examples include ranking and reputation systems, the inability to negotiate over fundamental aspects of work, constant GPS monitoring of riders, and performance-based feedback. In this way, platforms impose a labor model that is strongly conditioned by opaque and one-sided rules.

2.3.1 Ranking Systems and Performance Scores

One of the main control tools used by gig economy platforms is the ranking system and individual performance scoring. Through pre-established and mostly opaque algorithms, workers are ranked according to several parameters related to behavior and service quality, such as punctuality, acceptance rate and customer feedback. However, this system does not merely record their performance, but represents a true form of digital hierarchization, which directly influences their access to job opportunities.

As highlighted by Armano *et al*., (2023), the ranking system measures the rider's reputation based on reliability and participation. However, it is a mechanism that ties the worker to constant availability, triggering a cycle in which working whenever required becomes the only way to avoid exclusion. This dynamic openly conflicts with the rhetoric of flexibility and autonomy promoted by these platforms.

Numerous studies (Birgillito and Birgillito, 2018; Wood *et al*., 2019; De Petris, 2020; Armano *et al*., 2023; Huang, 2023) have shown that riders with higher scores enjoy certain privileges and operational advantages, such as the ability to book weekly shifts in advance or to receive more orders. Conversely, those with lower scores can access shifts only at a later stage, often finding the available slots already taken. In this way, access to work itself becomes an algorithmic competition, based on non-negotiable metrics.

According to Duggan *et al*. (2023), although riders can formally choose when to work, this freedom is strongly conditioned by their score, which determines priority in the system. De Petris (2020) confirms that maintaining a good ranking is essential not only to obtain assignments, but also to demonstrate reliability and trust to the platform and the customer. In this context, customer feedback plays a decisive role. At the end of each performance, gig economy workers are often evaluated through unmotivated numerical systems, which reinforce surveillance and control logics (Birgillito and Birgillito, 2018; Newlands, 2021; Huang, 2023; Muldoon and Raekstad, 2023). This is a process that fuels the rider's reputational mechanism and gives the customer indirect decision-making power that profoundly conditions the relationship between the worker and the platform (De Petris, 2020; Armano *et al*., 2023; Duggan *et al*., 2023), but also the riders' dissatisfaction with the

centrality attributed to feedback and their inability to contest negative evaluations, which clearly reflects the power asymmetries inherent in the algorithmic governance model.

Similar dynamics are found in other sectors of the gig economy. Even in crowdwork platforms, clients evaluate workers at the end of each assignment, directly influencing their position in terms of visibility. In fact, profiles with higher ratings gain more access to the best opportunities, while those with lower ratings are progressively excluded. Even in the ride-hailing sector, as Rosenblant and Stark (2016) show, a low score can lead to the automatic deactivation of the accounts of those with a performance deemed insufficient. Customers' decisions not only influence workers' rankings but also have a direct impact on their psychological well-being: frustration, feelings of helplessness and fear of losing their jobs have been reported by many of them (Lee *et al*., 2015).

These practices, while varying from sector to sector, demonstrate how algorithmic ranking acts as a disciplinary device across the gig economy, even in food delivery platforms, where it is used to discourage behavior that is seen as unproductive.

It is important to understand that the ranking system does not merely provide feedback but acts as a disciplinary mechanism through which the algorithm assigns rewards and penalties in order to direct work behavior (Muldoon and Raekstad, 2023). Riders who do not make themselves available during high-demand time slots or who receive negative feedback may lose visibility, to the point of being excluded from the system (Armano *et al*., 2023). As will be discussed below, this system may produce indirect discriminatory effects, mainly affecting those who cannot guarantee continuous availability.

Finally, the qualitative study conducted by Huang (2023) highlights workers' perceptions: many feel compelled to work an increasing number of hours to maintain their ranking, describing the system as *tricky* because it slowly rewards continuous effort but severely penalizes inactivity or any warnings. This generates a climate of constant self-surveillance and a progressive erosion of formal autonomy, replaced by a functional dependence on the algorithmic system.

2.3.2 Order Allocation and Penalty Mechanisms

In algorithmic surveillance, the process of monitoring, evaluation and managerial tasks are, as evidenced so far, conducted by algorithms that determine allocation, remuneration, penalties and often termination of employment. In fact, Muldoon and Raekstad (2023) argue that gig economy platforms utilize algorithmic technology by increasing the forms and frequency with which workers cannot control which tasks they perform, for whom they perform it or how, consequently riders must completely rely on the instructions given by the platform.

Newlands (2021) explains how the work process operates within food delivery platforms: the rider logs into the dedicated application for workers, signaling their availability to work during previously scheduled shifts. Once the customer places an order, and it is subsequently approved by the restaurant, the algorithm automatically assigns the delivery to the selected worker through a notification. From there, the process is simple: the worker picks up the order and heads towards the delivery destination. Through the rider's smartphone, their movements and performance are monitored in real time.

However, there are some issues with this process. For example, on the Uber platform, the worker has very little time to accept or decline a ride. Moreover, the passenger's destination is not available unless he/she accepts the ride, a mechanism also present in food delivery platforms (Armano *et al*., 2023). This is a mechanism that further conditions riders' behavior, as they have no way of knowing whether the destination is advantageous, either due to distance from their preferred area or for financial reasons. In fact, Huang (2023) points out that riders never really know whether accepting an order is worthwhile, as several factors can delay the delivery – for example, it is unclear whether the roads are congested or whether the delivery address is located in a pedestrian area. Moreover, some riders have reported having to travel more kilometers than those calculated by the app, with no way to contest it.

Duggan *et al*., (2023) note that many riders report how, during the delivery assignment process, the platform masks its mechanisms, making it appear as if workers are free to decide whether or not to accept the assignment, as if they are in control. However, the

assignment is made on the basis of several mostly unknown factors, and riders can hardly refuse without consequences, as a refusal negatively affects their statistics (De Stefano, 2015).

Regarding penalties, platforms often remain very vague. Indeed, in his study, Huang (2023) points out that riders have a lot of pressure to tolerate platform penalties in China. According to riders, they try to behave meticulously because they never know when and why penalties, in the form of fines, arrive. Birgillito and Birgillito (2018) point out that, although refusing the service does not result in account deletion, refusing task can lead to being logged out of the app, as the algorithm assumes that the worker no longer wants to accept more deliveries.

The algorithm penalizes riders by reducing their score in the ranking system; however, restaurants also play a key role in the process: the speed with which they prepare the order, the confirmation of its availability and the quality of the packaging can directly affect the rider's performance and, consequently, their earnings (Duggan *et al*., 2023; Huang, 2023). Many riders have reported problems related to contradictory instructions: on the one hand, the app indicates that the order is ready, on the other hand, the restaurant communicates that it is not yet ready. These discrepancies negatively affect their performance and generate frustration, especially since the waiting time – sometimes as long as 20 minutes – is unpaid (Duggan *et al*., 2023). This business logic reflects a conception of working time that exclusively remunerates the time strictly dedicated to the provision of performance, ignoring everything else (Armano *et al*., 2023).

But this is only one of the external factors that condition riders' performance. Traffic, accidents and road works represent further obstacles that affect delivery times and their behavior. In some contexts, as documented by Huang (2023), riders who violate traffic laws receive fines that are directly deducted from their account. This situation puts great pressure on workers, who are forced to balance the obligation to meet customer expectations – to maintain a good ranking – with the need to protect their own safety while moving in traffic and obeying the rules of the road.

2.3.3 GPS-Based Tracking

A further control tool used by digital platforms is the real-time monitoring of riders' position via GPS. This is an apparently neutral tool, designed to optimize the matching of supply and demand: when the customer receives an order, the platform locates the nearest rider, based on data collected through geolocation and also taking into account the worker's ranking (Birgillito and Birgillito, 2018).

As Newlands (2021) points out, although the completion of the delivery task is recorded manually by the rider, the platforms rely on a continuous tracking model, which automatically captures information about the location and movements of the worker through the GPS receiver embedded in the riders' smartphones.

However, the geolocation system is not limited to logistics, as it becomes an additional means of behavioral control. According to Duggan *et al*., (2023), real-time tracking, which is also visible to the customer, generates additional psychological pressure on the rider, especially in the case of unexpected stops, traffic delays or difficulties in locating an address. Riders are aware that the customer can observe their position at any time and negatively interpret any stops or detours, which may have repercussions in the final evaluation. This mechanism generates a climate of indirect surveillance, which pushes workers to self-discipline, behaving as if they were constantly being observed (Bucher *et al*., 2021). It is no coincidence that Huang (2023) points out that many riders feel constantly monitored from multiple fronts – platform, customer, restaurant and even law enforcement – and, while recognizing the usefulness of apps, state that they are driven to work faster precisely because of this constant surveillance.

2.4 Algorithmic Discrimination and Worker Stratification

A significant aspect of platform work concerns the discrimination that can emerge in the processes managed by algorithms. Although commonly perceived as objective and impartial tools, algorithms are by no means neutral. As observed by De Petris (2020), algorithmic logics can convey, and sometimes amplify, pre-existing structural biases and inequalities, with discriminatory effects at multiple levels of the employment relationship:

from access to the platform, to task execution, and even to the termination of the relationship.

One of the main sources of discrimination is represented by reputational ranking systems, which are based on evaluations provided by customers and restaurants. The lack of adequate control on the objectivity of such evaluations makes it possible to disseminate biased judgements, often influenced by stereotypes or subjective perceptions. According to De Petris (2020), this lack of transparency and verifiability constitutes a privileged channel for the proliferation of discriminatory practices. The platform, in the absence of corrective measures, can therefore penalize workers based on unfounded evaluations, generating significant effects on order allocation and ranking.

It is important to emphasize that digital platforms do not create new forms of discrimination but rather serve as new channels through which historically rooted inequalities are reproduced. Algorithmic technologies tend to replicate and, in some cases, exacerbate disparities already present in the labor market. An emblematic case is that of Uber, which was investigate in 2018 for alleged gender discriminatory practices, particularly regarding pay and access criteria that disadvantaged female workers (Bensinger, 2018). Regardless of the case's outcome, it highlights how the apparent neutrality of digital tools is often undermined by bias embedded in datasets or in programming – bias that ultimately stems from human decisions. As De Petris (2020, p. 899) states, "*dietro l'algoritmo si cela l'autore del software di programmazione"* [behind the algorithm lies the author of the programming software]. The algorithm can therefore reflect, whether consciously or not, the distortion and prejudices of its creator.

Another significant example concerns the case of Amazon, which was heavily criticized for having developed an algorithmic recruitment system that systematically penalized women (BBC, 2018). The reason lay in the fact that the system had been trained on datasets in which the most 'performing' profiles were predominantly male. The algorithm therefore learnt and reproduced a discriminatory logic, automatically excluding female candidates for certain positions.

Similar phenomena can also be observed in non-European contexts, as in the case analyzed by Huang (2023), who studied food delivery platforms in China. In that context, platforms had access to government databases containing sensitive information, such as candidates' health or judicial history, which were used to determine suitability for employment. Huang highlighted that many applications were rejected without explanation, even in the absence of objective reasons. Although this is a different regulatory and cultural context, the example is useful for understanding how the decision-making power of platforms, combined with the opacity of the criteria used, can generate systemic forms of exclusion that are difficult to contest.

Discrimination is not limited to gender issues. As De Petris (2020) further emphasize, algorithmic mechanisms also tend to marginalize other categories of workers, such as those with disabilities, health problems, advanced age, or those who cannot guarantee constant and rapid performance. Newcomers or those who connect occasionally may also be disadvantaged in a system that is highly competitive and meritocratic only in appearance. The phenomenon of stratification thus emerges clearly: the algorithm does not merely manage work but produces an implicit hierarchization among workers, favoring those who can fully conform to the required standards and penalizing those who, for structural or subjective reasons, deviate from them. This process is made even more problematic by the absence of mechanisms for transparency, review or appeal.

On the other hand, the internal systemic stratification among workers is based on automated metrics such as reputational score, delivery speed, or willingness to work at inconvenient times. As Armano *et al*. (2023) point out, riders who do not fully meet performance expectations are downgraded and consequently penalized, receiving less advantageous assignments than those who occupy higher positions in the ranking. This is a form of implicit stratification, not formally declared, but which produces invisible classes – neither contractual nor official – whose existence is nonetheless real and operational. These 'algorithmic classes' constitute a new form of techno-social hierarchization within the platforms themselves.

In this context, the notion of apparent meritocracy becomes central: success generates further opportunities, creating a virtuous circle for a few and a vicious one for many. As

Wood *et al*. (2019) observe, platforms do not necessarily reward competence or actual productivity, but rather compliance with criteria unilaterally established by the platform and its customer. Reputation, therefore, takes on a symbolic function, becoming a discriminatory resource that strengthens the position of some and marginalizes others. The result is an evolution of labor inequality: no longer based on explicit contractual statuses, but on opaque, automated and uncontestable metrics that determine who is deemed worthy of visibility, profitability and work continuity.

As highlighted in the report by Schmid-Drüner (2016) for the European Parliament, rating and reputation systems can fuel discriminatory practices, reinforcing pre-existing stereotypes and penalizing categories already vulnerable in the labor market. An emblematic example included in the report is an advertisement stating: "*This job is not for people from Bangladesh and Pakistan and your bid would be rejected automatically if you are from any of the mentioned countries*" (p. 16). Such messages, although violating the principles of equality and non-discrimination enshrined at European level in Article 21 of the EU Charter of Fundamental Rights, are difficult to monitor in a context where platforms operate on a global scale and evade national regulatory regimes. This highlights not only the fragility of the legal framework applicable to platform work, but also the failure of algorithmic moderation to prevent the misuse of digital spaces to convey social exclusion.

Algorithmic discrimination and worker stratification represent two sides of the same coin: on the one hand, evaluation and selection practices that systemically penalize certain categories; on the other, an organization that generates structural inequalities within the workforce. Regulating these phenomena requires targeted legislative interventions based on principles of transparency, fairness, and algorithmic accountability.

2.5 A Field Perspective: Platform Workers' Perceptions

To complement the theoretical analysis developed in the previous sections with empirical evidence, a short questionnaire was administered to a sample of active riders on the main food delivery platforms. The aim was not to obtain statistically representative results, but rather to collect exploratory insights aimed at assessing the extent to which workers' perceptions reflect – or deviate from – the evidence already highlighted in the literature, as

well as the degree to which the algorithmic system influences their daily work on these platforms.

In order to interpret the results correctly, it is important to emphasize that the survey has inevitable methodological limitations: first, the sample examined consists of only 60 riders, a small number that makes it difficult to attribute statistical representativeness to the data collected and, consequently, does not allow conclusions to be drawn that can be generalized to the entire population of workers in the sector. Furthermore, participant selection did not follow probabilistic sampling criteria but relied on the riders' willingness to take part in the survey. A second limitation concerns the nature of the questions, which were deliberately designed to explore specific aspects related to the algorithmic management mechanisms of the platforms. While this choice made it possible to focus on a particularly relevant issue, it inevitably relegated other aspects of the riders' work experience – equally deserving of further investigation – to the background. In addition, the survey design included both closed-ended questions, useful for collecting comparable data, and more open-ended interviews. It was during these informal interactions that particularly rich qualitative insights emerged, which in some cases went beyond and challenged the boundaries of the pre-established questions in the survey, providing a complex and multifaceted picture that is difficult to reduce to simple statistical categories.

Despite these limitations, the questionnaire is still a useful tool for integrating the theoretical framework with concrete data collected in the field. It makes it possible to assess the extent to which concepts developed in academic literature are reflected in the direct experiences of riders and, at the same time, to identify possible divergences or contradictions, thereby contributing to a more nuanced and problematized understanding of the phenomenon.

The questionnaire was administered in person in a specific urban area of Rome characterized by a high concentration of riders, due to the combined presence of universities, offices, and a wide range of restaurants, which makes the flow of deliveries particularly intense. Participation was voluntary and the questionnaire was always administered taking into account the time constraints imposed by work, so as not to interfere with the riders' availability. Each interview was short, lasting on average between four and six minutes, and was based on a structured questionnaire consisting of twelve closed-ended

questions. These were formulated both in dichotomous form (yes/no), to collect immediately comparable data, and on a numerical scale (from 1 to 10), in order to capture the degree of intensity or agreement with certain statements. The overall sample of participants was distributed across three of the main platforms operating in Italy: 15 riders working with Deliveroo, 20 by Just Eat, and 25 by Glovo.

The questionnaire can be divided into two main sections, designed to integrate the descriptive dimension with the perceptual one. The first, descriptive in nature, collected basic data such as the age of the participants, their years of experience in the sector, and their platform of reference. The second part, on the other hand, focused on riders' perceptions of how the algorithmic system works, exploring aspects considered crucial in literature: information asymmetry, order allocation methods, the possibility of choosing freely the working hours, the presence of more or less explicit penalties, the weight of customer feedback, and, finally, the ambivalence of GPS as a tool of control.

As far as personal data is concerned, the age of the respondents ranged from 20 to 59, outlining a heterogeneous sample. The inclusion of this indicator, together with length of service, was intended to explore whether work perceptions varied depending on generational background or accumulated experience within the platforms. The analysis did indeed reveal a trend: younger riders, often new to the sector, tend to express relatively more positive assessments than those who have been working for longer, who show more critical attitudes and, in some cases, signs of disillusionment. This divergence suggests that the degree of acceptance of the organizational model imposed by the platforms is not static but evolves with experience, sometimes turning into frustration in the face of rules perceived as arbitrary or lacking in transparency.

One relevant aspect concerns information asymmetry. The responses, collected on a scale from 1 to 10, ranged from a minimum of 4 to a maximum of 8, with an average of 5.65 across the entire sample. Although not extreme, this data highlights a widespread perception of incomplete information. It confirms what has been discussed in several studies on platform work: riders do not have immediately access to all the necessary information they need to organize their activities in a fully informed manner. On the contrary, the logic behind the algorithmic systems is learned gradually, often empirically, through a process of

trial and error and continuous adjustments. This need for experiential learning not only makes the job more uncertain and less predictable, but also accentuates riders' dependence on platforms, which remain the sole holder of the actual rules governing order distribution, performance evaluation and, more generally, the overall functioning of the system.

A particularly significant finding that emerged concerns the modalities of order allocation. All participants (100%) reported that orders are automatically assigned by the application, without any possibility of prior choice. This evidence clearly confirms what has already been highlighted by numerous studies: riders do not enjoy a degree of autonomy comparable to that of an independent worker; on the contrary, they are bound to a centralized allocation system, which reduces their decision-making capacity to the mere possibility of accepting or rejecting the assignment. This reinforces the idea that platform work is regulated by a highly hetero-directed organizational model, in which the supposed flexibility actually translates into implicit subordination to algorithmic logic.

The issue of refusals makes the asymmetrical nature of this relationship even more evident. The survey reveals significant differences between platforms: while on Glovo and Deliveroo riders report that refusing an order does not entail formal penalties, the situation appears to be different in the case of Just Eat. As many as 7 out of 20 riders reported receiving warning letters following repeated refusals of deliveries, a finding that reveals the existence of more stringent control mechanisms. This divergence shows how platforms may apply different rules, creating scenarios in which the level of autonomy granted to workers depends not only on technology, but also on the contractual and managerial model adopted.

Work schedule management also represents an area in which differences between platforms are evident. Riders working with Glovo and Deliveroo reported that they can freely access the application, deciding autonomously when and for how long to work. By contrast, riders for Just Eat must book predefined time slots in advance and adapt to a schedule imposed by the platform. In qualitative interviews, several respondents explained that this difference is closely linked to the contractual framework: while Just Eat riders are formally classified as employees and therefore subject to stricter organizational constraints, they also benefit from the protections associated with subordinate employment, such as insurance coverage. Conversely, riders on the other two platforms, although able to exercise greater freedom in

choosing their working hours, complained about the total lack of protection, particularly with regard to accidents or periods of illness. This dichotomy highlights a structural tension in platform work: on the one hand, a subordinate contractual model that reduces flexibility but guarantees greater protections; on the other, a formally autonomous model that expands organizational freedom but exposes workers to significant risks.

Regarding monitoring tools, a particularly significant finding concerns the ranking system. All participants stated that this mechanism has not been active for several months. This evidence represents a significant discontinuity compared to what has been reported in the literature, which had previously described ranking system as one of the main tools of algorithmic governance, capable of strongly influencing workers' behavior. Its removal therefore marks a substantial change: a mechanism that, through the promise of advantages (such as priority access to slots or orders) or the threat of penalties, exerted constant pressure on riders, encouraging them to accept more deliveries, to connect during less attractive time slots, and to maintain continuous availability, has been eliminated. The disappearance of the ranking system thus reduces, at least partially, the intensity of the pressure exerted on individual conduct.

Another noteworthy finding also emerges in relation to customer feedback. When asked whether such evaluations influence their work behavior, only 10% of respondents answered affirmatively, 27% reported a partial influence, while the remaining 63% stated that feedback has no effect. Considering instead the importance attributed to feedback on a scale from 1 to 10, the overall average stood at 6.05, with 23% of riders assigning a high score. However, the qualitative analysis of the interviews helped to clarify the nature of these perceptions: positive feedback is experienced primarily as a form of personal gratification, a symbolic recognition of riders' efforts by the customer, rather than as a tool with concrete organizational consequences. By contrast, the majority of respondents (77%) emphasized that the number of stars received does not significantly affect their overall working conditions.

Once again, therefore, a discrepancy with literature can be observed: customer feedback, while retaining symbolic and motivational value, no longer seems to be an effective and incisive mechanism for controlling riders' work.

As for the final control element examined, namely the use of GPS, 17% of respondents stated that they perceived it exclusively as a useful aid for making deliveries, while the vast majority (83%) considered it both an operational aid and a monitoring tool. Many riders reported feeling constantly observed, both by the platform, which records their movements in real time, and by customers, who can follow the delivery route through the application. This finding is fully consistent with what has been highlighted in the literature, which identifies GPS tracking as one of the most widespread and pervasive mechanisms of algorithmic surveillance. Although not perceived in a uniform way by all, the fact that nearly all respondents recognized a dimension of control confirms the centrality of this tool in the organization of platform work.

The survey also provided an opportunity to collect qualitative testimonies that helps to better understand working conditions beyond the quantitative data. Several riders highlighted the lack of real autonomy in the management of deliveries, stressing that the platform may assign tasks located at considerable distances without providing additional compensation proportional to the extra time and effort required. These observations make it possible to grasp the concrete impact of algorithmic mechanisms on everyday working life, showing how apparent flexibility often translates into forms of dependency and into an unequal distribution of risks and costs.

However, it is important to reiterate that this is an exploratory survey, conducted on a small and non-representative sample, and therefore not sufficient to draw generalizable conclusions. The findings presented have limited scope, but they offer useful insights for further investigation and for observing how these dynamics will evolve over time. Looking ahead, it will be particularly relevant to assess the impact of the new Directive (EU) 2024/2831, which represents the first comprehensive European regulatory framework aimed at improving the conditions of platform workers. The Directive will require companies to adapt their algorithmic management systems, ensuring greater transparency, effective protection, and decent working conditions in a sector undergoing rapid technological and economic growth.

CHAPTER III

Regulating Platform Work: The European Union Perspective

It is well known that each national legal system has its own legislative instruments and rules, with the consequence that similar situations are addressed in different ways from country to country.

However, when it comes to issues of particular relevance, such as the regulation of the gig economy – a rapidly expanding and increasingly topical sector, characterized by a transnational dimension due to the nature of digital platforms, the mobility of services and regulatory competition between States – national responses, although necessary, may prove limited or not entirely adequate to address these phenomena.

In the European context, this often results in marked differences between legal systems, with the effect of uneven governance. This is nothing new: already in the 1960s and 1970s, welfare and labour law systems diverged widely in terms of pensions, unemployment benefits, length of maternity leave and minimum wage. It was during this period that European heads of government began to recognize the equal importance of social policies alongside economic and monetary ones. Beyond the specific motivations, a more attentive approach to social issues took shape, in the awareness that European integration could not be reduced to a mere tool at the service of the common market. This gave rise to the need to provide the Community with a genuine social dimension, which found expression in an action program launched by the European Commission. Although it had significant limitations, it marked the beginning of a phase of intense legislative activity in this area (Barnard, 2012).

On this basis, the Union has progressively assumed a central role in defining a common regulatory framework aimed at reducing asymmetries and ensuring minimum standards of protection applicable across all Member States, as part of a broader effort to strengthen the

social dimension of integration and to address the transnational nature of digital platforms through coordinated and shared responses.

Therefore, the regulation of platform work represents a significant test for the Union, not only for its ability to influence a rapidly expanding sector, but also for the symbolic value it assumes, touching on the delicate balance between economic freedoms, social rights and the cohesion of the internal market.

3.1 The European Context and the Proposal for a Directive

The increasing spread and evolution of platform work has made the need for a clear and harmonized regulatory framework at European level more and more urgent. Until 2024, in fact, this type of work was not fully covered by EU labour law, leaving millions of workers without clear legal recognition and basic protection. Hence the need to fill regulatory gaps through new regulatory intervention. However, the harmonization of rules at the European level does not only respond to the need for social protection but is also part of a broader plan to support the construction of the digital single market and to promote a European model for intermediation and data sharing (Tullini, 2022).

Platform work now constitutes an employment sector in its own right: atypical, rapidly expanding and highly digitized, based on sophisticated algorithmic management systems. It is a form of work that has so far escaped traditional legal categories, being neither expressly recognized nor framed within a specific regulatory regime. For this reason, most platform workers have been formally classified as self-employed. Consequently, as Di Cataldo (2024) points out, such workers have often been assimilated to sole proprietorships under EU competition law, thus hindering the exercise of collective rights such as bargaining, since they are considered independent economic operators and not employees.

Moreover, building on earlier evidence, digital platforms have progressively developed and implemented practices of constant surveillance, arbitrary management, unpredictable scheduling and opaque discipline, which negatively affect the quality of work and the effective exercise of rights by workers. It is estimated that around five and a half million platform workers in the European Union may currently be subject to inadequate contractual

classification, resulting in systematic exclusion from fundamental rights recognized for employees: from the minimum wage to the regulation of working time, from health and safety protections, paid holidays, to access to comprehensive social protection in the event of unemployment, illness, accident or retirement (Bronzini, 2022).

In response to these critical issues, in December 2021 the European Commission presented a proposal for a Directive based on two main axes. On the one hand, the need to introduce new tools to counter the – widely spread – phenomenon of misclassification of platform workers; on the other hand, the urgency to address the risks related to the use of automated monitoring and decision-making systems, which are increasingly integrated in digital work processes (Rainone and Aloisi, 2024).

Thus, the aim of the proposal was to ensure that no worker is deprived of his or her rights due to an inadequate legal classification. Moreover, it is important to emphasize that the proposal was not aimed exclusively at riders, but – as also confirmed by the approved Directive – was born with the objective of regulating a much broader phenomenon. According to estimates by the European Commission, in fact, the number of people employed through digital platforms could increase from the current 28 million to 43 million in the coming years (Council of the European Union, 2025).

One of the central elements of the doctrinal debate on the proposal was Article 4, which provided for the introduction of a relative presumption of subordination. This presumption would be triggered if at least two of the five criteria listed in the Article were met:

a) The actual determination of the remuneration, including by setting upper limits,

b) The obligation on the employee to comply with rules on appearance, conduct towards the customer or performance of the work,

c) The supervision of the execution of the work or the verification of the quality of the results,

d) The limitation, even by means of sanctions, of organizational autonomy in relation to working time, the acceptance of assignments and the use of substitutes or subcontractors,

e) The limitation of the possibility of doing other work, or of creating one's own clientele.

These criteria have been widely debated for different reasons. On the one hand, some authors have welcomed this mechanism, seeing it as a suitable instrument to bring national practices closer to a broader concept of subordination of a Euro-unitary nature. The possibility of recognizing as subordinate those workers who, although formally self-employed, are in fact subject to the managerial and organizational power of the platform, would have been a step towards greater legal harmonization at European level. However, on the other hand, criticism was more numerous and incisive. In particular, the actual ability of the criteria to draw a clear boundary between autonomy and subordination was questioned. Some criteria, such as the unilateral fixing of remuneration or the limitation of the possibility of building up one's own clientele, may also occur in autonomous relationships and are therefore hardly indicative of subordination. On the contrary, other criteria, such as the imposition of binding rules on the organization of work or the limitation of the freedom of choice of time and accomplishments, appear to be determinative to lead autonomously to the reclassification of the relationship, making this presumption excessively automatic and unbalanced (Biasi, 2024).

The reasons behind the political opposition to this system can be traced back to several factors. First, the introduction of a rigid presumption based on predefined criteria risked coming into conflict with the collective bargaining models and the flexibility of labour law of many Member States, particularly those in northern Europe, which are strongly linked to social bargaining. A second determining factor was the role played by digital platforms, which exerted strong political and lobbying pressure throughout the entire negotiation process; in fact, the European Parliament spoke of a level of lobbying "*never seen before*", not least because of the considerable economic means available to these companies (De La Feld, 2024).

Reinforcing the criticism that emerged on the presumption mechanism were some observations developed by the doctrine. Tullini (2022), in particular, highlighted several elements that were in tension with national legal systems. A first limitation concerned the proposal's binary approach, which distinguished between self-employed and subordinate work, neglecting the existence of other intermediate labour categories – as in the Italian case, where a plurality of figures is recognized as discuss in chapter 1. Moreover, the proposal, while focusing on the transparency of algorithms and rights related to the digital management of work, did not sufficiently address other protection needs.

Alongside these criticisms, however, positive assessments also emerged. Bronzini (2022), for instance, emphasized the innovative character of the proposal concerning the regulation of algorithmic systems, which introduced significant transparency obligations on platforms. This aspect was particularly relevant considering the discussion in Chapter 2, where the central role of information asymmetry in digital labour relations was examined. In this sense, the proposal represented an important step forward in reducing the opacity of algorithmic management and in rebalancing the asymmetrical relationship between platforms and workers.

Overall, the Commission's proposal for a Directive appeared balanced and innovative. Indeed, it did not aim to impose an obsolete model on the new forms of digital work but proposed to intervene in the most serious cases of under-protection, promoting a regulatory approach capable of considering the ongoing technological and social transformations (Bronzini, 2022). However, it remains crucial to consider a key factor. As pointed out by Di Cataldo (2024), the platform economy is still in a development phase, and the misclassification of employment status has negative repercussions both for platform workers and for competition within the European single market and the public budgets of Member States. Thus, it remains essential to strike a balance between supporting the economic potential of platforms and the need to ensure the protection and welfare of workers.

3.2 European Regulation of Platform Work: Directive (UE) 2024/2831

As stipulated in Article 288 of the Treaty on the Functioning of the European Union (TFEU), directives bind the Member States regarding the objectives to be achieved but leave the national authorities free to choose the forms and means of transposing them into national law. After more than two years of negotiations, the political agreement between the Council and the European Parliament was reached on 8 February 2024. Yves Dermagne, the Belgian Deputy Prime Minister and Minister for the Economy and Employment, stated: "*This is the first-ever piece of EU legislation to regulate algorithmic management in the workplace and to set EU minimum standards to improve working conditions for millions of platform workers across the EU. The agreement confirmed today builds on the efforts of previous Council presidencies and reaffirms the social dimension of the European Union*" (Council of the European Union, 2024). The Directive was then formally approved on 23 October of the same year, defining a common legal framework and respecting the autonomy of individual national legal systems.

The Directive consists of 73 Recitals, six Chapters and 32 Articles, and applies to all individuals performing activities via digital platforms in the context of an employment relationship, as defined by national law and interpreted in the light of the case law of the Court of Justice (recital 17).

Chapter I (General Provisions) outlines scope and definitions.

- Article 1 specifies that the main objective of the Directive is to improve working conditions and ensure the protection of personal data for those working through digital platforms in the European Union.
- Article 2 provides a number of key definitions, including "digital labour platform", "person performing platform work", "automated monitoring systems" and "automated decision-making systems".

Chapter II (Employment Situation) addresses the crucial issue of the legal classification of the employment relationship.

- Article 4 obliges Member States to establish effective procedures to verify the correct employment status of platform workers.

- Article 5 – which in the initial proposal provided for the activation of the legal presumption of subordination – introduces in the final text a rebuttable presumption, applicable in the presence of facts revealing effective control and direction by the platform. These elements must be assessed according to national law, collective agreements or practice in the Member States, considering the case law of the Court of Justice of the European Union.

Of particular importance is Chapter III, dedicated to algorithmic management, which introduces for the first time European regulations on digital automation and control in work contexts.

- Article 7 recognizes the right of workers to be informed about the use of automated monitoring and decision-making systems that affect working conditions.
- Article 9 strengthens the obligation of human intervention in automated decision-making processes.
- Paragraph 3 of Article 10 states that workers may not be subject to fully automated decisions without meaningful human involvement, especially in cases concerning access to employment, remuneration or termination of employment.

This chapter is particularly relevant because it links the lack of regulation on algorithmic management to the persistent vulnerability of platform workers, helping to strengthen protection against misclassification and opaque forms of control (Di Cataldo, 2024).

The Directive also addresses the problem of information asymmetries, which have always been central to platform work.

- Article 14 imposes an obligation on platforms to provide workers' representatives with relevant information, including the number of workers employed through the platform or the possible use of automated systems.
- Chapter IV (Transparency and Information Obligations) reinforces these provisions by requiring platforms to disclose in a clear and accessible manner the contractual terms and conditions, the criteria for algorithmic evaluation and the rules for activating, suspending and deactivating accounts.

These measures are intended to fill a knowledge gap that has so far made it difficult to understand the true extent of the platforms' economy. No public data is currently available on the social composition of workers, their participation, or the mechanisms that determine

their access to or exclusion from work. Without such information, it is impossible to develop adequate policies to counter the negative effects of platform work (Di Cataldo, 2024).

Chapter V defines remedies and enforcement measures to ensure effective implementation of the Directive and the improvement of working conditions in digital platforms. Chapter VI, on the other hand, defines the technical and procedural provisions to be adopted by the Member States in order to transpose the Directive into their respective legal systems.

- Article 29 states that Member States will have to take the necessary measures to ensure full compliance with the Directive by 2 December 2026.

With the approval of the Directive, the European Union has established a common legal framework for a sector that has been at the center of public and academic debate for years but is now of crucial importance for the labour market. Indeed, it is an ever-expanding sector, involving millions of people in forms of employment that often lack adequate protection. However, it will be necessary to wait for the Directive to be transposed by all Member States in order to fully assess its concrete impact. As Di Cataldo (2024) points out, the value of this regulatory intervention is significant: in fact, it is estimated that millions of workers currently classified as self-employed may be brought back into the category of subordinate workers, thus gaining access to the protections guaranteed by labour law from which, until now, they have been excluded.

The most recent literature recognizes that the Directive represents a turning point in the intervention of the European legislator in social matters (Biasi, 2024; Di Cataldo, 2024; Rainone and Aloisi, 2024; Durri *et al*., 2025). This measure is not limited to the rider sector, which has always been at the center of public and jurisprudential debate, but embraces the entire ecosystem of platform work, including both on-demand and crowd-work services. Precisely for this reason, the Directive is articulated along two fundamental pillars: on the one hand, it introduces instruments for the correct qualification of the employment relationship; on the other, it aims to counter the opacity of the algorithmic systems that regulate the organization and evaluation of digital work, introducing measures of transparency and human control. This dual intervention shows an attempt to close the main regulatory gaps that have characterized the sector so far. However, it will be crucial

for all the actors involved – trade unions, employers, protective bodies – to make the most of the foundations laid by the Directive, in order to prevent regulatory and enforcement fragmentations, as this would risk making the transposition across different legal systems not only uneven, but also burdensome and ineffective, both during and after the planned two-year implementation period (Rainone and Aloisi, 2024).

Before analyzing the main provisions of the Directive in detail, its scope should be clarified. Article 2(1) identifies a number of requirements that a service must meet in order to fall within the scope of the measure. In particular, these are activities provided at least partly at a distance by digital means, such as websites or mobile applications; provided at the request of a recipient of the service; based on the organization of the work of individuals who perform the activity for remuneration, even if it is performed offline; and characterized by the use of automated monitoring or decision-making systems. Platforms that do not directly organize work, but merely bring together demand and supply of services, without intervening in the management of the work performance, are therefore excluded. This is the case, for example, of platforms such as *Airbnb* (for renting accommodation) or *LinkedIn* (for networking and job search), which do not exercise organizational power over the individuals using the service (Smorto and Donini, 2024).

Regarding the main points of the Directive, the legal presumption of subordination (Art. 5) represents one of the central pivots of the new regulatory framework, considered by the literature as a revolutionary innovation and an important legal instrument to address the risk of incorrect classification of employment status (Rainone and Aloisi, 2024). One of the greatest risks associated with platform work is precisely the incorrect classification of the employment relationship, in fact, misclassification can deprive the worker of access to fundamental rights provided for employees. The European Commission, in recital 7 of the Directive, underlined how the numerous legal disputes opened in the Member States have highlighted the persistence of inadequate classifications, in fact, in many cases, the national courts have ascertained the presence of a power of direction and control exercised by platforms. It is therefore clear how crucial it is to ensure regulatory instruments that facilitate the correct classification of labour relations, to ensure fair working conditions and effective protection.

When the facts indicate the exercise of a power of control or direction by the platform, the contractual relationship should be qualified as a subordinate employment relationship. This formulation reflects a growing awareness of the complexity assumed by platforms' organizational power, which can also manifest itself in indirect, automated or opaque forms (Biasi, 2024). However, it is important to emphasize that this is a relative presumption, which is consequently rebuttable: it is up to the platform to prove that, even in the presence of elements that indicate control, the relationship does not meet the requirements of employment. This mechanism represents a significant change from the past, as it entails a reversal of the burden of proof in cases where elements of direction or coordination are detected, thus offering greater legal and procedural protection to platform workers (Biasi, 2024). This approach appears to be in line with the European Union's intention to reconcile the development of dynamic digital economic models with the need to guarantee fair and transparent working conditions, seeking to fill the main regulatory gaps that have characterized the sector so far.

However, some authors have raised critical remarks on the practical effectiveness of the presumption. In particular, it has been pointed out that the envisaged mechanism – applicable only to platforms that organize work and in the presence of clear indications of control and direction – risks being effective mainly against subjects already placed in situations of subordination, as in the case of food delivery riders. On the contrary, it might be less incisive for those workers who operate through online platforms (crowd-work), who might benefit more from a broader presumption. A further critical element concerns the margin of discretion left to Member States, since the Directive does not prevent them from introducing more restrictive criteria for triggering the presumption, thus compromising its uniformity and effectiveness of application at the European level (Rainone and Aloisi, 2024).

Another central aspect is represented by Chapter III of the Directive, dedicated to algorithmic management and personal data protection. This is a significant innovation, reflecting the urgent need to address the limitations that have emerged in the existing regulatory framework, particularly regarding the effectiveness of the General Data Protection Regulation (GDPR) in the employment context. Unlike the legal presumption of subordination, the algorithmic surveillance provisions apply to all platform workers,

regardless of their contractual status (Rainone and Aloisi, 2024). In this way, the Directive aims to fill regulatory gaps left by the GDPR, which although considered important, is considered insufficient to adequately regulate the use of automated monitoring and decision-making systems in the workplace (Durri *et al*., 2025).

As Smorto and Donini (2024) point out, the Directive focuses on those automated systems that manage the demand and supply of labour and that, increasingly, replace human decisions, defining work's organization within platforms. These systems are used to assign tasks, assess performance, determine compensation and, in some cases, suspend or deactivate accounts. However, despite their significant impact, workers rarely have the necessary information to understand how they work or challenge their effects. To counter this opacity, the Directive introduces specific information obligations, as provided for in Article 9.

Moreover, with the introduction of the principle of meaningful human intervention in decision-making processes, the Directive emphasizes the need to strengthen transparency, traceability and accountability in the use of algorithms, in a context where technology risks obscuring decision-making mechanisms and drastically reducing the possibility for workers to understand or contest their outcomes.

3.3 The Legal Presumption Between National and European Law

As mentioned above, Article 5 of Directive (UE) 2024/2831 introduces a legal presumption of subordination, according to which, if there are indications of direction and control, a contractual relationship is presumed to exist between the digital platform and the worker. The Article states that it will be up to the platform, should it wish to contest this qualification, to prove that the relationship does not correspond to a case of real subordination. It follows that it will be up to the competent national authority to take steps to verify the correct contractual qualification, with the aim of facilitating the recognition of rights in favor of platform workers.

This Article, and the Directive as a whole, represents an important step towards greater protection for a category of workers that has until now often been subject to legal under-

protection and regulatory fragmentation. However, the issue of transposition remains central: each Member State is required to adapt its legislation to ensure compliance with the obligations deriving from the Directive, while taking national specificities into account.

Taking the Italian case as a starting point, it is possible to observe how this adaptation process begins with the approval of Law No. 91 of 13 June 2025, containing the delegation to the Government for the transposition of European Directives and the implementation of other acts of the European Union. Article 11 of this law empowers the Italian Government to transpose Directive (EU) 2024/2831 on the improvement of working conditions through digital platforms. This is, therefore, the regulatory step that formally activates the transposition process.

The delegation provided for in Article 11 is broad but detailed. It requires action on several fronts: adjusting definitions and procedures to correctly determine employment status, regulating the use of algorithms and automated systems, protecting personal data, adjusting social security protections, and ensuring transparency and access to information for workers and their representatives. However, the Article does not go into the substance of some of the most sensitive provisions of the Directive, such as the legal presumption of subordination, and does not specify the legal criteria to be adopted, thus leaving a wide margin of discretion to the delegated legislator. This regulatory silence highlights the political and legal complexity of the issue, with the risk that the transposition may be too weak or overly cautious.

A particularly significant aspect is that the law expressly mentions the need to intervene in Chapter V-bis of Legislative Decree 81/2015, already dedicated to platform work. This clearly indicates the desire to coordinate the national legislation with the new European framework, not through a simple regulatory overlap, but rather through a process of systemic integration and enhancement of the Italian model, in line with the principles and objectives established by the Directive.

It is worth recalling that Article 2 of D.Lgs. 81/2015 extends the discipline of subordinate employment to collaboration relationships whenever the work is performed personally and on a continuous basis, and where the manner of execution is organized by the principal. In

the presence of hetero-organization, the Court may therefore extend the protections provided for subordinates to formally self-employed workers. According to the majority interpretation, shared by doctrine and jurisprudence, Article 2 does not change the notion of subordination and does not introduce a legal presumption; on the contrary, it performs the function of a rule of discipline, extending the guarantees of subordinate employment to relationships deemed worthy of equivalent protection.

However, recent literature has raised critical doubts about the actual effectiveness and compatibility of the legal presumption provided for in Article 5 of the European Directive in the Italian context. Smorto and Donini (2024), in particular, point out that Article 2 constitutes a functionally equivalent mechanism to the one introduced by the Directive. According to the authors, a rider or a platform worker can already obtain the protections provided for employees, without the need for further regulatory instruments.

Smorto and Donini (2024) identify two main reasons why the presumption of the Directive would not add value. First, the *Corte di Cassazione* in its Foodora judgment (Sent. 1663/2020), previously discussed in chapter 1, clarified that in the presence of hetero-organization the worker is entitled to the body of protection of subordination. Secondly, the requirements of the European presumption (direction and control) are more restrictive than those of Article 2 (organization by the principal is sufficient). Paradoxically, it may be more difficult to activate the presumption than to apply Art. 2.

The authors argue that the introduction of the presumption would risk becoming an additional regulatory filter without achieving the procedural simplification desired by the Directive. Moreover, they raises a further issue: the Directive states that the employment relationship must be determined taking into account "*the case law of the Court of Justice*", which implies that the notion of worker, as defined in national law (art. 2094 Civil Code), will have to be integrated with that elaborated at European level, with the risk of generating overlaps and interpretative uncertainties between internal and supranational sources.

These criticisms are further reinforced by Biasi (2024), who builds on the arguments advanced by Smorto and Donini and argues that Article 2094 of the Civil Code already allows for the recognition of a subordinate relationship in the presence of managerial control

and disciplinary power – the same elements that, according to Article 5 of the Directive, activate the legal presumption. The central issue, according to the author, is that in the Italian legal system these elements constitute direct identification criteria of subordination, rather than indications from which an unknown fact may be inferred, as defined by Article 2727 of the Italian Civil Code, which states that presumptions are inferences – legal or judicial – that allow one fact to be deduced from another that is already known.

The core of the reasoning is that, within the Italian legal system, introducing a presumption of subordination appears unnecessary, since such condition can already be directly ascertained. In this regard, Biasi (2024) recalls the jurisprudential practice, which has already recognized the existence of these requirements in cases concerning platform work, and argues that Article 2094 of the Civil Code together with Article 2 of D.Lgs. 81/2015 already provide adequate legal instruments to ensure effective protection for workers, without the need for additional presumptions. The author further highlights a critical point: once the subordinate nature of the work relationship has been established on the basis of concrete factual elements, no contrary evidence should be admitted. Allowing such rebuttal, as envisaged by the Directive, would deprive the factual assessment of its meaning and contradict the Italian model, which places centrality on the reality-principle – that is the idea that legal qualification depends on how work is actually performed, rather than on how it is formally labelled.

When examining Law No. 91 of 13 June 2025, however, it appears that Article 11 suggests another direction. The Government is asked to amend and supplement Chapter V-bis of Legislative Decree 81/2015, precisely to ensure the "*corretto e integrale recepimento della Direttiva (UE) 2024/2831*". In this sense, the forthcoming legislation will not replace the existing instruments but will complement them, coordinating them with the new European approach. In other words, while recognizing the effectiveness of Article 2 of D.Lgs 81/2015, the Italian legislator seems intent on enhancing consistency with the European approach, which is based on an explicit legal presumption activated in the presence of objective criteria. This could also help to bridge the persistent application inconsistencies that have emerged in Italian jurisprudence and provide greater clarity and legal certainty.

Over the years, other EU Member States have also taken various measures to address the challenges posed by the regulation of platform work. As discussed in chapter 1, the Spanish Ley Rider represents a particularly significant legislative development.

According to a study conducted in 2018, in Spain the percentage of workers performing activities via digital platforms as their main form of work was the second highest in Europe, at 2.6 per cent (Mannino, 2025). Although the overall figure remained relatively low, it is plausible to assume that the percentage increased over the years, both in Spain and in other European countries. However, the lack of up-to-date data reflects the structural difficulty of monitoring a sector in continuous transformation. Precisely for this reason, the need for adequate and dynamic regulations, capable of adapting to the complexity of the phenomenon, emerges with increasing urgency.

As highlighted in the previous chapters, the working conditions of platform workers are characterized by high precariousness, low incomes and extreme flexibility, due to the fact that these activities escape the traditional legal categories of subordinate and autonomous work. In the Spanish case, riders were originally considered self-employed, but this qualification has come under increasing criticism, as it has in other jurisdictions. Indeed, the literature points out that the power of direction and control exercised by platforms – typical of subordination – is even more incisive than in non-digitalized work contexts. This control manifests itself in the detailed instructions given to workers: what to do, how to do it, at what time, in which order, with which level of quality. All this is made possible by the systematic use of algorithms and automated tools that regulate every aspect of work performance (Mannino, 2025).

In 2020, the Spanish Supreme Court, in its ruling No. 805/2020 on the Glovo case, contributed significantly to clarifying the legal qualification of platform work. The Court identified a number of direct indicators of subordination, including real-time GPS geolocation, which – as discussed in the previous paragraphs – allows constant monitoring of the work performance. Moreover, Glovo precisely defined the manner in which the service was to be performed, imposing specific instructions both on delivery times and on riders' behavior towards customers. The judgment also emphasizes the information asymmetry between the employee and the platform: Glovo was in fact the only party with

all the necessary information to manage the service, an element that confirms the existence of a power structure typical of an employer.

Based on these considerations, the Court recognized the existence of an employment relationship. Among the elements supporting the decision were the stable use of the Glovo trademark by the workers (uniforms, logos), the performance of the activity in the exclusive economic interest of the platform, and the fact that the digital platform itself constituted the essential means to realize the service. Further indicators considered were the existence of an algorithmic evaluation system, the limited organizational autonomy of riders and the entrepreneurial nature of the company, which did not act as a mere intermediary but as a delivery company in its own right.

In response to the issues raised by the case law, the Ley Rider came into force on 12 August 2021, which established the principle that food delivery workers should be considered employees, putting them on an equal footing with traditional workers.

The delivery platforms operating in Spain reacted in different ways. Deliveroo decided to definitively cease its activity in the country; although the company had already planned its exit from the Spanish market, it was recognized that the entry into force of the new legislation had accelerated its implementation (El País, 2021). Just Eat, on the other hand, welcomed the new law, extending its model with employment contracts, already adopted in other European countries, to Spain (Salvatierra, 2020). Glovo, on the contrary, initially maintained a contractual model oriented towards autonomy, however, the platform recently announced its intention to adopt a new approach, based on employee contracts, marking a significant turning point in Spanish labour law (El Conciso, 2024).

In relation to the transposition of Directive (UE) 2024/2831, it can be observed that the Ley Rider has, to some extent, anticipated the European approach, or that the Directive itself may have been inspired by the Spanish experience. Indeed, the Ley Rider contains a legal presumption, formalized in the *Disposición adicional vigesimotercera* of the *Estatuto de los Trabajadores*, which states:

> " [...] se presume incluida en el ámbito de esta ley la actividad de las personas que presten servicios retribuidos consistentes en el reparto o distribución de cualquier producto de consumo o mercancía, por parte de empleadoras que ejercen las facultades empresariales de organización, dirección y control de forma directa, indirecta o implícita, mediante la gestión algorítmica del servicio o de las condiciones de trabajo, a través de una plataforma digital."

This provision affirms the presumption of the existence of an employment relationship between the digital platform and the worker, when the organization, direction and control of the work activity is exercised – even indirectly or implicitly – through algorithmic systems.

Although the Ley Rider shows a consistent approach with the logic of the European Directive, the latter takes a broader and more inclusive approach. As mentioned above, it also intervenes in segments of the digital platform economy that, until now, have received little attention from policymakers. An example in this respect are domestic platform workers and online crowd-workers, such as those employed by Amazon Mechanical Turk – a digital platform where employers (requesters) publish jobs in the form of Human Intelligence Tasks (HIT), and workers (turkers) perform them in exchange for very low fees. The tasks are often fragmented and repetitive, such as image recognition, text transcription or content categorization (Durri, *et al.* 2025).

This analysis shows that each country adopts the regulatory framework it considers most appropriate to its national context. On the one hand, Italy has moved more cautiously, relying on pre-existing regulatory and jurisprudential instruments; on the other hand, Spain has chosen a more direct approach, introducing a specific law targeting the delivery sector.

In light of this, Directive (UE) 2024/2831 represents an opportunity not only for Italy and Spain, but also for other Member States, to strengthen protection through a common European model. The Directive aims, in fact, to overcome national fragmentations by extending protection not only to riders, but also to the other workers within the gig economy ecosystem, in order to promote an inclusive and coherent regulatory framework.

Conclusion

The aim of this study was to investigate how the algorithmic system, a central element in the functioning of food delivery platforms, influences the control and autonomy of workers. While maintaining a focus on the role of the algorithm, the analysis also considered other relevant aspects which, taken together, contribute to highlighting the structural criticalities underlying the logic of the gig economy.

The study found that riders are not fully recognized as employees, and it is precisely this ambiguity that forms the starting point of the discussion. The investigation highlighted several elements – such as the platform's hetero-direction – that are difficult to reconcile with the notion of self-employment. If we consider the long trajectory that, since the industrial revolutions, has placed work at the center of social and economic transformations, it becomes evident that legal definitions cannot remain static. They require constant revision and updating to ensure that these workers are properly classified, with safeguards and protections consistent with the current technological and social context.

At the same time, the peculiarities of platforms work themselves call into question the real autonomy of riders. Companies continue to present the relationship as autonomous, yet the actual organization, grounded in algorithmic management, contradicts this narrative. If riders were truly autonomous, they would be able to select orders freely, with full knowledge of all conditions in advance, including compensation. In reality, however, key decisions remain concentrated in the hands of the platforms. This contradiction has repeatedly led courts to review the legal classification of the relationship, in an effort to provide a response more closely aligned with the workers' actual conditions.

Over the years, Italian and European case law has sought to adapt to these new forms of work introduced by digital platforms. In Italy, Legislative Decree 81/2015 marked a first step, followed by further, more specific measures with Legislative Decree 81/2017 and Law 128/2019, which specifically addressed the context of riders. At the European level, the Spanish Ley Rider, expressly dedicated to this category of workers, deserves particular

mention. Together, these regulatory measures demonstrate the growing attention of legislators to strengthening the protection of gig economy workers.

Once the legal framework has been defined, the core of the analysis becomes clear: the algorithmic system as the new hub of management and control in platform work. Replacing the human manager, the algorithm raises not only technical issues but also ethical and social concerns. The literature identified several mechanisms of control, which the field survey partly confirmed and partly challenged. First, information asymmetries remain evident: platforms hold the majority of data related to work activity, thus acquiring significant power of control, while riders often lack awareness of the logic behind algorithmic decisions. Second, the ranking system, widely discussed in academic studies as one of the most influential levers, is no longer active, marking a significant change in the dynamics of performance control. The penalty system also appears less rigid than previously reported to the point that it no longer constitutes a decisive instrument of influence. By contrast, the criteria for order allocation, entirely managed by the platforms, remain central, as does the use of GPS, which continues to be a pervasive control tool, perceived by riders as a form of constant surveillance coming from multiple directions.

These elements have shown how the algorithmic system plays a decisive role in shaping both the management and control of riders, going far beyond simple logistical coordination. The algorithm is not a neutral tool, but incorporates logics that constantly influences workers' activities, creating a highly controlled environment. The influence exerts approaches a form of subordination, while still leaving residual margins of autonomy for workers. This dynamic has significant implications not only for the legal classification of the relationship, but also for the definition of riders' rights and, more generally, for the debate on the regulation of platform work.

The picture, however, seems to be shifting with the adoption of Directive (EU) 2024/2831, the first European legislation specifically dedicated to working conditions on digital platforms. It stands out for its innovative approach, aimed on the one hand at facilitating the legal classification of workers and, on the other, at guaranteeing broader rights in relation to algorithmic management. The Directive seeks to bring about concrete improvements in working conditions through a series of significant provisions. Among these, the legal

presumption of subordination is a key element: platforms will now bear the burden of proving the absence of an employment relationship. Another central innovation is the chapter entirely dedicated to algorithmic management, which explicitly recognizes and regulates the risks associated with this type of control.

However, like any regulatory intervention, the Directive also presents some critical issues. On the one hand, it does not fully address the matter of health and safety at work; on the other, it leaves Member States with a wide margin of discretion, creating the risk of uneven application and, in some cases, outcomes detrimental to workers. For this reason, the transposition phase will be crucial: national legislators will need to adopt an approach broad enough to reflect the underlying principles of European legislation.

Furthermore, the regulation of platform work represents a genuine test for the European Union. It tests the ability of European institutions to reconcile the protection of workers and the guarantee of fairness with the need to support innovation and competitiveness. It remains to be seen whether the Directive will succeed in bridging the gap between national specificities and the goal of supranational consistency. What is clear, however, is that platform work has compelled the Union to face a fundamental challenge: reaffirming its social dimension as an integral and indispensable part of the European integration process.

The topic addressed in this study is particularly topical, marked by ever-accelerating pace of technological progress. For this reason, it will be essential to continue monitoring the evolution of digital platforms through research capable of capturing in real time the changes that will emerge in the coming years. In this perspective, the European Directive may become a decisive tool for ensuring greater transparency, stronger protection, and improved working conditions for a category that today represents one of the fastest-growing sectors of the economy.

At the same time, the research has revealed limitations that cannot be overlooked. These concern, on the one hand, the exploratory nature of the field survey and, on the other, the uncertainties surrounding the implementation of the Directive. It will therefore be essential to examine how the various Member States will transpose the legislation, and to verify

whether divergent approaches will prevail or a shared line consistent with European objectives will emerge.

Ultimately, the analysis of platform work shows that technological innovation cannot be separated from an adequate updating of law and social policies. Only in this way will it be possible to transform digital progress into real social progress.

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