

The Legal Dynamics of Digitally-Dimensioned Strikes in the Era of Industry 4.0

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ABSTRACT

The Industry 4.0 era, marked by advances in information technology and digitalization, has fundamentally transformed the patterns of industrial relations in Indonesia. One significantly affected aspect is the practice of strikes as a form of collective worker action to demand rights and justice. Whereas strikes were previously associated with physical actions carried out directly at the workplace, digital forms of strikes have now emerged such as mass logouts, deactivating work application accounts, and mobilizing protests through social media. This transformation presents new challenges in regulation, implementation, and legal protection. Existing legal instruments, such as Law Number 13 of 2003 on Manpower and its implementing regulations, have yet to fully accommodate the dynamics of digitally-based strikes. This gap creates the potential for a legal vacuum and uncertainty in the enforcement of both workers' rights and employers' obligations. This article aims to analyze the legal dynamics of strikes in the digital era, focusing on the adequacy of the current normative framework, identifying regulatory gaps, and proposing necessary legal reforms. Using a normative approach and case studies particularly regarding strikes by online motorcycle taxi drivers in Indonesia this paper recommends the formulation of more responsive and inclusive regulations for non-conventional strike forms. This study is expected to offer both academic and practical contributions toward creating a labor law system that is adaptive, fair, and capable of ensuring a balance of interests between workers and employers in the digital age.

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Introduction

The Industry 4.0 era represents a massive transformation occurring in various aspects of human life, triggered by advances in information and communication technology (ICT) (Singh & Verma, 2020). The technologies in question include the Internet of Things (IoT), artificial intelligence (AI), and automation, which enable production processes and social interactions to operate more quickly, efficiently, and with global connectivity (Davenport & Ronanki, 2018). In Indonesia, digitalization has

brought major changes in the economic, social, and cultural sectors, as well as in the way individuals and groups interact with the legal system (Pratama, 2021). Changes in the digital era are not a matter of readiness or choice but rather a consequence (Li, 2019). Technological changes will continue to move and develop amid human life, and there is no other choice but to master and control the technology properly and correctly so that it brings the greatest possible benefit (Jasra & Rahman, 2020). These changes not only affect productive sectors but also disrupt existing legal systems, including in the areas of employment and industrial relations (Gereffi & Lee, 2019). Changes in work systems in the digital era allow someone to be employed freely without being bound by rigid employment contracts with companies. This type of work system is commonly known as freelance work; this change affects how businesses operate and creates new challenges for workers and employers (Yuan & Zhang, 2020). Workers become more vulnerable, unprotected, and at risk of exploitation (Hossain, 2021).

The development of information and communication technology in the Industry 4.0 Era also affects all aspects of people's lives, including everyday life (Bessen, 2019). From the employment perspective, this is also impacted, as stated by Castells: “mechanization first, automation later, have been transforming human labor for decades” (Castells, 2020). This opinion reflects the long evolution of the way human labor has changed due to technological advances (Brynjolfsson & McAfee, 2014). Mechanization, as the initial stage of this transformation, refers to the use of machines to replace human or animal power in the production process (Acemoglu & Restrepo, 2018). The Industrial Revolution in the 18th century was an important milestone where steam engines, mechanical looms, and tractors began to change the pattern of human work from physical labor to machine-powered labor (Mokyr, 2019). At this stage, human labor was still very much needed but was more directed toward operating and monitoring the machines (Chesbrough, 2017). The next stage is automation, which brings about a more radical change (Pereira & Romero, 2017). Automation means the use of control systems, robotics, and digital technology to carry out production processes without direct human intervention (Ghobakhloo, 2020). Technological developments are directed at facilitating various human activities, including in the process of completing work (Van Der Veen et al., 2018). As a result, technological changes will certainly have an impact on employment (Frey & Osborne, 2017).

In the context of labor law, the digital era brings new challenges related to regulating the relationship between workers and employers, as well as the rights of workers involved in digital-based employment (Djunaidi & Dalimunthe, 2024). Workers on digital platforms, such as online motorcycle taxi drivers or food couriers, use applications to interact with companies, which creates working relationships that are not bound by conventional rules that usually apply in traditional workplaces. The development of information technology in the Industry 4.0 Era has fundamentally changed the pattern of industrial relations in Indonesia. The most prominent form of adaptation is highly flexible work relationships, technology-based work instructions, and

the emergence of worker dissatisfaction resolution in the form of strike actions that have digital technology dimensions.

A digital strike occurred in 2022, when thousands of online motorcycle drivers who were members of the *Two-Wheel Action Movement* (Garda) carried out a national strike through social media platforms and instant messaging applications. The action was carried out by means of a “mass logout” by online motorcycle taxi drivers and a decision not to activate the application they use for work, without having to stop working physically. The action was triggered by fare reductions without prior social dialogue. This strike was carried out simultaneously by the drivers without needing to gather in a physical location. This phenomenon raises new questions in the context of labor law: is this form of digital strike legal according to Law Number 13 of 2003 concerning *Manpower*?

Strikes are one of the fundamental rights of workers that are internationally recognized and regulated in various national regulations. In Indonesia, this right is governed by Law No. 13 of 2003 concerning *Manpower*. The implementation of the right to strike often encounters various legal and practical challenges, both from the worker’s and the employer’s perspectives. The right to strike in Indonesia has a legal basis sourced from the 1945 Constitution and Law No. 13 of 2003 on *Manpower*. The 1945 Constitution Article 28E paragraph (3) guarantees the right of every person to associate, assemble, and express opinions. This right forms the foundation for workers to form labor unions and carry out collective actions, including strikes, as part of the freedom of association. Law No. 13 of 2003 concerning *Manpower* regulates the right to strike in more detail.

The absence of regulations that explicitly govern digital strikes creates a legal vacuum that has the potential to make it difficult for parties to resolve legal disputes. In practice, digital strikes may be considered disciplinary violations or even sabotage, which can harm workers due to the lack of legal protection for digitally-conducted strikes. Indonesian labor law currently does not explicitly regulate the form of strike action that takes place in digital spaces. This study aims to examine the dynamics of labor law related to strike action in the Industry 4.0 era. Digitally-dimensioned strikes have characteristics that differ from conventional strikes, in terms of procedure, means of expression, and their impact on the business world. Law enforcement officers and employers often lack the proper perspective in assessing forms of strike action in the digital era. This shows that positive law is still lagging behind in responding to the rapidly developing dynamics of Industry 4.0.

In line with the evolution of the labor market due to the rise of digital technologies in Industry 4.0, this study aims to investigate the challenges posed by digital strikes within the context of Indonesian labor law. Previous research, such as that by Jufrida (2018) and Mulyana (2020), focused on the legal implications of strikes in traditional workplaces but did not specifically address the new form of digital strikes facilitated by digital platforms. Jufrida’s study explored the broader legal framework for industrial actions but lacked a focus on digital transformation, while Mulyana’s research on labor disputes did not include the dynamics of digital platforms in the context of strike actions. This research

fills the gap by examining how digital strikes challenge existing legal frameworks, highlighting the need for updated legal structures to accommodate new forms of industrial actions. The findings suggest that digital strikes, like the 2022 national strike by online motorcycle taxi drivers, are not explicitly addressed in current labor law, leading to uncertainties regarding the legality and protections afforded to such actions.

This study aims to assess the legal standing of digital strikes in Indonesia, considering how the legal system can be adapted to accommodate the digital dimensions of labor actions. The benefits of this research include offering legal clarity for both workers and employers, contributing to more effective labor dispute resolution, and ensuring that labor rights are properly protected in the digital era.

Research Methods

The research method used is a juridic-empirical legal research method, which is an interdisciplinary approach in legal studies that combines the analysis of legal norms with social reality to obtain a more comprehensive understanding of the applicability and effectiveness of the law. The main objective of this method is to observe how the law is not only written and regulated in legislation, but also how it is practiced and functions in everyday life. The researcher analyzes primary legal materials such as laws, government regulations, court decisions, as well as secondary legal materials such as legal literature and the opinions of legal experts. This aspect aims to identify and understand the applicable legal norms and the legal principles underlying them. One of the strengths of the *juridic-empirical* approach is its ability to connect legal texts with social reality. This type of research allows for the evaluation of weaknesses in a formalistic legal system through real-world legal practice, thereby enabling the development of more contextual and applicable legal policy recommendations. In the context of labor law, for example, this approach can be used to examine how strike regulations are implemented by digital workers or in the informal sector, and how government authorities and employers legally and socially respond to these actions.

Results and Discussion

Definition and Legal Basis of Strikes

The definition of strike action, based on the provisions found in Law Number 13 of 2003 concerning Manpower, is stated in Article 137, which defines strike as a fundamental right of workers/laborers and trade/labor unions, carried out lawfully, orderly, and peacefully as a result of failed negotiations. This article affirms that strikes are a legitimate right for workers/laborers and trade/labor unions, which must be conducted in an orderly and peaceful manner as a consequence of failed negotiations between workers and employers. According to Law No. 21 of 2000 concerning Trade Unions/Labor Unions, a trade/labor union is an organization formed by, from, and for workers/laborers both within and outside a company, which is free, open, independent, democratic, and responsible, aiming to struggle for, defend, and protect the rights and interests of workers/laborers and improve the welfare of workers/laborers and their

families. Strike action, according to the labor law, must involve the role of trade/labor unions. This indicates that the union is responsible for the strike, and that the strike represents a form of expression of worker dissatisfaction that cannot be resolved through dialogue or bipartite negotiations. A strike is a way for workers to exert pressure. Another common method used by workers to resolve issues is through the provisions in Law Number 2 of 2004 concerning the Settlement of Industrial Relations Disputes.

Article 137 also emphasizes that strike actions must be carried out in a lawful manner and in accordance with applicable regulations. In this context, “lawful” means that the strike must meet several requirements, which are further explained in other regulations, such as notifying the employer and relevant authorities, and not being carried out in a manner that causes harm or violates the prevailing laws. Workers involved in a strike are also required to maintain order and peace during the strike to avoid further damage to existing industrial relations.

Article 138 Paragraph (1) states that if a worker or a labor union intends to invite other workers to go on strike, the invitation must be made without violating the law. This means that the invitation to strike must be conducted legally and without coercion, allowing workers the freedom to decide whether or not to participate. This provision is essential as it provides space for workers to make independent decisions without pressure from the union or other parties. For example, in the practice of strikes carried out by online motorcycle taxi drivers, a driver can choose to join a digital strike organized by fellow drivers or continue working without being forced. Paragraph (2) of this article further explains that workers who are invited to strike are not obligated to join. They are free to decide whether they want to participate or not. This freedom demonstrates the protection provided to workers so that they are not forced into participating in strikes, ensuring that they can exercise their rights without fear of threats or intimidation. Moreover, this provision is also important to prevent strikes from escalating into larger conflicts that could harm both parties, the employers and the workers themselves.

Article 139 of the Labor Law emphasizes the importance of specific regulations concerning the implementation of strikes by workers who are employed by companies that serve the public interest and/or companies whose activities involve risks to human life. This provision is designed to prevent strike actions from disrupting essential public services and endangering public safety. Thus, even though strike action is a fundamental right of workers guaranteed by law, its implementation must take into account a broader social responsibility. Companies that fall into this category include hospitals, water and electricity service providers, public transportation, and high-risk industries such as chemical, gas, and nuclear processing. In such cases, conducting a strike without adequate regulation may cause significant disruptions to public interests, including potential loss of life or large-scale economic damage.

Then, Article 140 Paragraph (2) explains that strike notification is one of the essential aspects to ensure that strikes are conducted in accordance with legal procedures. The notification must include at least four (4) important elements. First, the time of the strike — the notification must state clearly the day, date, and time when the strike will

begin and end. This aims to provide clarity for the employer and relevant agencies about the strike's duration, so that all parties can prepare and adjust the company's operational schedule. Second, the location of the strike — the location or venue of the strike must also be disclosed. Although strikes are typically held at the workplace or relevant job site, this provision allows for a clear explanation of where the strike will take place. This is relevant to avoid chaos that might arise if the strike is conducted out of context. Third, the reasons and causes for the strike — every strike must be accompanied by a clear and detailed explanation of why the strike is necessary. Typically, the reason is related to the failure of negotiations between the workers and the employer concerning working conditions or worker welfare issues. This notification serves as the basis for employers to understand the workers' demands, which is expected to be a starting point for further negotiation. Fourth, the signatures of those responsible — the strike notification must also include the signatures of the head and secretary of the labor union responsible for the strike. This ensures that there is an official party accountable for the implementation of the strike and prevent the strike from proceeding without clear oversight.

Notifications that do not meet these requirements can result in the strike being considered unlawful according to the applicable regulations. Provisions regarding unlawful strikes are further regulated in Ministerial Decree Number 232 of 2003, specifically in Article 3. This article details the situations that cause a strike to be considered unlawful, including:

Not Due to Failed Negotiations: A strike that is not triggered by a breakdown in negotiations between the workers and the employer cannot be classified as a lawful strike. In this case, a strike that does not stem from disputes or disagreements in negotiations can be viewed as a violation of workers' rights to use striking as a legitimate means of struggle.

No Notification to the Employer and Labor Authorities: One of the legal requirements of a valid strike is proper notification to both the employer and the relevant labor authorities. Without this notification, the strike may be deemed unlawful because the employer is not given sufficient opportunity to seek solutions or take necessary mitigation steps.

Notification Made Less Than 7 Days Before the Strike: According to Article 140 Paragraph (2), strike notification must be submitted at least 7 days prior to the strike. If the notification is made less than 7 days in advance, the strike cannot be considered lawful. The purpose of this provision is to allow all parties—employers, workers, and relevant institutions—sufficient time to prepare for the strike.

Notification Content Does Not Comply with Article 140 Paragraph (2): If the contents of the strike notification do not meet the requirements stated in Article 140 Paragraph (2) concerning the time, place, reasons, and responsible signatories, the strike is deemed unlawful. This underscores the need for transparency and adherence to clear procedures in conducting strikes, so that they are legally recognized and do not cause unnecessary harm to any party.

In the practice of digitally-based strikes such as those conducted by online motorcycle taxi drivers under the Garda community, these legal procedures are not formally followed. The strike is conducted through a “mass logout” without official notification, and not through a formal labor union recognized by the state. This creates legal implications where such a strike, technically, may be considered unlawful under Indonesian positive law, even though it substantively reflects collective will and the outcome of failed negotiations. The legal status of workers in digital platforms also presents a legal dilemma. Online motorcycle taxi drivers are treated as “partners,” who, under the current legal framework, are not recognized as workers/laborers as defined in the Manpower Act. Consequently, normative labor rights such as the right to strike, collective bargaining, or protection against termination cannot be directly applied. From the standpoint of positive law, digital strikes exist in a vulnerable position and have not yet obtained adequate legal legitimacy. This results in a legal vacuum and uncertainty in the protection of workers’ rights in the digital sector. Therefore, there is a need for labor policy reformulation that expands the definition of strikes and provides recognition of digital workers as legal entities within a new legal framework.

Characteristics of Digitally-Based Strikes

Digitally-based strikes are a new phenomenon that has emerged alongside technological advancement and the digitalization of the labor sector. These types of strikes have distinctive characteristics that differentiate them from conventional strikes. The first characteristic is that they are non-physical in nature, meaning the strike action does not involve stopping work at a physical location or workplace. Instead, in this kind of strike, workers can protest by discontinuing the use of the digital platforms they work through—such as the “mass logout” conducted by online motorcycle taxi drivers. These workers may choose not to activate the applications they use for work without gathering in person or stopping work at a physical site. This phenomenon offers time and space efficiency that is more flexible, in line with the demands of Industry 4.0, which relies heavily on information and communication technologies.

The second characteristic is that digitally-based strikes are centralized through digital platforms. In such strike actions, the digital platform becomes the primary medium for organizing and coordinating the strike—whether through specific applications or instant messaging platforms like WhatsApp, Telegram, or other apps that support their work. The presence of these platforms enables the strike to be conducted swiftly and extensively, even though workers are located in different places. By using digital platforms, workers can communicate with one another, organize the strike, and voice their demands without being constrained by physical or geographical limitations. This creates a more decentralized form of organization compared to traditional strikes, which are usually centered around labor unions or formal organizations.

The third characteristic of digitally-based strikes is that they are often publicized through social media, integrated with the main work-related applications—for instance, chat apps that connect one worker to another. Other social media platforms such as

Twitter, Instagram, and Facebook are also used to disseminate information about the workers' issues. Workers in the digital industry sector usually do not personally know one another; therefore, they realize that social media plays an important role in spreading awareness of their problems quickly and widely, allowing them to generate public consciousness about the challenges they face. This also shows how information technology can be used as a tool for advocacy and social mobilization in the context of labor law. Workers involved in digitally-based strikes do not only communicate with fellow workers but also with the general public and other stakeholders, such as consumers and government authorities. From a legal perspective, this presents a challenge—namely, the mismatch between existing formal legal procedures and the realities of digitally-based strikes.

In the case of the Gojek strike, no formal notification documents were found addressed to the employer or relevant government institutions. This creates a legal problem because, under Article 140 of Law No. 13 of 2003 on Manpower, a strike must be formally notified to the employer and related agencies at least 7 days in advance. In a digital strike, the mobilization process occurs informally and rapidly, without standardized procedures, so such strike actions are often considered unlawful under current labor laws. As a consequence of participating in an unlawful strike, workers can be classified as absent without leave and seen as failing to comply with the employer's summons to return to work. Employers typically summon striking workers twice consecutively within a 7-day period through proper written notice. If the worker does not comply with the summons, they are deemed to have voluntarily resigned.

Legal Challenges in Addressing Digitally-Based Strikes

One of the main challenges in addressing digitally-based strikes lies in the discrepancy between administrative and formalistic legal procedures and the increasingly dynamic and flexible digital reality. The existing legal procedures in Indonesia's labor system tend to be bureaucratic and structured, requiring that strikes follow a predetermined path, such as going through a registered labor union, providing formal notice to the employer, and giving at least seven days' prior notification as stipulated by statutory provisions. In practice, digitally-based strikes are carried out informally through digital platforms—such as collectively logging out of apps—which enables workers to participate in collective actions without adhering to formal procedures. This creates tension between the existing legal procedures and the flexibility exercised by workers engaging in digitally-based strikes, which often take place without clear geographical or temporal boundaries.

Digitally-based strikes do not typically involve labor unions as the formal representatives of workers; instead, they are often organized by online communities or forums that lack legal status within the industrial relations structure. This phenomenon illustrates how digital communication and labor organization can evolve much faster than legal adaptation. Workers involved in such strike actions are not always registered members of traditional labor unions, making it difficult to determine whether their actions

are legally valid. this highlights a legal gap that must be addressed immediately to ensure that workers' rights remain protected—even when exercised through digital channels that are not always formally structured.

Moreover, digital companies often exploit partnership or freelance employment statuses to avoid legal obligations applicable to formal employees, such as social security, minimum wage, and other rights. Many workers in digital platforms, such as online motorcycle taxi drivers or delivery couriers, are classified as partners or freelancers who are not bound by formal employment contracts with the company. As a result, these workers lack strong legal standing when voicing their demands, including during digitally-based strikes. This inequality leads to inadequate legal protection, especially in strike actions aimed at fighting for workers' rights. It worsens the bargaining position of workers who are already considered part of the informal labor sector, making them more vulnerable to retaliation from companies that do not recognize them as part of formal employment relationships.

This legal inequality between digital sector workers and employers not only creates uncertainty in the implementation of digitally-based strikes but also poses a potential violation of workers' fundamental rights, particularly the right to unionize and express opinions as guaranteed by Article 28E paragraph (3) of the 1945 Constitution of Indonesia. In this context, strikes should be seen as a legitimate expression of human rights in the workplace, encompassing the rights to freedom of expression and association. However, due to the mismatch between workers' legal status and existing labor law norms, these rights are often neglected or inadequately protected in practice.

The Need to Reformulate Strike Regulations

In response to the rapid advancement of digital technology, it is crucial for the state to reformulate strike norms within labor legislation, making them more inclusive of non-conventional forms of strikes that have emerged in the digital era. Alongside changes in industrial relations patterns marked by digitalization, strikes—which were once conducted in conventional ways, such as stopping work at the physical workplace—have now evolved into new, more flexible and technology-based forms. Therefore, the current norms in labor laws need to be updated to encompass the variety of strike forms emerging in the digital era.

This reformulation could include several key aspects. First is the recognition of digitally-based strikes as a legitimate form of workers' expression. Digitally-based strikes, such as those conducted by online motorcycle taxi drivers, have become an effective way for workers to voice their dissatisfaction with company policies. This recognition is essential to prevent such actions from being considered illegal or illegitimate. Instead, they should be viewed as a lawful expression of workers' rights to fight for their interests peacefully and orderly within the evolving framework of labor law.

In adapting to the digital era, it is also important to develop legally recognized electronic notification mechanisms. Strike notifications delivered through electronic

media—such as instant messaging apps or social media platforms—represent a more efficient and effective method for communicating strike intentions. Therefore, to ensure legal certainty and notification effectiveness, regulations should be established to recognize electronic notifications as a legitimate and legally accountable procedure. Such regulation would make it easier for workers to communicate their strike intentions without having to go through overly bureaucratic or time-consuming processes.

In addition, protection for informal workers and digital partners involved in strike actions must be a primary concern. Informal workers, such as online motorcycle drivers, are often unprotected and prone to exploitation. Protection for such workers is vital so that they can express dissatisfaction or fight for their rights without fear of retaliation or discriminatory actions by companies. The state must build a legal framework that is not only normative but also progressive in accommodating the evolving realities of labor relations.

Existing regulations should not merely follow contemporary developments, but should also facilitate positive transformation in labor relations in the digital age. Labor law must be able to ensure a balance between workers' rights and employers' needs, while also providing sufficient space for workers to develop and exercise their rights within an ever-evolving technological context. This reformulation is essential to create a fairer labor system that aligns with the ongoing global socio-economic dynamics.

Conclusion

Digitally-based strikes represent a new manifestation of worker resistance in an era of rapidly advancing technology. With the rise of *Industry 4.0* and the adoption of digital technologies in the workplace, the phenomenon of strikes has also undergone significant transformation. One form of strike that has emerged in the digital era is known as the “mass logout” action. This practice is typically carried out by online motorcycle taxi drivers or groups of platform-based workers who choose to deactivate their work applications for a certain period as a form of protest against policies perceived as detrimental. Such actions reflect the changing nature of industrial relations, where workers are no longer confined to physical spaces but can carry out strike actions using digital technology as a means to voice their demands. This phenomenon presents new challenges to Indonesia's labor law system, particularly with regard to existing regulations. *Law No. 13 of 2003 on Manpower*, which remains the primary legal reference for the regulation of workers' rights, does not explicitly regulate digitally-based strikes. The existing legal framework still predominantly addresses conventional strike forms, which involve physical gatherings and direct work stoppages at the workplace. Digitally-based strike actions require special legal attention. In the absence of specific laws governing such actions, the fundamental principles of labor law—particularly those related to social justice and workers' fundamental rights—must serve as the main foundation in responding to this emerging phenomenon. Workers' rights to voice their opinions and to seek improvements in working conditions are constitutionally guaranteed rights. In light of these developments, a revision of strike regulations is necessary to

accommodate the new dynamics of an increasingly digitalized labor environment. This is crucial to ensure that labor law remains relevant and can encompass all aspects of existing industrial relations, whether conventional or digital. Such revisions are expected to provide legal certainty for employers while offering better protection for workers, ensuring that both parties can fairly exercise their rights and fulfill their obligations in facing the challenges of the digital industry. This step is not only vital for modernizing labor law, but also for maintaining a balance between technological advancements and the protection of fundamental workers' rights in Indonesia.

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