

# Directors' Duties and the Collective Governance of Algorithmic Management Systems

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## Article abstract

While algorithmic management has improved corporate performance, it poses potential harm to workers and may jeopardize the long-term sustainability of companies, warranting regulatory intervention. Ex-ante human rights impact assessment of algorithmic management systems (AMS) is critical and has been widely adopted. The impact of AMS on multiple stakeholders, the shared ownership of workplace data, and the need to enhance AMS assessments' quality and legitimacy may justify the adoption of a collective or multi-stakeholder governance of algorithm assessment. However, many jurisdictions have not embraced this approach. In countries with a shareholder primacy tradition, governance structures for ex-ante AMS assessments often exclude workers from having a voice in the assessment process. Even in jurisdictions adhering to stakeholder-oriented corporate governance models where worker participation in AMS governance is permitted, corporate resistance can significantly hinder such involvement. This paper argues that consideration should be given to expanding directors' duties, requiring them to collaborate with the AMS assessment process and its collective governance, including facilitating workers' involvement. Directors' collaborative duties may help remove significant barriers by obligating them to disclose, coordinate, negotiate, and rectify workplace algorithms to serve the interests of companies and multiple stakeholders, including safeguarding workers' human rights. The effectiveness of this multi-stakeholder governance of AMS assessments requires directors' collaborative duties, which can help build efficient, equitable, and sustainable AMS.

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# DIRECTORS' DUTIES AND THE COLLECTIVE GOVERNANCE OF ALGORITHMIC MANAGEMENT SYSTEMS

*Alberto R. Salazar V\**

While algorithmic management has improved corporate performance, it poses potential harm to workers and may jeopardize the long-term sustainability of companies, warranting regulatory intervention. Ex-ante human rights impact assessment of algorithmic management systems (AMS) is critical and has been widely adopted. The impact of AMS on multiple stakeholders, the shared ownership of workplace data, and the need to enhance AMS assessments' quality and legitimacy may justify the adoption of a collective or multi-stakeholder governance of algorithm assessment. However, many jurisdictions have not embraced this approach. In countries with a shareholder primacy tradition, governance structures for ex-ante AMS assessments often exclude workers from having a voice in the assessment process. Even in jurisdictions adhering to stakeholder-oriented corporate governance models where worker participation in AMS governance is permitted, corporate resistance can significantly hinder such involvement. This paper argues that consideration should be given to expanding directors' duties, requiring them to collaborate with the AMS assessment process and its collective governance, including facilitating workers' involvement. Directors' collaborative duties may help remove significant barriers by obligating them to disclose, coordinate, negotiate, and rectify workplace algorithms to serve the interests of companies and multiple stakeholders, including safeguarding workers' human rights. The effectiveness of this multi-stakeholder governance of AMS assessments requires directors' collaborative duties, which can help build efficient, equitable, and sustainable AMS.

Bien que la gestion algorithmique ait amélioré la performance des entreprises, elle risque de nuire aux travailleurs et de compromettre la viabilité à long terme des entreprises, ce qui mérite une intervention réglementaire. L'évaluation ex-ante de l'impact des systèmes de gestion algorithmique (SGA) sur les droits des personnes est indispensable et a généralement été adoptée. L'impact des SGA sur plusieurs acteurs, la propriété partagée des données de travail et le besoin d'améliorer la qualité et la légitimité des évaluations des SGA peuvent justifier l'adoption d'une gouvernance collective ou multipartite pour évaluer les algorithmes. Cependant, plusieurs juridictions n'ont pas adopté cette approche. Dans les pays qui se soustraient à la primauté des actionnaires, les structures de gouvernance pour les évaluations ex-ante des SGA excluent souvent les travailleurs de participer au processus d'évaluation. Même dans les juridictions qui se soustraient à des modèles de gouvernance d'entreprise qui considèrent les enjeux des acteurs concernés, où les travailleurs peuvent participer à la gouvernance des SGA, la résistance des entreprises peut considérablement entraver cette participation. Cet article propose d'élargir les obligations des directeurs d'entreprises en leur imposant de collaborer avec le processus d'évaluation des SGA et sa gouvernance collective et de faciliter la participation des travailleurs. Les obligations de collaboration des directeurs peuvent contribuer à éliminer de considérables obstacles, en leur obligeant à divulguer, coordonner, négocier et remédier l'utilisation des algorithmes au travail, afin de servir les intérêts des entreprises et de plusieurs acteurs, y compris la protection des droits des personnes des travailleurs. L'efficacité de la gouvernance multipartite des évaluations des SGA exige des obligations collaboratives des directeurs pour construire des SGA efficaces, équitables et durables.

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## Introduction

The widespread adoption of artificial intelligence (AI) in managing workers' performance increased the use of algorithms for hiring, monitoring, scoring, disciplining, and terminating employees across all company sizes and worker categories, including full-time, app-based, part-time, home-based or remote employees, and supply chain workers.<sup>1</sup> This transformation of work has improved companies' productivity, reduced labour costs, and heightened shareholder value, while creating new job opportunities. However, concerns have been raised about the extent to which algorithmic management systems (AMS) exacerbate bias, discrimination, workplace surveillance, excessive productivity demands, worker performance assessment, unfair working conditions and economic exploitation, mental health issues and subsequent unproductivity, worker privacy invasion, power asymmetries and workers' inability to bargain over their data rights, job displacement, layoffs,<sup>2</sup> and de-unionization.<sup>3</sup> The proliferation of real-world examples demonstrates the detrimental impact that

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- <sup>1</sup> See e.g. Fife Ogunde, "When Your Boss Is an Algorithm: Preserving Canadian Employment Standards in the Digital Economy" (2023) 21:1 CJLT 47 at 54; Antonio Aloisi & Valerio De Stefano, *Your Boss is an Algorithm: Artificial Intelligence, Platform Work and Labour* (Oxford: Hart Publishing, 2022) at 26, 52; Joseph B Fuller et al, *Hidden Workers: Untapped Talent* (last updated 4 October 2021) at 12, online (pdf): <hbs.edu> [perma.cc/DTC5-PHSD]; Eric Reicin, "AI Can Be a Force for Good in Recruiting and Hiring New Employees", *Forbes* (16 November 2021), online: <forbes.com> [perma.cc/2JC2-5KGU]; Spencer Soper, "Fired by Bot at Amazon: 'It's You Against the Machine'" *Bloomberg* (28 June 2021), online: <bloomberg.com> [perma.cc/PXD2-3WEN]; Phoebe V Moore, Pav Akhtar & Martin Upchurch, "Digitalisation of Work and Resistance" in Phoebe V Moore, Martin Upchurch & Xanthe Whittaker, eds, *Humans and Machines at Work: Monitoring, Surveillance and Automation in Contemporary Capitalism* (London: Palgrave Macmillan, 2018) at 18–20, 23–24, 26.
  - <sup>2</sup> Emerging legislation, regulations and governmental reports around the world are recognizing and addressing algorithmic management risks. See e.g. House of Commons, *Implications of Artificial Intelligence Technologies for the Canadian Labour Force: Report of the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities* (May 2024) (Chair: Robert Morrissey) at 3, 7–15, online: <ourcommons.ca> [perma.cc/5B8T-RTC4] [House of Commons, *Implications of AI for the Canadian Labour Force*]; EU, *Directive 2024/2831 of the European Parliament and of the Council of 23 October 2024 on improving working conditions in platform work*, [2024] OJ, L 2024/2831, art 8 [*Platform Work Directive*]; US, Equal Employment Opportunity Commission, *The Americans with Disabilities Act and the Use of Software, Algorithms, and Artificial Intelligence to Assess Job Applicants and Employees* (EEOC-NVTA-2022-2) (Washington DC: EEOC, 2022), online: <eoc.gov> [perma.cc/KP7B-N9NY] [EEOC].
  - <sup>3</sup> Valerio De Stefano & Simon Taes, "Algorithmic Management and Collective Bargaining" (2022) 29:1 Transfer: European Rev Lab & Research 21 at 22, 24–26. On concerns about employers' use of AI for anti-union purposes and massive job displacement due to AI deployment (Bradford J Kelley, "Belaboring the Algorithm: Artificial Intelligence and Labor Unions" (2024) 41:88 Yale J Reg 88 at 88).

workplace algorithms are having on workers.<sup>4</sup> These problems undermine workers' well-being and companies' performance, likely worsening societal inequalities.<sup>5</sup>

Regulatory action is necessary to address these concerns. Ex-ante human rights impact assessment of AMS is critical and has been widely adopted. These assessments, conducted before deployment, can identify potential risks, violations of worker rights, and other harmful outcomes. Early identification allows companies to mitigate these risks, reducing the likelihood of costly legal battles and ex-post regulatory interventions. While AMS impact multiple stakeholders, the shared ownership of workplace data, and the need to enhance AMS assessments' quality and legitimacy may justify the adoption of a collective or multi-stakeholder governance of AMS assessments, many countries have not embraced such an approach. In countries adhering to a shareholder primacy tradition, workers are frequently excluded from the governance of AMS assessments. Even in jurisdictions with stakeholder-oriented corporate governance models where workers are allowed to participate in AMS governance, corporate resistance can be a significant hurdle to such involvement. It is ideal that companies, their directors, workers, and regulators collaborate to conduct AMS assessments. However, several obstacles hinder this collective governance. These hurdles include the prioritization of AI risks over workers' human rights, the limitations of workers' participation, and the potential opposition from directors and shareholders.

This paper argues that consideration should be given to expand directors' and officers' duties with obligations to collaborate with the ex-ante AMS assessment process and its collective governance, including, facilitating meaningful worker involvement. The directors' collaborative duties

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<sup>4</sup> See e.g. *Mobley v Workday Inc*, 2024 US Lexis 126336 (ND Cal D) ("alleging that Workday's algorithm-based applicant screening tools discriminated against [...] job applicants on the basis of race, age, and disability" at 1); Hayden Field, "How Walmart, Delta, Chevron and Starbucks Are Using AI to Monitor Employee Messages," *CNBC* (9 February 2024), online: <cnbc.com> [perma.cc/US82-H68Q]; Vanmala Subramaniam, "Unions Aim to Protect Workers from AI – But Struggle to Keep Up", *The Globe and Mail* (12 June 2023), online: <theglobeandmail.com> [perma.cc/7WAP-B5L8] (regarding requiring wearable devices to be used by warehouse workers); US, National Labor Relations Board, News Release, "NLRB General Counsel Issues Memo on Unlawful Electronic Surveillance and Automated Management Practices" (31 October 2022), online: <nrlrb.gov> [perma.cc/69MK-5WBG]; Sebastião Barros Vale & Gabriela Zanfir-Fortuna, *Automated Decision-Making Under the GDPR: Practical Cases from Courts and Data Protection Authorities* (Washington: Future of Privacy Forum, 2022) at 39, online: <fpf.org> [perma.cc/GW98-ETFN]; Isobel Asher Hamilton, "Amazon Built an AI Tool to Hire People but Had to Shut It Down Because It Was Discriminating Against Women", *Business Insider Nederland* (14 October 2018), online: <businessinsider.nl> [perma.cc/N9CH-5E7M].

<sup>5</sup> *Ibid.*

may remove significant barriers to the collective governance of AMS assessments by obligating disclosure, coordination, negotiation, and rectification of algorithms to serve the interests of companies and multiple stakeholders,<sup>6</sup> including safeguarding workers' human rights, such as equality, non-discrimination, health, and safety. The effectiveness of this multi-stakeholder governance of AMS assessments requires directors' collaborative duties, which prove costly in the short-term, but the long-term benefits for companies and society are substantial. Such duties may contribute to enhancing the long-term sustainability of companies and society by building efficient, equitable, and sustainable AMS, fostering an adaptable and productive workforce, encouraging innovation, and promoting efficient management in the digital economy. Ultimately, this will also maximize shareholder value in the medium and long term.

This paper's first section elaborates on the collective or multi-stakeholder governance of AMS assessments, reviewing current regulatory interventions and highlighting the advantages and disadvantages of such governance approach. The second section reviews directors' current duties regarding workers' interests and AMS, discusses corporate opposition to the collective governance of AMS assessments, and articulates the reasons for expanding directorial duties.

## I. Collective Governance of the Impact Assessment of Algorithmic Management Systems

A pivotal legal strategy aimed at mitigating the adverse impacts of AMS involves mandating ex-ante impact assessments of such systems.<sup>7</sup> This is consistent with a "secure by design" approach to AI development that is emerging as a key principle guiding the development of safe and fair AI systems.<sup>8</sup> These evaluations endeavor to pre-emptively identify and rectify risks, harms, or infringements on workers' rights and well-

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<sup>6</sup> Companies and their directors are increasingly expected to meet such obligations. See e.g. US Securities and Exchange Commission, "SEC Charges two Investment Advisers with Making False and Misleading Statements About Their Use of Artificial Intelligence" (last modified 18 March 2024), online: <sec.gov> [perma.cc/6L9C-6KAK].

<sup>7</sup> Lawmakers are showing a growing interest in mandating assessments of algorithms prior to their implementation (see e.g. US, AB 1651, *Workplace Technology Accountability Act*, 2021–2022, Reg Sess, Cal, 2022, s 1521(i) [WTAA]; see also United Kingdom Government, "The Bletchley Declaration by Countries Attending the AI Safety Summit, 1-2 November 2023" (1 November 2023), online: <gov.uk> [perma.cc/3DKY-6UMS] [*Bletchley Declaration*]).

<sup>8</sup> See e.g. Claire W, "Introducing the Guidelines for Secure AI" (27 November 2023), online (blog): <ncsc.gov.uk> [perma.cc/3YWA-HQGP].

being prior to algorithm deployment,<sup>9</sup> while improving companies' performance. This early intervention can bring important benefits. These include systemic and comprehensive evaluation of algorithms beyond individual cases, significant prevention of harm to workers that can sometimes be irreversible, algorithm transparency that can foster worker engagement and oversight, avoidance of business operation disruptions due to harmful workplace algorithms, and savings in monitoring, litigation, and regulatory costs for companies, their workers, and regulators as AI risks are dealt with ex-ante. Impact assessments can mitigate the potential failures of governments and regulatory agencies that may not enforce algorithmic management regulations effectively due to a lack of political will, technical incompetence, underfunding, or corruption. These assessments may be guided by human rights protection principles<sup>10</sup> and are often disclosed for public accountability.

The governance of AMS impact assessments varies significantly across different corporate governance models. In countries with shareholder-oriented models, worker involvement in AMS governance is often minimal or non-existent. Conversely, stakeholder-oriented models tend to encourage and facilitate worker participation in these processes. The contrast between shareholder and stakeholder models in AMS governance highlights the broader implications of corporate governance structures on designing, implementing, and overseeing workplace algorithms. This divergence explains the varied regulatory approaches countries are adopting for AMS governance. As AMS continues to reshape workplace dynamics, the choice of AMS governance model becomes increasingly crucial. It influences how workplace algorithms are developed and deployed and how their impacts are measured and mitigated. This phenomenon calls for ongoing evaluations of regulatory frameworks to ensure they adequately address the complex challenges posed by algorithmic management in diverse corporate and cultural contexts.

### *A. Shareholder-Centric Governance of Algorithmic Management Systems and its Limitations*

Recent legislative developments require companies to conduct impact assessments of their AMS, coupled with disclosure obligations and human

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<sup>9</sup> There is an increasing global consensus on the necessity of intervening earlier and designing AI systems that are secure and fair to mitigate risks, prevent harm, and avoid violations of rights later in the process. See e.g. National Cyber Security Center, "Guidelines for Secure AI System Development" (27 November 2023), online: <ncsc.gov.uk> [perma.cc/FB56-KTS7].

<sup>10</sup> See notes 22 and 108.



rights considerations.<sup>11</sup> Notably, the emphasis on algorithm disclosure has emerged as a common policy response to mitigate risks and abuses associated with algorithmic management. For instance, in Ontario, employers are obliged to furnish employees with their written policy pertaining to electronic monitoring.<sup>12</sup> This policy must indicate the methods and circumstances for monitoring employees and the purposes of employers' use of any information obtained through it, although their use is not limited to the stated purposes. The disclosure is limited to electronic monitoring, and employees are only allowed to complain about a contravention of their employers' obligation to disclose their written electronic monitoring policies. New legislation requires employers to disclose the use of AI in hiring.<sup>13</sup> Employers thus retain substantial control over algorithmic systems and workplace data, significantly curtailing employees' voice and oversight.

The US appears to be moving in the same direction as Ontario. The General Counsel of the National Labor Relations Board (NLRB) has urged the NLRB to protect employees from employers' abuse of technology.<sup>14</sup> Under this new framework, an employer would be presumed to violate the *National Labor Relations Act* if their surveillance and management practices, viewed as a whole, could interfere with or prevent employees from engaging in protected activities.<sup>15</sup> Subject to exceptions, if the employer's business needs outweighs employees' Section 7 rights, the employer could be required "to disclose to employees the technologies it uses to monitor and manage them, its reasons for doing so, and how it is using the information it obtains."<sup>16</sup> The rationale behind this approach is that only with this information employees can effectively exercise their Section 7 rights and take appropriate measures to protect the confidenti-

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<sup>11</sup> *Ibid.*

<sup>12</sup> *Employment Standards Act*, 2000, SO 2000, c 41, s 41.1.1, as amended by *Working for Workers Act*, 2022, SO 2022, c 7, Schedule 2; see also Government of Ontario Ministry of Labour, Immigration, Training and Skills Development, "Written Policy on Electronic Monitoring of Employees" (last modified 8 July 2024), online: <ontario.ca> [perma.cc/8WLX-JALT].

<sup>13</sup> *Working for Workers Four Act*, 2024, SO 2024, c 3, Schedule 2, s 8.4 (1).

<sup>14</sup> US, National Labor Relations Board, *supra* note 4; Memorandum from Jennifer A Abruzzo, General Counsel of the National Labor Relations Board, to All Regional Directors, Officers-in-Charge, and Resident Officers "Electronic Monitoring and Algorithmic Management of Employees Interfering with the Exercise of Section 7 Rights" (31 October 2022), Memorandum GC 23-02 [Abruzzo, "Electronic Monitoring and Algorithmic Management of Employees"].

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*



ality of their protected activities if they choose to do so.<sup>17</sup> Some US states have begun to embrace a similar approach to regulating AI in workplaces. For instance, New York’s Assembly Bill A9315A would require employers engaging in electronic monitoring or automated employment decisions to screen a candidate or employee to conduct impact assessments of such AI tools.<sup>18</sup> Employment candidates would be informed of the use of such tools, revealing the emphasis on disclosure as the dominant legal intervention.<sup>19</sup> At the US federal level, the *Stop Spying Bosses Act* would require disclosures and prohibit employers from engaging in surveillance of workers.<sup>20</sup> Additionally, in 2023, President Biden issued an executive order recognizing the value of integrating workers’ views in regulating the use of AI in workplaces and the imperative of supporting workers’ ability to bargain collectively to mitigate AI risks.<sup>21</sup>

Furthermore, some jurisdictions requiring companies to conduct impact assessments of their AMS do not mandate consultation with, or involvement of, workers. For instance, in Canada, the *Artificial Intelligence and Data Act* (AIDA) is currently under discussion in Parliament and would require companies to conduct impact assessment informed by human rights considerations and disclosure of AI systems, including workplace algorithms.<sup>22</sup> While the regulator would supervise high-impact AI systems<sup>23</sup> by requiring disclosure, auditing, changes, or cessation of harm-

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<sup>17</sup> Abruzzo, “Electronic Monitoring and Algorithmic Management of Employees”, *supra* note 14 at 8.

<sup>18</sup> US, AB A9315A, *An Act to amend the labor law, in relation to restricting the use of electronic monitoring and automated employment decision tools; and to amend the civil rights law, in relation to making a conforming change*, 2023-2024, Reg Sess, NY, 2023.

<sup>19</sup> *Ibid.*

<sup>20</sup> US, Bill S 262, *Stop Spying Bosses Act*, 118th Cong, 2023.

<sup>21</sup> The White House, “Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence” (30 October 2023) at para (c), online: <whitehouse.gov> [perma.cc/8VCU-S92R] [White House, “Executive Order”]; Mitigating AI-related risks must involve supporting workers’ ability to bargain collectively (The White House, “Fact Sheet: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence” (30 October 2023) online: <whitehouse.gov> [perma.cc/XTB8-ZG52]).

<sup>22</sup> Bill C-27, *An Act to enact the Consumer Privacy Protection Act, the Personal Information and Data Protection Tribunal Act and the Artificial Intelligence and Data Act and to make consequential and related amendments to other Acts, Part 3, Artificial Intelligence and Data Act*, 1st Sess, 44th Parl, 2022, cls 8, 11 (first reading 16 June 2022) [AIDA]. For AIDA’s human rights considerations, see note 108. These considerations currently emphasize the right to equality and freedom from discrimination.

<sup>23</sup> Canada, Minister of Innovation, Science and Industry, *Government’s Proposed Amendments to the Artificial Intelligence and Data Act (AIDA) presented to the House of Commons Standing Committee on Industry, Science and Technology* (Ottawa, 2023) at annex B, online: <ourcommons.ca> [perma.cc/34BY-WCR4] (proposing to categorize the

ful systems, consultation with stakeholders, especially workers, are not required despite growing calls for workers' participation in the regulation and oversight of AI systems.<sup>24</sup> The proposed *Consumer Privacy Protection Act* would also require employers to conduct some assessment of their data systems, disclose collected information, and provide some explanation upon request.<sup>25</sup> A similar approach is found in Quebec's data protection law that requires privacy impact assessment and disclosure to the data subject with some opportunity for the latter to submit observations.<sup>26</sup>

Canada's adopted approach to AMS governance largely reflects the shareholder-oriented nature of its corporate governance model. Despite amendments to Canada's shareholder primacy tradition, which introduced non-binding considerations of stakeholders' interests,<sup>27</sup> the practical impact on algorithmic management governance appears minimal. The persistence of companies' control of AMS and the significant disregard of workers' participation in AMS governance suggest that the introduction of stakeholder considerations has not fundamentally altered the power dynamics in Canadian corporate governance, particularly regarding AMS. Overall, this approach emphasizes ex-ante impact assessments and disclosure of AI systems with some ex-post rights of action to address violations of workers' rights.

This government-supervised, company-driven model of algorithmic management governance, however, raises significant concerns regarding corporate accountability. Under this framework, companies retain substantial control over such systems and their assessments, compromising transparency and disregarding the involvement of workers in governance processes. This approach aligns with liberal market economies that have adopted shareholder-oriented corporate governance models that often exclude workers from the governance of companies. The disclosure of workplace algorithms and their assessment may not undergo sufficient scrutiny by stakeholders, particularly workers, who often lack the resources and means to effectively monitor companies' AI deployment. Consequently, they face challenges in overseeing AMS and holding companies and their directors accountable for AI-related failures or abuses, even when workplace algorithm disclosures are in place. This predicament stems

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use of AI in matters related to employment as high-impact system) [ISI, *AIDA Amendments*].

<sup>24</sup> House of Commons, *Implications of AI for the Canadian Labour Force*, *supra* note 2 at 9-10.

<sup>25</sup> *AIDA*, *supra* note 22, cls 18(4)–(5), 62, 71.

<sup>26</sup> *Act respecting the protection of personal information in the private sector*, CQLR c P-39.1, ss 3.3, 8, 12.1, 27.

<sup>27</sup> *Canada Business Corporations Act*, RSC 1985, c C-44, s 122 [CBCA].

from workers' knowledge and resource constraints, time limitations, and fear of retaliation, including termination for speaking out. It is thus necessary to explore alternative regulatory interventions beyond mere algorithm disclosures and company-controlled impact assessments of workplace algorithms.<sup>28</sup>

While the governance of AMS has been shareholder-centric and company-driven, it is crucial to recognize the growing involvement of workers and their unions in this process, particularly through collective bargaining.<sup>29</sup> These stakeholders are increasingly asserting their influence on corporate policies concerning AI implementation in the workplace, with the objectives of safeguarding workers from AI-related risks and preserving their fundamental rights.

Workers and unions are not merely passive recipients of AI-driven changes but are emerging as active participants in the decision-making process. Their involvement serves as a critical counterbalance to profit-driven implementations of AI technologies, ensuring that ethical considerations and worker well-being are factored into AMS design and deployment. This evolving dynamic highlights the importance of fostering a collaborative approach to AI governance in the workplace. It underscores the need for companies to engage in meaningful dialogue with their workforce, recognizing that effective and responsible AMS implementation requires a delicate balance between technological innovation, operational efficiency, and the protection of worker interests. However, unions face significant challenges in their efforts to engage with companies in governing AMS, including an unfriendly legal framework that may not facilitate worker involvement, corporate resistance, and the rapid pace of technological changes.<sup>30</sup> Additionally, unions have limited opportunities to renegotiate collective agreements to specifically address AI-related risks.<sup>31</sup> The situation is even more precarious for non-unionized workers, who

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<sup>28</sup> Concerns over companies' exclusive control of artificial intelligence and the need for external accountability mechanisms involving other stakeholders are growing. For instance, in the context of the 2023 UK Summit on AI, some have suggested a third-party or independent referee that may oversee companies developing AI and raise concerns if companies fail to protect society from significant AI risks (see e.g. "Elon Musk Says AI Safety Summit Aims to Establish 'third-party referee'", *Reuters* (1 November 2023), online: <reuters.com> [perma.cc/W8TH-B37M]).

<sup>29</sup> See e.g. Subramaniam, *supra* note 4. In the US, see e.g. Communications Workers of America, "Communications Workers of America Announces Union Principles for Artificial Intelligence in the Workplace" (6 December 2023), online: <cwa-union.org> [perma.cc/3PVY-S8N5] (reporting on the union's initiative to use union contracts to shape AI implementation); Kelley, *supra* note 3 at 91–92.

<sup>30</sup> See e.g. Subramaniam, *supra* note 4.

<sup>31</sup> *Ibid.*

have considerably less leverage to engage in negotiations with their employers regarding AMS. As a result, there is still a significant risk that AMS implementation may proceed without sufficient consideration of workers' interests and concerns.

### *B. Collective Governance of Algorithmic Management Systems*

A collective or multi-stakeholder governance of ex-ante impact assessments of AMS can serve as an effective regulatory mechanism. By involving diverse stakeholders—such as workers, employers, regulatory bodies, technology experts, and civil society—this mechanism can ensure a more balanced evaluation of the effects and implications of workplace algorithms.<sup>32</sup> This inclusive approach represents a departure from shareholder primacy models of AMS governance and aligns instead with stakeholder-friendly approaches that can be better suited to managing the complexities of workplace algorithms.

Involving workers who are directly affected by these algorithms is crucial. This involvement, whether through consultation, participation, or collective bargaining, helps protect workers' rights, including privacy and AI transparency, safeguards their well-being and can assist companies in tackling technological changes associated with AMS.<sup>33</sup> Moreover, integrating diverse perspectives enhances the quality and legitimacy of AMS assessments by incorporating competing interests and fostering comprehensive evaluations of potential risks and benefits. Collaborative governance can improve the implementation and acceptance of workplace algorithms, ultimately benefiting companies and society. This inclusive approach addresses immediate concerns about AMS and contributes to the long-term sustainability and social responsibility of technological innovations in the workplace.

Aligned with their long-standing stakeholder model of corporate governance, European countries established requirements for worker consultation in the oversight of AMS and their assessments. Europe's General

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<sup>32</sup> Kelley, *supra* note 3 at 88.

<sup>33</sup> See e.g. *ibid* (“[c]ollective bargaining and trade union action are arguably the most effective tools for tackling rapid technological developments in algorithmic management”); Valerio De Stefano, “Masters and Servers’: Collective Labour Rights and Private Government in the Contemporary World of Work” (2020) 36:4 Int J Comp Lab L & Ind Rel 425 at 440–42 [De Stefano, “Collective Labour Rights”]; Emanuele Dagnino & Ilaria Armaroli, “A Seat at the Table: Negotiating Data Processing in the Workplace” (2019) 41:1 Comp Lab L & Pol’y J 173 at 194; Philippa Collins & Joe Atkinson, “Worker Voice and Algorithmic Management in Post-Brexit Britain” (2023) 29:1 Transfer: European Rev Lab & Research 37 at 42–44.

Data Protection Regulation (GDPR)<sup>34</sup> and the Platform Work Directive mandate the disclosure and the impact assessment of AI systems, alongside consultation with, and participation of, data subjects and workers, including collective bargaining.<sup>35</sup> This Directive applies to platform workers only, not to all sectors. The EU's Artificial Intelligence Act (EU AI Act) requires deployers to perform ex-ante fundamental rights impact assessment of high-risk AI systems, including those related to employment.<sup>36</sup> Disclosure obligations are also imposed on deployers with some rights granted to affected persons to request an explanation of the use of AI systems.<sup>37</sup> An advisory forum representing stakeholders is established to advise the regulator.<sup>38</sup> It appears that workers and unions would be represented in such a forum only and would provide expertise and advice to the regulator. EU AI Act's lack of worker involvement requirement in ex-ante assessment of AMS risks undermines more protective national legislations mandating workers' participation. Notably, recent legal reforms in Germany have bestowed upon workers the right to be consulted on the deployment of artificial intelligence in workplaces.<sup>39</sup> On the other hand, similar legislative initiatives in the US, such as California's Bill 1651, echo this approach.<sup>40</sup>

There have been some successful cases of collective bargaining through which workers co-manage AMS and include AI-related rights, such as access to algorithm information (including risk and impact assessment information, data management, and mitigating measures),

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<sup>34</sup> EU, *Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC*, [2016] OJ, L 119/1 [GDPR].

<sup>35</sup> *Ibid* at arts 9(1), 10(1), 12(1)–(2), 22(3), 25, 35, 88; De Stefano, “Collective Labour Rights”, *supra* note 33 at 441; *Platform Work Directive*, *supra* note 2, art 8.

<sup>36</sup> EU, *Regulation 2024/1689 of the European Parliament and of the Council of 13 June 2024 Laying Down Harmonised Rules on Artificial Intelligence and Amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act)*, [2024] OJ, L 2024/1689 at 16, art 27.1 [EU AI Act].

<sup>37</sup> *Ibid*, arts 50, 86.1.

<sup>38</sup> *Ibid*, arts 67.1–2.

<sup>39</sup> Germany's *Works Constitution Act*, as amended in June 2021, provides that employers have to inform works councils about the use of artificial intelligence and works councils also assess its introduction and implementation (*Works Constitution Act*, 25 September 2001, Federal Law Gazette I 2518, ss 80(3), 90(1)(3) (Germany)); see also Oscar Molina et al, “It Takes Two to Code: A Comparative Analysis of Collective Bargaining and Artificial Intelligence” (2023) 29:1 *Transfer: European Rev Lab & Research* 87 at 110.

<sup>40</sup> *WTAA*, *supra* note 7, arts 1530(a)(7), 1562(d)(1).

worker profiling bans, non-monitoring of worker-union communications, and joint commissions to manage workplace algorithms.<sup>41</sup> However, companies largely persist in maintaining significant control over the governance of AMS, undermining the effectiveness of collective oversight and social dialogue between companies and their employees. Companies are increasingly reluctant to disclose and negotiate their AMS with workers, in defiance of legal mandates,<sup>42</sup> hindering workers' involvement in overseeing workplace algorithms and their impact assessment.

Despite its advantages, collective or multi-stakeholder governance faces challenges such as the need for transparency, potential reluctance from companies to disclose algorithmic details, and inherent power imbalances among stakeholders. Transparent processes and AMS disclosure are essential for building trust and cooperation and for facilitating successful AI-related collective bargaining, but companies may resist due to compliance and negotiation costs, loss of control, and concerns over trade secrets and cybersecurity.<sup>43</sup> Precarious, low-income, and minority workers are particularly vulnerable to these problems.

Addressing these corporate barriers to the collective governance of AMS and their ex-ante assessment appear to be crucial in ensuring their effectiveness. It is thus critical to explore the merits of further legal intervention. One alternative pertains to augmenting the duties of companies' directors and officers regarding ex-ante impact assessments of AMS and workers' involvement. Expanded duties of directors and officers could compel them to not only mitigate risks, harms, or human rights violations associated with AMS, but also to facilitate the collective governance of such systems, including collaboration with workers to assess such systems.

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<sup>41</sup> This is the case of Spain's unions. See Lucas G Alcalde, "Las empresas españolas suspenden en transparencia a la hora de compartir cómo usan sus algoritmos en el trabajo" [Spanish Companies Fail in Transparency When Sharing How They Use Their Algorithms at Work], *Business Insider* (22 June 2023), online: <businessinsider.es> [perma.cc/BVV6-KHL9]; Jorge Aguilar, "Just Eat and Unions Sign the First Company Agreement for 'Riders' in Spain", *Spain's News* (17 December 2021), online: <spainsnews.com> [perma.cc/SZ8M-P32G]; De Stefano & Taes, *supra* note 3 at 28, 30–31. Trade unions in the United Kingdom and Italy have also reached similar collective agreements. See also Virgina Doellgast, Ignés Wagner & Sean O'Brady, "Negotiating Limits on Algorithmic Management in Digitalised Services: Cases from Germany and Norway" (2023) 29:1 *Transfer: European Rev Lab & Research* 105 at 115–17.

<sup>42</sup> See the section entitled "Corporate Reluctance to AMS Disclosure and Negotiations."

<sup>43</sup> *Ibid.*



## II. Towards the Expansion of Directors' Duties to Enhance the Collective Governance of Algorithmic Management Assessments

### A. *Directors' Duty of Loyalty and Duty of Care and Workers' Interests*

In liberal market economies with a shareholder primacy tradition, directors primarily focused on maximizing shareholder value. The massive deployment of artificial intelligence in business activities is transforming companies' governance and operations. Among these changes, the integration of algorithms in the workplace presents new challenges to directorial responsibilities, particularly concerning their duties towards workers. Thus, it has become imperative to determine directors' duty of loyalty and duty of care towards workers in the realm of algorithmic management, especially with respect to the impact assessments of workplace algorithms.

The duty of loyalty obligates directors to act in the best interests of the corporation. In countries with a shareholder primacy tradition, this has often emphasized shareholder value maximization. However, across several jurisdictions, directors' duty of loyalty is evolving to encompass non-shareholders' interests, including consideration of workers' interests.<sup>44</sup> Thus, they are expected to integrate the interests of workers in designing, developing, and implementing workplace algorithms while advancing corporate goals. Nevertheless, this duty to consider workers' interest is often not binding,<sup>45</sup> leading directors to either overlook or accord it only little consideration. Therefore, it seems unlikely that, in fulfilling their duty of loyalty, directors and officers will favor algorithm assessments integrating workers' interests or collaborating with their representatives to engage in a collective governance of workplace algorithms.

The duty of care mandates that directors and officers act with reasonable prudence and diligence in managing their companies. In Canada, directors and officers, in exercising their powers and discharging their duties, shall "exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances."<sup>46</sup> This duty of care should be assessed against an objective standard of a prudent person.<sup>47</sup> Accordingly, directors and officers may need to conduct assessments, monitoring, and mitigation of harmful risks associated with companies'

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<sup>44</sup> See e.g. *Companies Act 2006* (UK), s 172; *BCBA*, *supra* note 27, s 122(1.1); *The Companies Act 2013* (IN), 2013/18 (India).

<sup>45</sup> See e.g. *BCBA*, *supra* note 27, s 122(1.1).

<sup>46</sup> *Ibid.*, s 122(1)(b).

<sup>47</sup> *Peoples Department Stores Inc (Trustee of) v Wise*, 2004 SCC 68 at para 63; *BCE Inc v 1976 Debentureholders*, 2008 SCC 69 at paras 36–38.



operations.<sup>48</sup> Regarding algorithmic management, directors would be expected to oversee workplace algorithms to ensure that they serve companies' interests and avoid risks<sup>49</sup> and harms to stakeholders, particularly workers as their exposure to these risks is widely recognized. Directors may thus be required to identify potential risks associated with AMS and take proactive measures to mitigate them. Failure to do so could result in liability.<sup>50</sup> They may need to ensure that workplace algorithms are transparent, non-discriminatory,<sup>51</sup> and do not compromise workers' rights or safety. In satisfying their obligations, directors may take appropriate measures for assessing, monitoring, disclosing, and auditing workplace algorithms, such as, appointing committees, directors or officers with AI expertise to conduct impact assessments of workplace algorithms at the design or development stages with some worker consultation.

The development of corporate sustainability laws and policies, which *inter alia* require companies to protect workers' human rights, suggests that directors' duty of care to safeguard workers' rights related to algorithm risks may also extend to supply chain workers.<sup>52</sup> However, several factors may favor directors prioritizing shareholder value over workers' interests. Prioritizing shareholder value maximization, combined with the

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<sup>48</sup> For climate risk, see e.g. Hansell LLP, "Climate Change Risk on the Boardroom Table" (6 June 2022) at 15, online (pdf): <hanselladvisory.com> [perma.cc/WGL6-EX9A]; Janis Sarra, "Duty to Protect: Corporate Directors and Climate-Related Financial Risk" (28 January 2021) at 3–4, online (pdf): <cdhowe.org> [perma.cc/R8HV-7DPR].

<sup>49</sup> This approach is consistent with investors' growing concerns over AI risk mitigation and disclosure, as evidenced by increasing shareholder activism in this area, see e.g. Arnaud Cavé & Niamh O'Brien, "Next-Gen Governance: AI's Role in Shareholder Proposals" (6 May 2024), online (blog): <corpgov.law.harvard.edu> [perma.cc/5KMD-TDKY].

<sup>50</sup> See generally US Securities and Exchange Commission, Press Release, 2023-227, "SEC Charges SolarWinds and Chief Information Security Officer with Fraud, Internal Control Failures" (30 October 2023), online: <sec.gov> [perma.cc/FBH5-DNYD] [SEC, "Solar Winds"]; *SEC v SolarWinds Corp.*, 2024 US Lexis 126640 at 3 (SD NY) [*SolarWinds*]; Stuart Irvin et al, "AI Comes to the Board Room in a Black Box: Are the Personal Assets of Directors at Risk in AI-Related Claims?", *JOLT Digest* (15 September 2023), online: <jolt.law.harvard.edu> [perma.cc/YXC4-KYR4]; David Schnurr, David Krebs & Jayme Millar, "Officer and Director Liability for Cybersecurity Breaches: Canadian Implications of the SolarWinds Case" (19 March 2024), online: <millerthomson.com> [perma.cc/G2S6-CD93].

<sup>51</sup> See e.g. US Equal Employment Opportunity Commission, Press Release, "iTutorGroup to Pay \$365,000 to Settle EEOC Discriminatory Hiring Suit" (11 September 2023), online: <eeoc.gov> [perma.cc/UMF7-475L].

<sup>52</sup> See e.g. EU, *Directive 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive 2019/1937/EU and Regulation 2023/2859/EU*, [2024] OJ, L 3/1 at paras 24–25 [CSDDD]. See EEOC, *supra* note 2 (regarding responsibility of employers for tools administered by other entities under the *Americans with Disabilities Act*).

business judgment rule that grants directors a degree of discretion, that may incentivize them to adopt cost-effective, profit-driven risk-mitigation measures for AMS, even if these measures compromise worker well-being or violate their rights. Directors may prioritize short-term financial gains over long-term benefits associated with ethical AMS, especially if immediate profits appear to conflict with workers' interests. Companies and their directors may perceive necessary actions like algorithm transparency, third-party assessments, and worker negotiations as costly, counter-productive, and detrimental to their competitive advantage, innovation, or profit-maximization goals.<sup>53</sup> Instead, they may engage in minimal, symbolic, or deceptive compliance regarding AMS, including providing the bare minimum of information or even misleading disclosure about workplace algorithms.<sup>54</sup> Moreover, the duty of care obligates directors to safeguard their companies' cybersecurity and trade secrets, which may justify avoiding full or substantial algorithm disclosure,<sup>55</sup> hindering cooperation, and negotiations with workers. The lack of transparency and engagement ultimately hampers attempts at collective governance of AMS, including impact assessments thereof. Directors' potential lack of AI expertise and the current limitations of AI knowledge in the face of complex algorithms can further discourage them from actively overseeing AMS. Thus, addressing the tension between shareholder value and workers' interests when deploying AMS requires a reassessment of directors' duties and the development of new governance mechanisms that promote transparency, accountability, and meaningful worker engagement while enhancing company performance.

Although the legal requirement for directors to directly negotiate workplace algorithms with workers remains unsettled, emerging laws and regulations are increasingly mandating companies to involve workers in the assessment, disclosure, and even the design of AMS.<sup>56</sup> This trend may signify a shift in directors' duties, requiring companies to integrate worker consultation throughout the AMS cycle. Thus, the right of workers to participate in the design, evaluation, and monitoring of AMS is gaining

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<sup>53</sup> See generally Anu Bradford, "The False Choice Between Digital Regulation and Innovation" (2024) 119:2 Nw UL Rev 377 at 416.

<sup>54</sup> See e.g. *SolarWinds*, *supra* note 50 at 99.

<sup>55</sup> Cavé & O'Brien report that Apple's board expressed reservations regarding the broad scope of AFL-CIO's AI transparency request proposal, "explaining that it could expose strategic plans and initiatives important to maintaining the company's competitive position." The proposal was ultimately rejected (see Cavé & O'Brien, *supra* note 49); Bart Custers & Anne-Sophie Heijne, "The Right of Access in Automated Decision-Making: The Scope of Article 15(1)(h) GDPR in Theory and Practice" (2022) 46 Computer L & Security Rev 1 at 2.

<sup>56</sup> See the section "Collective Governance of Algorithmic Management Systems" above.

traction, including workers' involvement in impact assessments of AMS and the right of AI experts assistance during these assessments.<sup>57</sup> This trend cuts across jurisdictions adhering to either shareholder primacy or stakeholder models of corporate governance, despite their different approaches to AMS. These developments highlight the growing need for directors to manage workplace algorithms in collaboration with workers.

### ***B. Corporate Reluctance to AMS Disclosure and Negotiations***

Even in the presence of laws or collective bargaining agreements requiring worker consultation or coordination when deploying AMS, it remains unclear whether companies and their directors may comply with such emerging laws or engage in symbolic or circumventive compliance, particularly when directors' new algorithm-related obligations are not clearly established. For example, a recent court ruling concerning Uber's algorithm disclosure obligations highlights the significant resistance displayed by companies against such disclosures, impact assessments, and collective negotiations on workplace algorithms. In October 2023, the District Court of Amsterdam ruled that Uber failed to comply with the April 2023 Court of Appeal order that Uber must provide algorithmic transparency regarding the automated decision to dismiss drivers from the UK and Portugal.<sup>58</sup> Uber deactivated several drivers due to alleged repeated trip cancellation fraud. The case was brought by Worker Info Exchange (WIE) in support of the App Drivers and Couriers Union (ADCU). The court held that drivers were entitled to know information about the automated dismissal decision, including the factors that were considered in the algorithmic decision and worker profiling data to assess and reasonably challenge such decisions, if they wish to do so. However, Uber provided limited and useless information, failing to disclose the legally required information despite the drivers' request. The Amsterdam District Court questioned whether Uber made a genuine effort to comply with the Court

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<sup>57</sup> *Ibid.*

<sup>58</sup> See unofficial translation from original in Dutch, confirming that April 4, 2023: Uber failed to comply with Court of Appeal ruling of Rechtbank Amsterdam [Amsterdam District Court], 5 October 2023, *UBER BV v advocaat mr GH Potjewijd*, KG ZA 23-780, at para 5.15, No C/13/738511 (Netherlands) [*UBER* October 2023]; Amsterdam Court of Appeal, 4 April 2023, *UBER BV v advocaat mr GH Potjewijd*, 200.295.742/01 (Netherlands) [*UBER* April 2023] ("orders Uber, within one month of service of this order, to grant the information requests of [appellant sub 1] , [appellant sub 2] and [appellant sub 4] based on Article 15(1)(h) of the AVG in the manner described above under 3.28, on pain of forfeiture of a penalty of €4,000.00 for each day or part thereof that Uber fails to comply with this order." at para 4). See also Worker Info Exchange, "Uber Ordered to Pay €584,000 for Failure to Comply with Court Order in Robo-Firing Case" (5 October 2023), online: <workerinfoexchange.org> [perma.cc/ 4M8U-X2AS] [Worker Info Exchange].

of Appeal order and if it was deliberately withholding information from workers to the advantage of its business interests.<sup>59</sup> Uber cited the need to safeguard its security and trade secrets for its reluctance to comply.<sup>60</sup> However, the District Court indicated that “[t]o the extent Uber relies on protection of its trade secrets, this (also) cannot benefit it, where it does not provide any information at all. This does not square with what the court of appeal has considered in par. 3.28.”<sup>61</sup> Similarly, in early 2022, Amazon warehouse workers from Germany, UK, Italy, Poland, and Slovakia challenged the company’s AI opacity and filed access requests under Article 15 of the GDPR, demanding worker data transparency. UNI Global Union, the international federation of service unions and privacy organization *noyb* supported the workers’ action. Workers complained that Amazon collected their data from multiple sources to feed their algorithms and then monitored and fired them while invading their privacy without their knowledge.<sup>62</sup>

Similarly, in Spain, companies are reluctant to disclose their workplace algorithms to workers despite their obligations to do so.<sup>63</sup> The 2021 Rider Law requires all Spanish companies to inform their employees about their use of algorithms in workplaces and the extent to which AI impacts their working conditions and labor rights.<sup>64</sup> However, very few companies comply with this mandate and, even when they do, algorithm disclosure is often minimal.<sup>65</sup> Companies frequently justify their non-compliance or poor compliance by citing the protection of their trade secrets and intellectual property rights, or the irrelevance of AMS disclosure.<sup>66</sup> This issue is further exacerbated by Spanish workers’ limited abil-

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<sup>59</sup> *UBER* October 2023, *supra* note 48 at para 5.17.

<sup>60</sup> *Ibid* at para 2.11. See also Worker Info Exchange, *supra* note 58.

<sup>61</sup> *UBER* October 2023, *supra* note 58 at para 5.14.

<sup>62</sup> UNI Global Union, “Following EU Data Request, Amazon Workers Strike Over Transparency Issues” (3 May 2022), online: <uniglobalunion.org> [perma.cc/TQH4-L8DV]; see also Soper, *supra* note 1.

<sup>63</sup> Alcalde, *supra* note 41; Carlos del Castillo, “Las empresas se niegan a desvelar sus algoritmos laborales un año después de aprobarse la obligación legal” [Companies Refuse to Reveal Their Work Algorithms a Year After the Legal Obligation Was Approved] (last modified 19 May 2022), online: <eldiario.es> [perma.cc/PNE7-BBPT].

<sup>64</sup> Royal Decree-Law (11 May 2021), amending the revised text of the Workers’ Statute Law, approved by Royal Legislative Decree 2/2015, to guarantee the labor rights of persons engaged in distribution in the field of digital platforms, s64(4), online: <boe.es> [perma.cc/EM26-NYXE]. See also Alcalde, *supra* note 41; Ane Aranguiz, “Spain’s Platform Workers Win Algorithm Transparency”, *Social Europe* (18 March 2021), online: <socialeurope.eu> [perma.cc/4WAB-VUUA].

<sup>65</sup> Alcalde, *supra* note 41; del Castillo, *supra* note 63.

<sup>66</sup> Alcalde, *supra* note 41.

ity to request relevant algorithm information and their lack of capacity to process and utilize this information to safeguard themselves against AI risks and improve their working conditions.<sup>67</sup> These issues remain unregulated.<sup>68</sup> Although the government issued a workplace algorithm transparency guide, it has had little impact due to its non-binding nature and widespread disuse.<sup>69</sup> Thus, Spain's social dialogue over workplace algorithms has largely not materialised.

Similar corporate reluctance to algorithmic transparency is occurring across different jurisdictions. In Canada, where the corporate governance model incorporates some stakeholder considerations, employers are allegedly rushing to deploy AI in workplaces without engaging in coordination or negotiations with workers while unions are moving slowly to respond to AI challenges.<sup>70</sup> Canadian companies are reportedly not being transparent about their use and capabilities of AMS.<sup>71</sup> This apparent opacity raises concerns about the potential negative impact of AMS on workers and their inability to engage in oversight and negotiations with their employers.

In the US, companies are increasingly reluctant to disclose their algorithms, data, and AI risks. Among similar proposals by other shareholders, the *American Federation of Labor and Congress of Industrial Organizations* (AFL-CIO), an investment trust for union members, filed AGM proposals demanding greater transparency on AI at Apple, Comcast, Disney, Netflix, and Warner Bros.<sup>72</sup> AFL-CIO also filed a proposal at Amazon demanding that a new committee of independent directors on AI be established to address human rights issues.<sup>73</sup> In articulating its proposal at Apple, AFL-CIO raised concerns about the impact of AI on employees, including discrimination, bias, and mass layoffs.<sup>74</sup> In 2023, some of AFL-CIO's efforts were also devoted to ask companies to commit to respecting freedom of association and collective bargaining.<sup>75</sup> Disney and Apple engaged with the US Securities and Exchange Commission (SEC) in an unsuccessful attempt to remove the AFL-CIO's AI proposal from AGM

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<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*

<sup>69</sup> *Ibid.*

<sup>70</sup> See e.g. Subramaniam, *supra* note 4.

<sup>71</sup> *Ibid.*

<sup>72</sup> Cavé & O'Brien, *supra* note 49.

<sup>73</sup> *Ibid.*

<sup>74</sup> *Ibid.*

<sup>75</sup> *Ibid.*

agendas.<sup>76</sup> Although important proxy advisors and investors supported AFL-CIO's Apple proposal, it failed on 28 February 2024,<sup>77</sup> whereas the proposals at Comcast and Disney were withdrawn by AFL-CIO after the companies agreed to disclose more AI-related information.<sup>78</sup> Similarly, pension funds have supported unsuccessful AI disclosure proposals initiated by other shareholders. For instance, Arjuna Capital filed an AI risk disclosure proposal at Microsoft, and NBIM, the Office of the New York City Comptroller, which manages the city's five pension funds, Californian public pension fund CalSTR, and Dutch pension fund manager PGGM supported the proposal.<sup>79</sup> It, however, failed as it ultimately received 21.2% of the vote.<sup>80</sup>

Entertainment companies have also shown reluctance to negotiate the use of AI with writers' unions. In May 2023, members of the Writers Guild of America (WGA) went on strike against movie and television producers, with one of their key demands being a ban on companies using AI for story pitches and scripts.<sup>81</sup> The union expressed concerns that AI could be employed to generate initial drafts, potentially reducing the number of writers needed for script development.<sup>82</sup> However, studios hiring the writers did not want to negotiate hard limits on the use of AI, instead proposed holding regular meetings with writers to discuss technological advancements.<sup>83</sup> While the WGA ultimately secured significant protections against AI in their new contract, including provisions that AI cannot be credited as a writer or create source material, the conflict was resolved after a prolonged strike.

In October 2023, the SEC charged SolarWinds Corp. and its chief information security officer (CISO) for defrauding "... investors by overstating SolarWinds' cybersecurity practices and understating or failing to disclose known risks" associated with a two-year long cyberattack.<sup>84</sup> The company and the officer "... engaged in a campaign to paint a false pic-

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<sup>76</sup> *Ibid.*

<sup>77</sup> *Ibid.*, reporting that Glass Lewis, ISS, Norges Bank Investment Management (NBIM), and Legal & General Investment Management (LGIM) and Abrdn supported AFL-CIO's proposal, which ultimately received 37.5% support.

<sup>78</sup> *Ibid.*

<sup>79</sup> *Ibid.*

<sup>80</sup> *Ibid.*

<sup>81</sup> Subramaniam, *supra* note 4.

<sup>82</sup> *Ibid.*

<sup>83</sup> *Ibid.*

<sup>84</sup> SEC, "Solar Winds", *supra* note 50.



ture of the company's cyber controls environment..."<sup>85</sup> The complaint focused on Orion, the company's flagship network monitoring product, that "was used by virtually all Fortune 500 companies and many US government agencies."<sup>86</sup> Numerous corporate officers, cybersecurity organizations, and other business groups opposed the SEC action against SolarWinds and its CISO, citing concerns about excessive regulatory intervention, greater exposure to cybersecurity attacks, and discouraging CISOs from undertaking their jobs for fear of liability.<sup>87</sup>

Companies' lack of AI transparency is prompting concerned shareholders to file proposals requesting that companies report on their use, oversight, and risks associated with AI.<sup>88</sup> While these cases do not necessarily involve workplace algorithms and workers' interests, they illustrate companies' increasing failures and resistance to algorithmic transparency even when requested by shareholders or required by law. These problems are likely to increase in shareholder primacy contexts as there are less legal requirements for collectively governing workplace algorithms unlike in stakeholder-oriented jurisdictions.

Overall, these examples demonstrate a growing trend of corporate reluctance to disclose companies' algorithms and engage in meaningful negotiations and coordination with workers to collectively govern AMS. Companies seem intent on exclusively controlling workplace algorithms and data to maintain their power over workers.<sup>89</sup> This issue is exacerbated by the growing concentration of corporate ownership and the deterioration of workers' well-being and union activity. Workers often find themselves in precarious positions, with limited ability to understand AMS and to access their data. This limitation, coupled with diminished collective bargaining power<sup>90</sup> and companies' anti-union practices, further con-

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<sup>85</sup> SEC, "Solar Winds", *supra* note 50.

<sup>86</sup> Jennifer Lee, Shoba Pillay, and Charles D Riely, "Takeaways from SEC v SolarWinds Motion to Dismiss Hearing" (9 June 2024), online: <corpgov.law.harvard.edu> [perma.cc/7YYR-MWXN].

<sup>87</sup> See e.g. *SEC v SolarWinds & Brown*, case no. 1:23-cv-09518 (SD NY 2024) ([Proposed] Brief of Chief Information Security Officers and Cybersecurity Organizations as Amicus Curiae in Support of Defendants' Motion to Dismiss the Complaint at 2) [Amicus Curiae *SEC*].

<sup>88</sup> Cavé & O'Brien, *supra* note 49.

<sup>89</sup> Katherine C Kellogg, Melissa A Valentine & Angèle Christin, "Algorithms at Work: The New Contested Terrain of Control" (2020) 14:1 Academy Management Annals 366 at 369–70.

<sup>90</sup> Halefom Abraha, "Regulating Algorithmic Employment Decisions Through Data Protection Law" (2023) 14:2 European Lab LJ 172 at 173–74; Challenges and Opportunities of Digitalization, ILO, 350th Sess, UN Doc GB 350/HL/1 (2024) at 10, online: <ilo.org> [perma.cc/6ZAK-F8R6].



tributes to corporate and directorial reluctance to comply with and collaborate on the collective governance of workplace algorithms.

Even in the presence of new laws and regulations mandating companies and their directors to participate in impact assessments and disclose their workplace algorithms, their compliance may be modest, symbolic, or circumventive. Strengthening the obligations of directors in this context could prove beneficial.

### *C. Directors' Collaborative Duties, Workers' Rights, and Collective Governance of Workplace Algorithm Assessment*

In light of the foregoing analysis, it is imperative to consider expanding the duties of directors and officers to ensure their cooperation with the impact assessments of AMS and their collective governance. While their duties associated with the deployment of algorithms and workers' interests are not clearly established, companies and their directors and officers are increasingly compelled to engage in dialogue with stakeholders, notably workers, regarding the deployment and governance of AMS, including the ex-ante assessment thereof. This mandate stems from the confluence of directors' emerging duty to consider employees' interests, the burgeoning regulatory landscape requiring worker consultation and human rights considerations, workers' growing calls for participation in the governance of AMS informally and through collective bargaining,<sup>91</sup> the benefits of AMS collective governance, the exigencies of modern labor dynamics, and ethical expectations.

The asymmetrical power dynamics around workplace algorithms provide further justification for expanding directors' duties to foster a collective governance of AMS. The growing reluctance among corporations to fully embrace their emerging disclosure obligations associated with AMS, also support considering directors' collaborative duties. Furthermore, the commodification of data and algorithms as shared resources necessitates a reconceptualization of corporate fiduciary duties. Recognizing that these assets also derive value from the collective labor and expertise of workers, directors must acknowledge the moral imperative to uphold principles of fairness and equity in their utilization.

Failing to incorporate workers' voices and concerns in the design, assessment, and implementation of AMS carries significant risks that can exacerbate existing power imbalances, erode trust and cooperation within

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<sup>91</sup> For instance, in Canada, several important stakeholders are suggesting introducing strategies to ensure "a voice for workers and unions in the regulation and oversight of AI" despite the prevalence of the shareholder model of corporate governance (House of Commons, *Implications of AI for the Canadian Labour Force*, *supra* note 2 at 9–10).

the organization, and increase the likelihood of workforce resistance. This neglect can compromise the adequacy, efficacy, and legitimacy of AMS while undermining innovation, job satisfaction, and productivity. Ultimately, these consequences can be detrimental to short-term and long-term company performance. The lack of worker involvement can hinder the early identification and resolution of potential issues, leading to more significant problems down the line. Integrating worker perspectives into AMS governance is not just an ethical consideration, it is also a strategic imperative for sustainable business success.

Thus, directors should bear the duty to foster collaborative negotiations with workers for the collective governance of AMS, including their ex-ante assessment. This may entail imposing collaborative duties on directors and officers such as obligations to disclose workplace algorithm information, coordinate with workers and other stakeholders, negotiate algorithm design and content, address potential algorithm issues, and implement agreed-upon workplace algorithm policies. The following section elaborates on these proposed duties.

Companies and their directors should be explicitly required to disclose their workplace algorithms and their risks<sup>92</sup> and share relevant data with all stakeholders involved in the assessments, including third-party assessors and workers.<sup>93</sup> Requiring directors and officers to disclose their use of algorithms in managing workers promotes transparency and accountability. This disclosure, particularly prior to its implementation enables stakeholders, including workers, unions, and regulatory bodies, to scrutinize and evaluate algorithmic systems to prevent risks, harms, and any violations of human rights.

Algorithmic disclosure duties should be thoughtfully crafted to consider the imperative of companies and their directors to safeguard their cy-

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<sup>92</sup> These directorial disclosure duties are consistent with the growing consensus among governments encouraging companies to disclose the capabilities, limitations, and risks of their AI systems. For instance, in the US, the government has recommended that companies publicly report their AI systems' capabilities, limitations, safety evaluations, and risks, including the impact on fairness and bias (see The White House, "Voluntary AI Commitments" (September 2023) at 3, online: <[whitehouse.gov](https://www.whitehouse.gov)> [perma.cc/FQQ9-TSAU] [White House, "Voluntary AI Commitments"]; see also *Bletchley Declaration*, *supra* note 7).

<sup>93</sup> This obligation is consistent with legislation around the world and emerging collective bargaining agreements requiring companies to disclose their algorithm systems to workers (see the section entitled "Collective Governance of Algorithmic Management Systems"; see also Abraha, *supra* note 90 at 175).

bersecurity, trade secrets, and competitive edge over competitors.<sup>94</sup> It is essential to establish additional obligations for workers, assessors, and regulators to protect the confidentiality of companies' algorithms, which may include respecting their cybersecurity measures and safeguarding their proprietary information. Directors' responsibilities regarding algorithm disclosure need not encompass exhaustive or full transparency. Rather, they should be obligated to provide sufficiently useful and detailed information about workplace algorithms. This approach may ensure that all stakeholders, especially workers, have the necessary information to effectively assess AMS. A reasonably comprehensive disclosure or explanation of algorithms strikes a balance between companies' interests,<sup>95</sup> which promotes innovation and competitiveness, and the essential need to evaluate and oversee workplace algorithms.

Similarly, companies and their directors may be required to negotiate workplace algorithms with all stakeholders, notably workers,<sup>96</sup> avoiding companies' exclusive control of AMS,<sup>97</sup> particularly when required by law or collective bargaining agreements.<sup>98</sup> Directors and their companies may be mandated to participate in negotiations with workers and other stakeholders concerning algorithmic management, bearing the obligation to adjust algorithms to align them with their companies' economic goals, risk-

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<sup>94</sup> See e.g. *EU AI Act*, *supra* note 36, art 78. One way to accomplish this is through voluntary disclosure via the form of a flexible annual report as has been requested by the shareholder proposals discussed in Cavé & O'Brien, *supra* note 49.

<sup>95</sup> Some courts are adopting this approach. See e.g. *UBER* April 2023, *supra* note 58 at para 3.28.

<sup>96</sup> This requirement aligns with new legislation requiring companies to inform, consult, and negotiate with workers regarding the use of artificial intelligence in workplaces. See "Collective Governance of Algorithmic Management Systems" discussed above. Additionally, EU legislation requiring companies to conduct due diligence in supply chains, including the impact of artificial intelligence, mandates "[t]he due diligence policy...be developed in prior consultation with the company's employees and their representatives" (see CSDDD, *supra* note 52, art 7(2)).

<sup>97</sup> This paper proposes directorial duties that are somewhat distinct from current worker consultation legislation. While the latter appears to allow companies to retain ultimate control of the development and implementation of workplace algorithms, this paper emphasizes the role of directors' duties in facilitating some form of co-determination and negotiations with workers and their unions regarding AMS.

<sup>98</sup> See e.g. Office of the Privacy Commissioner of Canada, "Privacy in the Workplace" (29 May 2023), online: <priv.gc.ca> [perma.cc/RZ99-PSS9]. In Spain, companies are required to disclose their workplace algorithms to workers, but they are not obligated to negotiate them unless stipulated by collective bargaining agreement (see Ministry of Labour and Social Economy, "Información Algorítmica en el Ámbito Laboral [Algorithmic Information in the Workplace]" (May 2022) at 17, online: <mites.gob.es> [perma.cc/HZW8-N7XS]).

mitigation plans, and workers' human rights.<sup>99</sup> The latter may ultimately ensure that companies adhere to legal frameworks concerning workers' rights. Directors may also be obligated to facilitate workers' involvement in impact assessments, including enabling communications among workers and their union representatives and refraining from any form of obstruction, monitoring, or retaliation, including any interference with their collective bargaining rights.<sup>100</sup>

Moreover, companies and their directors may bear the legal responsibility of amending or rectifying any facet of workplace algorithms deemed unfair or abusive following initial impact assessments. These adjustments or corrections should be responsive to the protection of workers' human rights.<sup>101</sup> These expanded directorial duties are in line with recommendations for companies to actively reduce AI harms and risks. For instance, the US Voluntary AI Commitments on "Ensuring Safe, Secure and Trustworthy AI" also recommends that companies strive to avoid harms and work proactively to minimize AI risks.<sup>102</sup> Companies are also encouraged to take action to promote workers' skill development, enabling them to benefit from AI<sup>103</sup> rather than seeing their situations deteriorated.

#### *D. Potential Pitfalls and Prevailing Advantages of Directors' Collaborative Duties*

Directors' collaborative duties seeking to facilitate a collective or multi-stakeholder governance of algorithmic assessments may encounter

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<sup>99</sup> There is a growing global consensus over the ethical and legal obligations of companies and their directors to protect workers' human rights, including rights that can be eroded or promoted by companies' deployment of artificial intelligence. In Canada, see AIDA, *supra* note 22, cls 5 (1), 8, 26 (1); see also ISI, AIDA Amendments, *supra* note 23 at 2. For examples in Europe, see *EU AI Act*, *supra* note 36, art 1.1; *Platform Work Directive*, *supra* note 2, arts 7, 12; see also GDPR, *supra* note 34, art 88. Similarly, corporate sustainability due diligence legislation around the world is expanding directors' obligations to safeguard workers' rights in the context of artificial intelligence and new technologies throughout their companies' supply chains (see CSDDD, *supra* note 52 at arts 24–25; White House, "Executive Order", *supra* note 21 at para (c); see also Antonio Aloisi, "Regulating Algorithmic Management at Work in the European Union: Data Protection, Non-discrimination and Collective Rights" (2024) 40:1 Intl J Comp Lab L & Ind Rel 37 at 64).

<sup>100</sup> See e.g. *Platform Work Directive*, *supra* note 2, arts 7.1(d), 9.1, 10, 20, 23, 25. 7.1(d)

<sup>101</sup> See *supra* note 99.

<sup>102</sup> White House, "Voluntary AI Commitments", *supra* note 92 at 3.

<sup>103</sup> *Ibid.*

some pitfalls.<sup>104</sup> Compliance and regulatory costs associated with the implementation of such duties can be significant. Obligations to assess, disclose, negotiate, and rectify workplace algorithms could entail substantial investments for companies<sup>105</sup> that can be detrimental to economic production, their competitiveness, and shareholder value. This situation may explain directors' potential reluctance to engage in negotiations or implement changes that better safeguard workers' interests. The challenges of compliance and enforcement are further exacerbated by the lack of AI expertise and resources within regulatory bodies and worker organizations, hindering their effective oversight. Consequently, there is a risk of non-compliance or attempts to circumvent directors' collaborative duties. Directors may find themselves caught between the pressure to leverage AI for competitive advantage and the need to address workers' concerns. Moreover, the complexity of AI systems can create a knowledge gap between companies, their directors and workers, making meaningful negotiation and oversight challenging and costly. This imbalance could lead to a scenario where directors, even if well-intentioned, may struggle to fully appreciate or address the implications of their AI-related decisions on the workforce.

The potential for reputational damage stemming from harmful AMS can serve as a substantial incentive for companies and their directors to fulfill their collaborative duties and cooperate with the impact assessments of algorithms and rectify thereof before implementation. Companies and their directors may meticulously weigh the adverse publicity and negative image impact against the potential advantages of retaining existing algorithms without making any alterations. In many instances, this calculation may lean towards preserving the status quo, especially if the cost of rectification is considerably high or if the alterations pose a threat to the company's business plans or profitability. While reputation damage can wield substantial influence, it may not always overshadow the perceived advantages of maintaining existing algorithms, particularly if the potential fallout appears manageable or tolerable within the broader business strategy.

Worker activism may also play a pivotal role in reinforcing compliance with the extended duties of directors linked to the assessments and regulation of algorithms. As companies are mandated to disclose information

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<sup>104</sup> For the pitfalls associated with directors' duties regarding companies' use of artificial intelligence, see generally Alberto R Salazar V, *Corporate Governance and the New Technology* (Toronto: LexisNexis Canada Inc, 2022).

<sup>105</sup> These costs may be higher and unavoidable when companies are legally required to bear the cost of the assessment and implementation process, including the hiring of AI experts to assist workers (see e.g. *Platform Work Directive*, *supra* note 2 at art 13.3).

and engage in algorithm negotiations, workers are incentivized to become more proactive in their oversight of directors and algorithmic management. This enhanced involvement of workers fosters a climate of accountability within companies.<sup>106</sup> Moreover, when workers actively exert pressure, regulatory agencies are also prompted to ensure compliance with the expanded duties imposed on directors concerning algorithm disclosures and assessments. The collective action and increased vigilance of workers may act as catalysts.<sup>107</sup> This worker activism may ensure that companies, their directors, and regulators remain steadfast in adhering to their obligations associated with the collective governance of algorithmic management, including human rights-friendly impact assessments of workplace algorithms. This heightened scrutiny, driven by worker activism and regulatory oversight can be instrumental in upholding effective assessment and regulation of algorithmic practices within corporate settings. However, this approach must be balanced against the costs associated with negotiation and conflict resolution, which can impact a company's productivity and performance. Additionally, the efficacy of worker activism in enhancing compliance and enforcement largely depends on the presence of active and well-resourced worker organizations. Non-unionized workers would be less able to engage in such activism.

Moreover, imposing stringent collaborative duties and related liabilities resulting from the failure to negotiate workplace algorithms may have chilling effects on directors and officers. They may be deterred from expanding the use of algorithms or undertaking business risks to avoid liability, which could stifle innovation and growth. Furthermore, AI disclosure obligations may expose companies' vulnerabilities, potentially facilitate cybersecurity attacks, and diminish their competitive edge. All of these effects can be counter-productive, hampering companies' overall performance and discouraging growth and investment.<sup>108</sup> Collaborative duties can thus be viewed as encroachments upon the autonomy and competitiveness of companies and their directors. Despite these potential pitfalls, companies may still feel compelled to deploy AMS, due to the perceived competitive advantages and the increasing ubiquity of workplace algorithms in today's business landscape

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<sup>106</sup> See generally Lina Dencik, "Towards Data Justice Unionism? A Labour Perspective on AI Governance" in Pieter Verdegem, ed., *AI for Everyone? Critical Perspectives* (London: University of Westminster Press, 2021) 267; Sandra Wachter, Brent Mittelstadt & Luciano Floridi, "Transparent, Explainable, and Accountable AI for Robotics" (2017) 2:6 Science Robotics at 2, 4.

<sup>107</sup> See e.g. Communications Workers of America, *supra* note 29.

<sup>108</sup> See e.g. Amicus Curiae *SEC*, *supra* note 87 at 2.



Directors' potential lack of AI expertise could also hinder their active involvement in the collective governance of AMS and their impact assessment. Engaging in disclosure, assessment, and negotiations around complex and rapidly evolving algorithms may require technical expertise and resources. The limited knowledge of the working of AI and the "black box" problem further hinder the assessment process and the determination of the role of directors, including their duties and liabilities.<sup>109</sup>

Various protective measures exist in some jurisdictions to shield directors and officers from algorithm-related liabilities and associated costs. These measures include high executive compensation, due diligence defenses, the business judgment rule, indemnification commitments, liability insurance, and exculpation agreements. However, it is important to note that these protections may not be universally available to all directors and officers or feasible for all companies. Therefore, while these protective mechanisms offer some safeguards, they should not be viewed as a comprehensive shield against all potential liabilities arising from AMS. Directors and officers must remain vigilant and proactive in their approach to AI governance, regardless of the available protections.

These potential pitfalls, which can be costly and detrimental to companies in the short-term, necessitate a cautious and balanced approach when introducing directors' collaborative duties. A fair and ethical algorithm-assisted workplace environment is likely to lead to higher employee satisfaction, better retention rates, and increased productivity. Moreover, involving workers in algorithm assessments may also help improve directors' AI oversight and mitigate their potential liabilities, AI ignorance, "black box" problems, and compliance cost, as employer-employee knowledge sharing, mutual oversight, and collective agreements take place ex-ante. These benefits of worker involvement enhance company performance; prevent future conflicts, strikes, and delayed production;<sup>110</sup> protect companies against costly tort liabilities; reduce litigation expenses;<sup>111</sup> preserve business reputation; and may boost shareholder value. Successful experiences of employer-employee collaboration and negotia-

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<sup>109</sup> For a discussion of the "black-box" problems that a derivative action against directors may encounter, see Irvin et al, *supra* note 50; Yavar Bathaee, "The Artificial Intelligence Black Box and the Failure of Intent and Causation" (2018) 31:2 Harv JL & Tech 889 at 938.

<sup>110</sup> See e.g. Subramaniam, *supra* note 4 concerning the Writers Guild of America.

<sup>111</sup> For evidence of worker litigation concerning workplace algorithms and data, see the section entitled "Corporate Reluctance to AMS Disclosure and Negotiations"; De Stefano & Taes, *supra* note 3 at 29; Doellgast, Wagner & O'Brady, *supra* note 41 at 115–17; Natasha Lomas, "Dutch Court Rejects Uber Drivers' 'Robo-firing' Charge but Tells Ola to Explain Algo-deductions" (12 March 2021), online: <techcrunch.com> [perma.cc/B5DV-PAXP].



tion illustrate the benefits and feasibility of directors' collaborative duties and AMS collective governance.<sup>112</sup> A comply-or-explain approach can also be beneficial in these circumstances. Further research will be imperative to delve into the nature of these challenges and explore potential regulatory solutions.

## Conclusion

This paper has discussed the merits of the collective governance of ex-ante impact assessments of AMS. The participation of multiple stakeholders, notably workers, in the assessment of AMS may be justified by several factors, including algorithmic management's impact on multiple stakeholders, the shared ownership of workplace data, the complexities of the new technology, and the need to enhance AMS assessments' quality and legitimacy. Challenges facing this multi-stakeholder governance of ex-ante AMS assessments may include the potential prioritization of AI risk over workers' human rights, collective bargaining constraints, and potential opposition from directors and shareholders.

This paper has claimed that introducing directors' collaborative duties can be critical to ensuring the effectiveness of the collective governance of ex-ante AMS assessments. Such duties would require directors to collaborate with all participating stakeholders, notably workers, by disclosing, coordinating, negotiating, and rectifying workplace algorithms. These collaborative duties may facilitate a multi-stakeholder coordination and democratic governance of workplace algorithm assessments aiming at balancing companies' performance and the welfare of all stakeholders, especially safeguarding workers' human rights. Expanded directorial duties can be costly in the short-term; however, they may ultimately improve companies' performance in the medium and long term for the reasons discussed herein.

Further research is needed in several respects. Firstly, it would be ideal to conduct significant empirical studies to evaluate the working of collective or multi-stakeholder governance of AMS assessments, examining the place and role of workers and unions. Secondly, it is important to further analyze the feasibility and effectiveness of directors' proposed collaborative duties, including the identification of legal and non-legal barriers to the implementation of such duties in specific jurisdictions and institutional contexts. Lastly, an empirical examination of both the impact of such duties on worker involvement and the ability of workers and unions to engage in governing AMS and their assessments is also crucial.

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<sup>112</sup> See e.g. Subramaniam, *supra* note 4; Kelley, *supra* note 3 at 100–02.