

2023

## Shedding New Light on Multinational Corporations and Human Rights: Promises and Limits of “Blockchainizing” the Global Supply Chain

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### Recommended Citation

Chang-hsien Tsai & Ching-Fu Lin, *Shedding New Light on Multinational Corporations and Human Rights: Promises and Limits of “Blockchainizing” the Global Supply Chain*, 44 MICH. J. INT’L L. 117 (2023). Available at: <https://repository.law.umich.edu/mjil/vol44/iss1/4>

<https://doi.org/10.36642/mjil.44.1.shedding>

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**SHEDDING NEW LIGHT ON MULTINATIONAL  
CORPORATIONS AND HUMAN RIGHTS:  
PROMISES AND LIMITS OF  
“BLOCKCHAINIZING” THE  
GLOBAL SUPPLY CHAIN**

*Chang-hsien Tsai\* & Ching-Fu Lin\*\**

ABSTRACT

*Over the last few decades, advances in transportation and production technology, in conjunction with economic globalization and the emergence of multinational corporations, have consolidated fragmented production processes into long and complex supply chains across jurisdictions. While there are benefits to such global supply chains (“GSCs”), the prevalence of human rights violations attributable to information asymmetry, as well as rule of law gaps between different jurisdictions, has been a constant challenge. Modern slavery, child abuse, harsh working conditions, low wages, and other problems have reoccurred in the factories of upstream suppliers in the global South and have been systemically ignored by buyers in the global North. As such, how to alleviate human rights abuses along GSCs is indeed a daunting problem.*

*Today, various public, private, and hybrid approaches have been designed and implemented at different levels by different actors to address GSC human rights challenges, such as the United Nations’ Guiding Principles on Business and Human Rights (“UNGPs”), the Organization for Economic Co-operation and Development’s (“OECD”) Guidelines for Multinational Enterprises, the United Kingdom’s Modern Slavery Act, the United States’ Dodd-Frank Act, the Responsible Business Alliance Codes of Conduct, and the*

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*Social Accountability 8000 International Standard. However, these public, private, and hybrid governance mechanisms have grown more ineffective and inefficient due to—again—information asymmetry, and rule of law gaps. A stronger approach that is premised upon transparency and traceability in the GSC is urgently needed.*

*To fill these gaps, the recent emergence of distributed ledger technologies (commonly referred to as blockchain) may offer a promising disintermediation step toward a “technological fix” to GSCs’ human rights challenges. To assess such a possibility from both a theoretical and a practical perspective, we first examine in Section II the characteristics, benefits, and cross-border spillover effects of GSCs, as well as human rights violations by multinational corporations and their power and responsibilities. Section III illuminates the ineffectiveness of existing governance models and regulatory measures, at both the international and national levels, and identifies information asymmetry and rule of law gaps as fundamental flaws. This finding leads us to examine the extent to which blockchain can serve as a governance tool along GSCs. Section IV discusses how the key features of blockchain—transparency, traceability, data consistency and security, authenticity, and completeness—can alleviate problems of information asymmetry, rule of law gaps, and corporate compliance along GSCs, further helping to ameliorate transnational human rights issues. Nevertheless, while “blockchainizing” GSCs seems to have the potential to overcome challenges of public and private governance, some normative and technical limits and risks remain to be addressed, such as adequate infrastructural support, scalability, cybersecurity, and the “garbage in, garbage out” conundrum.*

## I. INTRODUCTION

Over the past several decades, the incessant occurrence of human rights violations in global supply chains has been a topic of scholarly discussion. In the Democratic Republic of Congo (“the DRC”), where people have been fighting over conflict minerals since 1996, disputes over precious mineral resources have triggered internecine warfare, resulting in more than five million deaths to date.<sup>1</sup> Workers in Nevsun, a Canadian multinational cor-

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1. Max Bearak, *Caught in Congo’s Tides of War*, WASH. POST (Apr. 6, 2018), <http://www.washingtonpost.com/graphics/2018/world/dr-congo-conflict-uganda-refugee-crisis>.

poration (“MNC”) of Bisha mines in Eritrea, have long suffered from forced labor, harsh working conditions, and little pay.<sup>2</sup> Most recently, the Russia-Ukraine conflict has had an enormous impact on the global supply chain, impeding the flow of capital, goods, and services; this has resulted in product shortages and manufacturing costs surging, fueling pressures on energy and food security around the world.<sup>3</sup>

Global supply chains (“GSCs”)<sup>4</sup> refer to the long, complex, and often-times fragmented sites and tiers of production across borders with varying horizontal, vertical, and spatial features and contexts.<sup>5</sup> The complex features of GSCs can readily translate into governance issues and regulatory gaps.<sup>6</sup> Specifically, “outsourcing and globalization” have led to the rise “of complex supply networks which are often led by large Western MNCs,” resulting in “the devolution of legal obligations for environmental and social impacts to suppliers who are often located in countries with weak or weakly enforced regulation.”<sup>7</sup> Moreover, MNCs tend to operate in developing countries that lack effective regulations, which allows them to enact global sourcing strategies to extract resources and manual labor as cost-saving tools but creates opportunities for violations of human rights.

In response to these developments, various regulatory approaches have been introduced, both internationally and domestically.<sup>8</sup> These efforts include the United Nations’ (“U.N.”) Guiding Principles on Business and Human Rights (“UNGPs”), the Organization for Economic Co-operation and Development’s (“OECD”) Guidelines for Multinational Enterprises (“OECD Guidelines”), the United Kingdom’s Modern Slavery Act, and the United States’ Dodd-Frank Act. In addition, private regulatory approaches such as monitoring programs, auditing, and certification, including the Responsible Business Alliance Codes of Conduct and the Social Accountabil-

2. For more discussion, see *infra* Part II.B.3.

3. Paul J. Noble, *The Ukraine-Russia War’s Impact on the Supply Chain: Why MRO Optimization Is a Top Priority*, FORBES (May 12, 2022), <http://www.forbes.com/sites/paulnoble/2022/05/12/the-ukraine-russia-wars-impact-on-the-supply-chain-why-mro-optimization-is-a-top-priority>.

4. Commentators use several terms, such as “global value chains,” “global commodity chains,” or “global production networks” to describe this structure of production with respective matters of emphasis. TIM BARTLEY, *RULES WITHOUT RIGHTS: LAND, LABOR, AND PRIVATE AUTHORITY IN THE GLOBAL ECONOMY* 11 n.52 (2018). We use the term “global supply chains” (“GSCs”) throughout this article, owing to more intuitive appeal.

5. For more discussion, see *infra* Part II.A.

6. Charlotte Villiers, *Global Supply Chains and Sustainability: The Role of Disclosure and Due Diligence Regulation*, in *THE CAMBRIDGE HANDBOOK OF CORPORATE LAW, CORPORATE GOVERNANCE AND SUSTAINABILITY* 551, 552–53 (Beate Sjøfjell & Christopher M. Bruner eds., 2019).

7. Andrew Millington, *Responsibility in the Supply Chain*, in *THE OXFORD HANDBOOK OF CORPORATE SOCIAL RESPONSIBILITY*, 363, 363–64 (Andrew Crane et al. eds., 2008) (citation omitted).

8. See *infra* Part III.A (internationally) and Part III.B (domestically).

ity 8000 International Standard, were widely implemented.<sup>9</sup> However, because of the lack of enforceability, data traceability and transparency, both public and private approaches appear to function poorly in terms of effectiveness and efficiency.<sup>10</sup>

Although international law provides mechanisms for states and non-state actors to address business and human rights issues, the non-binding nature of international law in general undercuts their normative power.<sup>11</sup> In terms of domestic laws and regulations, for instance, states have established annual mandatory disclosure requirements, recognizing the need to address human rights issues through the means of implementing auditing and human rights due diligence.<sup>12</sup> Nevertheless, since most disclosure requirements are not compulsory, one cannot ensure the completeness and validity of the disclosed information. Private approaches, such as auditing programs, often fail to detect the contextual truth because they rely largely on reputation and market mechanisms and do not pursue deep investigation.<sup>13</sup> Since the approaches to both mandatory and voluntary disclosure, due diligence, auditing, and certification rely on the quality and completeness of the information provided, the crux of both public and private governance is the lack of transparency and traceability.<sup>14</sup> An effective regulatory regime has yet to take shape since it has proven difficult to manage and monitor the entire supply chain, with tier-two and sub-suppliers of tiers further upstream long considered a dark spot.<sup>15</sup> As a result, for focal or lead companies, fully relying on tier-one suppliers is not the best solution to address the problem of limited information.

Therefore, there is a clear need to search for a new approach to supply chain transparency and traceability. Blockchain, referred to as “decentralized databases that are collaboratively stored, maintained, and updated by a distributed network of computing nodes,”<sup>16</sup> would ensure that the input of data is consistent, authentic, and complete. As a result, blockchain holds the promise of disintermediation and is expected to fill the current governance

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9. See *infra* Part III.D.4.

10. See *infra* Part III.F.

11. See *infra* Part III.C.

12. See *infra* Part III.C.3.

13. See *infra* Part III.E.2 (exemplifying that “auditors have limited time and ability to conduct holistic investigations of suppliers’ factories”).

14. See *infra* Part III.F.

15. Tier-one (or first-tiered) suppliers indicate “the final supplier before the products reaches the lead firm,” while tier-two suppliers refer to those further upstream before the products reaches the tier-one suppliers. See David Hess, *Modern Slavery in Global Supply Chains: Towards a Legislative Solution*, 54 CORNELL INT’L L.J. 245, 253, 270 (2021). For further discussion on the difficulties of managing and monitoring along GSCs, see *infra* Part II.A.

16. Ching-Fu Lin, *Blockchainizing Food Law: Promises and Perils of Incorporating Distributed Ledger Technologies to Food Safety, Traceability, and Sustainability Governance*, 74 FOOD & DRUG L.J. 586, 598 (2020).

gaps,<sup>17</sup> offering the promising step of disintermediation toward a “technological fix” to the human rights challenges that are prevalent throughout GSCs.<sup>18</sup>

This article proceeds as follows. Part II examines the characteristics, benefits, and cross-border spillover effects of global supply chains. It will then review various cases pertaining to human rights violations caused by several MNCs. These cases also involve collusion between local governments and corporations, as well as the underlying problem of insufficient remedies. By demonstrating the role of MNCs according to their power, responsibilities, and applicable regulations, this article will then move to Part III to further discuss the insufficiency and ineffectiveness of existing governance models and measures at both the national and international levels. It will demonstrate that the root cause of the deficiencies in existing public regulations (such as mandatory disclosure, public procurements, and compliance auditing) and private mechanisms (such as due diligence disclosure, assurance, and certification) is the lack of supply chain transparency and traceability. This will finally lead us to explore the application of blockchain technology to business and human rights along GSCs. In Part IV, this article will focus on the benefits of blockchain and its limitations, including the “garbage in, garbage out” conundrum (i.e., the integrity of the initial data input), and will suggest how blockchain technology could be leveraged to fill the aforementioned governance gaps. Part V concludes.

## II. TRANSNATIONAL CORPORATIONS AND HUMAN RIGHTS CHALLENGES ALONG THE GLOBAL SUPPLY CHAIN

For more than thirty years, GSCs have garnered increasing significance in connecting developing countries with international markets,<sup>19</sup> and at the same time made these countries vulnerable to greater risks of impaired connections to the international markets. MNCs have often delocalized production processes by exploiting comparative advantages in a given jurisdiction.<sup>20</sup> In order to minimize production costs and maximize profits, MNCs leverage their dominant position to stifle labor protections and bring about

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17. The concept of disintermediation means “removing intermediaries in the distribution network,” or referring to “transferring power from suppliers to consumers by establishing a direct relationship between the producers and end users via a blockchain platform.” See Teck Ming Tan et al., *Revealing the Disintermediation Concept of Blockchain Technology: How Intermediaries Gain From Blockchain Adoption in a New Business Model*, in *IMPACT OF GLOBALIZATION AND ADVANCED TECHNOLOGIES ON ONLINE BUSINESS MODELS* 88, 90 (Ree C. Ho et al. eds., 2021).

18. See *infra* Part IV.A.

19. ALESSANDRO NICITA ET AL., U.N. CONFERENCE ON TRADE AND DEVELOPMENT, *POLICY ISSUES IN INT’L TRADE & COMMODITIES STUDY SERIES NO. 55, GLOBAL SUPPLY CHAINS: TRADE AND ECONOMIC POLICIES FOR DEVELOPING COUNTRIES*, at iii, U.N. Doc. UNCTAD/ITCD/TAB/56 (2013).

20. *Id.* at 1–10.

harmful influence on the conditions of their laborers' employment, such as slave-like working conditions and extremely low compensation.<sup>21</sup>

Faced with the conundrum surrounding the regulation of human rights issues emanating along GSCs across jurisdictions (*e.g.*, the cost of complying with different regulations in different districts), a few companies have played a more aggressive role: They internalize their accountability by proactively governing suppliers where their goods are produced.<sup>22</sup> On the other hand, “[t]he management of international supply networks poses particular problems since suppliers in different countries are subject to different regulatory regimes which may or may not be enforced.”<sup>23</sup> This complex regulatory structure thereby creates governance gaps, with regulatory efforts complicated by “[the] temptation for firms to shift their supply chains away from the regulated regions.”<sup>24</sup> Furthermore, the efforts of international or intergovernmental institutions are unlikely to remedy these issues “because their regulatory capacities are limited” by regulatory difficulties that prevent them from effectively governing the MNCs’ extraterritorial operations.<sup>25</sup> Additionally, MNCs make their global sourcing decisions with a focus on minimizing production cost; this fiscal focus may take precedence over environmental and social initiatives in GSCs when MNCs organize their priorities in decision-making.<sup>26</sup>

#### A. *The Emergence and Governance Challenges of the Global Supply Chain*

The OECD explains just how complicated and multi-tiered a supply chain can be: “The term supply chain refers to the system of all the activities, organizations, actors, technology, information, resources and services involved in moving [the product from its extraction or manufacture site]

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21. Villiers, *supra* note 6, at 554.

22. Justine Nolan, *Human Rights and Global Corporate Supply Chains: Is Effective Supply Chain Accountability Possible?*, in BUILDING A TREATY ON BUSINESS AND HUMAN RIGHTS: CONTEXT AND CONTOURS 238, 241 (Surya Deva & David Bilchitz eds., 2017).

23. Millington, *supra* note 7, at 364.

24. Galit A. Sarfaty, *Shining Light on Global Supply Chains*, 56 HARV. INTL. L.J. 419, 433 (2015).

25. Villiers, *supra* note 6, at 553.

26. Millington, *supra* note 7, at 364. To illustrate the reasons for sourcing manual labor and raw materials in global supply chains, see Andreas Rühmkorf, *Global Sourcing Through Foreign Subsidiaries and Suppliers: Challenges for Corporate Social Responsibility*, in RESEARCH HANDBOOK ON TRANSNATIONAL CORPORATIONS 194, 195–96 (Alice de Jonge & Roman Tomasic eds., 2017). See also Nolan, *supra* note 22, at 240–41 (reporting that Nike, Walmart and Apple, for example, source their products from a huge number of suppliers around the world); Jodie A. Kirshner, *Group Companies: Supply Chain Management, Theory and Regulation*, in RESEARCH HANDBOOK ON TRANSNATIONAL CORPORATIONS 169, 170 (Alice de Jonge & Roman Tomasic eds., 2017) (taking GE as an example of expanding overseas to “assist companies in obtaining inputs at a lower cost”).

downstream to its incorporation in the final product for end consumers.”<sup>27</sup> As GSCs become longer and more complex as a result of globalization, participants, including but not limited to retailers and suppliers involved in global supply chains, multiply.<sup>28</sup> GSCs can be characterized as cross-border fragmentations of production in that “[t]hey have multiple tiers without being strictly linear and they have horizontal, vertical and spatial complexities—static and dynamic—that interact and lead to uncertainties and production disruptions, as well as regulatory challenges.”<sup>29</sup>

As buyers, lead firms or focal companies may be manufacturers or retailers that organize much of the world trade in products such as shoes and computers by extending and maintaining their fiscal control over supply networks; they play a prominent role across the spectrum of GSC governance.<sup>30</sup> For transparency or traceability along GSCs:

[t]he complexity of information transmitted between firms can be reduced through the adoption of technical standards that codify information and allow clean hand-offs between trading partners . . . . Institutions, both public and private, can both define grades and standards and (in some cases) certify that products comply with them. The development of process standards and certification in relation to quality, labor and environmental outcomes perform similar functions.<sup>31</sup>

Along this line, “[t]he development of partnership sourcing has encouraged greater involvement by buyers in the operation of suppliers and this may enhance the ability of buyers to influence the behavior of suppliers and in particular their approach to social and environmental responsibility.”<sup>32</sup>

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27. ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT [OECD], OECD DUE DILIGENCE GUIDANCE FOR RESPONSIBLE SUPPLY CHAINS OF MINERALS FROM CONFLICT-AFFECTED AND HIGH-RISK AREAS 14 (2013), <http://www.oecd.org/corporate/mne/GuidanceEdition2.pdf>.

28. See Bhavya Bhandari, *Supply Chain Management, Blockchains and Smart Contracts* 1–3 (June 28, 2018) (unpublished manuscript), [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3204297](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=3204297); see also ALBERT PARK, GAURAV NAYYAR, & PATRICK LOW, WORLD TRADE ORG., SUPPLY CHAIN PERSPECTIVES AND ISSUES: A LITERATURE REVIEW 45 (2013); BARTLEY, *supra* note 4, at 12.

29. Villiers, *supra* note 6, at 552–53 (footnotes omitted).

30. See Douglas M. Lambert & Martha C. Cooper, *Issues in Supply Chain Management*, 29 INDUS. MKTG. MGMT. 65, 68–69, 74–76 (2000); see also Millington, *supra* note 7, at 363–64; Gary Gereffi & Joonkoo Lee, *Why the World Suddenly Cares About Global Supply Chains*, 48 J. SUPPLY CHAIN MGMT. 24, 25 (2012) (highlighting that “[b]etween the two extremes of markets and hierarchies (i.e., vertical integration), there are three network forms of governance: modular, relational and captive”).

31. Gary Gereffi, John Humphrey, & Timothy Sturgeon, *The Governance of Global Value Chains*, 12 REV. INT’L POL. ECON. 78, 85 (2005).

32. Millington, *supra* note 7, at 365 (citation omitted).



This very characteristic of supply chain management restrains the implementation or distribution of ethical supply chain management (“ESCM”).<sup>33</sup>

Therefore, as private governance led by networked transnational corporations employing global sourcing strategies via contracts with networks of suppliers gains greater influence, structures that govern GSCs have changed accordingly.<sup>34</sup> Regarding transnational private governance,<sup>35</sup> private regulators are actively filling gaps in public regulatory space “by employing private standards, certification protocols, third-party auditing, and transnational contracting practices,”<sup>36</sup> with “their economic stakes, expertise, resources, roles in global supply chains, economic influence, and strategic business networking capacity.”<sup>37</sup>

### B. Human Rights Challenges Along the Global Supply Chain

Along the global supply chain, some MNCs may have incentive to exploit third-world labor and take advantage of weak labor laws in developing and transitional economies.<sup>38</sup> In some cases, MNCs may transfer prohibited activities to developing countries, aiming for “less stringent regulations and /or . . . the least constraining regulations possible by threatening government and workers with relocation of their operations to another country.”<sup>39</sup>

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33. *Id.* at 371. Generic literature advises that a constellation of stakeholder interests outside multinational corporations (“MNC”s) pressure them to manage their supply chains with the focus on environmental and social initiatives. *Id.* at 366. The commentator notes that “within lead companies with a commitment to ESCM, their ability to implement and monitor appropriate policies will be constrained by power-dependency relations between the partners and cultural and institutional constraints in developing and transitional economies.” *Id.* at 378. To further illustrate the regulatory challenges inherent in traceability and transparency regarding ethical supply chain management (“ESCM”), see Nolan, *supra* note 22, at 240.

34. See Rühmkorf, *supra* note 26, at 195–96; see also Ching-Fu Lin, *Public-Private Interactions in Global Food Safety Governance*, FOOD & DRUG L.J. 143, 149 (2014).

35. See *infra* Part III.D.

36. Lin, *supra* note 34, at 144; see Denise Prévost, *Private Sector Food-Safety Standards and the SPS Agreement: Challenges and Possibilities*, 33 S. AFR. Y.B. INT’L L. 1 (2008); Michael P. Vandenbergh, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913 (2007); Tetty Havinga, *Private Regulation of Food Safety by Supermarkets*, 28 LAW & POL’Y 515 (2006); Linda Fulponi, *Private Voluntary Standards in the Food System: The Perspective of Major Food Retailers in OECD Countries*, 31 FOOD POL’Y 1 (2006); Spencer Henson, *The Role of Public and Private Standards in Regulating International Food Markets* (May 28, 2006) (unpublished paper), [http://www.ipc.info.org/fileadmin/user\\_upload/ivc/docs/01%20Henson.pdf](http://www.ipc.info.org/fileadmin/user_upload/ivc/docs/01%20Henson.pdf).

37. Lin, *supra* note 34, at 151. For important advantages of using private governance in regulating cross-border GSCs, see *id.* at 153.

38. Millington, *supra* note 7, at 363–65.

39. MELIK ÖZDEN, EUROPE THIRD WORLD CENTRE, TRANSNATIONAL CORPORATIONS AND HUMAN RIGHTS 9 (2005); see also Villiers, *supra* note 6, at 554 (footnote omitted) (MNCs as lead firms along GSCs “impose their powerful position to keep production costs low and to maximize their profits.”).

In 2013, Rana Plaza, a Bangladeshi factory building where several Western companies produced clothing, collapsed.<sup>40</sup> The collapse was due to “the illegal architecture and sub-standard construction” of the building in Savar, close to Dhaka.<sup>41</sup> This led to 1,300 deaths and a further 2,000 injuries in a garment industry that consisted primarily of women workers. This tragedy revealed the inefficacy of the current systems, “few workers received fair wages, fair and decent working conditions, the right to unionize without retribution, and—as Rana Plaza showed us—to have safe working conditions.”<sup>42</sup> The 1984 Union Carbide accident in Bhopal, India, where “the escape of methyl isocyanate (MIC) and a host of other toxic gases from the company’s operations plant” brought about “environmental damage, impairment of health and, according to some accounts, over 20,000 deaths to date,” involved many forms of exploitation.<sup>43</sup> Moreover, the mining of precious resources, which often occurs in underdeveloped countries such as the DRC, is likely to cause human rights abuses and armed conflicts within places of production.<sup>44</sup>

### 1. Collusion between MNCs and Local Governments

In addition to the harm facilitated by regulatory arbitrage, some MNCs have colluded with local governments and military forces to suppress strong civil backlash. For instance, Shell Oil Company was accused of “providing money and support to the Nigerian military who worked to stop protesters from opposing the new oil pipeline from being built in the area.”<sup>45</sup> This exemplifies “MNCs’ complicity in human rights violations perpetrated by

40. Dana Johnston, *Human Rights Incorporated, Not Everyone Agrees*, 13 J. BUS. ENTREPRENEURSHIP & L. 95, 98 (2019) (citation omitted) (quoting examples of these companies such as “Nike, H&M, Zara, Benetton, Walmart, and The Children’s Place”).

41. Harpreet Kaur, *The Rana Plaza Building Collapse in Bangladesh - One Year On*, BUS. & HUM. RTS. RES. CTR., (Apr. 24, 2014), <http://www.business-humanrights.org/en/blog/the-rana-plaza-building-collapse-in-bangladesh-one-year-on>.

42. Tejshree Thapa, *Remember Rana Plaza: Bangladesh’s Garment Workers Still Need Better Protection*, HUM. RTS. WATCH (Apr. 24, 2018, 9:02 PM), <http://www.hrw.org/news/2018/04/24/remember-rana-plaza>; Kaur, *supra* note 41. Similarly in the sports industry, Nike has also been long accused of running sweatshops and maintaining unfavorable working conditions. Johnston, *supra* note 40, at 100.

43. Kamil Omoteso & Hakeem Yusuf, *Accountability of Transnational corporations in the Developing World: The Case for an Enforceable International Mechanism*, 13 CRITICAL PERSPS, ON INT’L BUS. 54, 57 (2016) (citation omitted).

44. See *infra* Part II.B.3.

45. According to commentators, “[t]he Shell Petroleum Development Company of Nigeria Limited (SPDC) is the largest Shell company in Nigeria and discovered the first commercial oil field at Oloibiri Bayelsa State as part of Shell-BP and produced Nigeria’s first commercial oil exports in 1958.” PETER A. STANWICK & SARAH D. STANWICK, *CORPORATE SUSTAINABILITY LEADERSHIP* 309 (2021); Johnston, *supra* note 40, at 100. For more elaborations on tactics of how Shell was actively involved in violations of human rights locally, see STANWICK & STANWICK, *supra* note 45, at 311.

states, whereby the MNC participates in state conduct that violates human rights.”<sup>46</sup>

## 2. Insufficient Remedies

In response to accusations from the public, several MNCs have adopted measures in the hope of reducing human rights violations along their supply chains. Nonetheless, some measures are merely aimed at salvaging companies’ reputations without effectively addressing the aforementioned violations. For example, Nike’s response to its labor issues via standards, assessments, and reports has been criticized as shallow, non-legally binding, and lacking in compulsory accountability.<sup>47</sup> Moreover, at times, the compensation issued to victims is vastly insufficient when compared to the harm done.<sup>48</sup>

## 3. The Case of Mineral Sourcing and Human Rights

One of the most striking examples of MNCs’ violations of human rights can be observed in the mining industry. For instance, coltan mining in the DRC has led to severe civil wars, which were described by one former U.N. Under-Secretary General as the “biggest, most neglected humanitarian emergency in the world today.”<sup>49</sup> Another example is the recent case, *Nevsun Resources Ltd. v. Araya*, in which the Vancouver-based Nevsun Resources Ltd. (“Nevsun”), a multinational mining company entered into a joint venture (“the Bisha Mine”) with the government of Eritrea. The Bisha Mine employed more than 1,200 workers in Eritrea and was accused of using forced labor.<sup>50</sup> Accordingly, observers have claimed that Nevsun was involved in human rights abuses in conjunction with the Eritrean govern-

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46. Jilles Hazenberg, *Transnational Corporations and Human Rights Duties: Perfect and Imperfect*, 17 HUM. RTS. REV. 479, 485 (2016). *Nevsun Resources Ltd. v. Araya* is a Canadian example involving worker treatment, where governments were complicit in human rights violations surrounding global supply chains. See *Nevsun Resources Ltd. v. Araya* (2020), 443 D.L.R. 4th 183 (Can. S.C.C.); see also *infra* Part II.B.3.

47. Jonathan C. Lipson, *Promising Justice: Contract (As) Social Responsibility*, 2020 WIS. L. REV. 1109, 1140–41. In response to the scandal, Nike hired former United Nations Ambassador Andrew Young to undergo an internal assessment and recommend actions Nike should take to change the human rights conditions of the workplace. As per Young’s report, Nike requires its suppliers to comply with the corporation’s Code of Conduct. However, as Lipson argues, it remains unclear whether Nike does so by way of contractual requirements or other forms of pressures; or, whether Nike does so at all. *Id.*

48. See, e.g., Omoteso & Yusuf, *supra* note 43, at 57 (exemplifying victims of the tragedy of Union Carbide (now Dow Corporation), who made efforts to seek compensation).

49. Morshed Mannan, Rene Rij, & Caspar Van Woensel, *Business, Society and Stakeholders*, in CSR FOR YOUNG BUSINESS LAWYERS 59, 63–64 (Alex Castermans & Caspar Van Woensel eds., 2017).

50. Malcolm Rogge, *Nevsun Puts Canada’s Corporate Decision Makers in the Human Rights Zone 1–2* (Corp. Responsibility Initiative, Working Paper No. 70, 2020), <http://ssrn.com/abstract=3557902>. See generally *Nevsun Resources Ltd. v. Araya*, 443 D.L.R. 4th 183.

ment and was ordered to take responsibility in front of Canadian courts.<sup>51</sup> As such, the conduct of many MNCs’ has had tremendously detrimental impacts on human rights at both the national and international levels. Hence, it is not surprising that debates concerning the duties of private actors such as MNCs in human rights have continued to increase in recent years.<sup>52</sup>

### C. *The Accountability of Transnational Corporations*

As demonstrated by the *Nevsun* case, MNCs have increasing global resources and power, and sometimes contribute to weak or reluctant state governance of human rights.<sup>53</sup> To fill this lacuna of legal and regulatory enforcement of human rights in GSCs, there have been increasing and frequent calls to hold MNCs accountable.<sup>54</sup> Nevertheless, as one commentator argued, “[a]ny desire to compartmentalize human rights responsibilities to a particular company or within particular geographical boundaries is exacerbated by direct and indirect corporate linkages in global supply chains.”<sup>55</sup> Because of the difficulties in regulating how companies along GSCs respect human rights, we will next explore public and private approaches to the roles and responsibilities of enterprises in GSCs as they pertain to human rights issues at the international, national, and transnational private levels.<sup>56</sup>

## III. THE INSUFFICIENCY AND INEFFECTIVENESS OF EXISTING GOVERNANCE MODELS AND MEASURES

As previously noted, the emergence of GSCs over the past several decades has been accompanied by human rights controversies, as well as endeavors to regulate business actors along the GSCs to ensure appropriate human rights protections.<sup>57</sup> Such regulatory endeavors, which involve both public and private entities, have mushroomed at the national, international,

51. Rogge, *supra* note 50, at 3.

52. Hazenberg, *supra* note 46, at 485.

53. Rogge, *supra* note 50, at 3.

54. See Johnston, *supra* note 40, at 96.

55. Nolan, *supra* note 22, at 239, 242. For other elaborations on difficulties in holding lead corporations of GSCs legally liable in a globalized world, see Kasey L. McCall-Smith & Andreas Rühmkorf, *Reconciling Human Rights and Supply Chain Management Through Corporate Social Responsibility*, in LINKAGES AND BOUNDARIES IN PRIVATE AND PUBLIC INTERNATIONAL 15 (Veronica Ruiz Abou-Nigm, Kasey McCall-Smith, & Duncan French eds., 2018), <http://ssrn.com/abstract=2888553>; Millington, *supra* note 7, at 377.

56. For examples of transnational governance instruments, see Milton C. Regan, Jr. & Kath Hall, *Lawyers in the Shadow of the Regulatory State: Transnational Governance on Business Human Rights*, 84 *FORDHAM L. REV.* 2001, 2007 (2016).

57. See generally *supra* Part II.

and transnational levels.<sup>58</sup> Indeed, the increasing global expectation that MNCs respect international human rights, together with certain approaches taken by states to extraterritorially regulate MNCs, appears to be “changing the nature and possibility of developing a firmer basis for corporate accountability for human rights.”<sup>59</sup> As this article will demonstrate, while international human rights law continues to play a fundamental role in harnessing corporate behaviors in relation to human rights, it is inadequate in preventing and protecting individuals from human rights violations along GSCs due to issues of weak enforcement and state-centric governance models. Importantly, few governments have demonstrated a solid commitment to addressing the human rights problems of their corporations.<sup>60</sup> As a result, non-state actors have stepped in to fill this gap by means of private standards, audits and certification schemes.<sup>61</sup> While such transnational private governance initiatives may be effective and efficient in addressing GSCs’ human rights violations, they may also suffer from a lack of enforcement power inherent in traditional state-backed laws;<sup>62</sup> this power refers to a direct way to impose punishment.<sup>63</sup> Most importantly, and as will be underscored by this article, the success of both public and private governance approaches primarily hinges on the transparency and traceability of these approaches along GSCs. Without an adequate level of transparency and traceability, corporate human rights practices cannot be properly scrutinized and regulated under either a public or private governance framework. Against such a backdrop this article will discuss regulatory initiatives at the international, national, and transnational levels and examine their strengths and weaknesses.

#### A. *International Law*

At the international level, the legal instruments that are most important in GSCs and human rights include the UNGPs and the OECD’s Guidelines. As discussed below, the two instruments similarly place great emphasis on the implementation of due diligence and disclosure in human rights. In addition, they share similar strengths and weaknesses in terms of their efficacy as governance tools.

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58. See *infra* Part III.A (international level), Part III.B (national level), and Part III.D (transnational level).

59. Justice Nolan, *Refining the Rules of the Game: The Corporate Responsibility to Respect Human Rights*, 30 *UTRECHT J. INT’L & EUR. L.* 7, 7 (2014).

60. See *supra* Part II.C and *infra* Part III.C.

61. Nolan, *supra* note 59, at 8.

62. See, e.g., Kernaghan Webb, *Corporate Citizenship and Private Regulatory Regimes: Understanding New Governance Roles and Functions*, in *CORPORATE CITIZENSHIP AND NEW GOVERNANCE* 39, 41 (Ingo Pies & Peter Koslowski eds., 2011).

63. Deridre Curtin & Linda Senden, *Public Accountability of Transnational Private Regulation: Chimera or Reality?*, 38 *J. L. & SOC’Y* 163, 169 (2011).

### 1. Business and Human Rights Initiatives at the United Nations

The U.N. has a long and complex history of forging collective action in the regulation of transnational business human rights practices.<sup>64</sup> The U.N. deliberated on the Code of Conduct for Transnational Corporations and continued deliberations in the 1970s, then deliberated on the Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights in the late 1990s. However, these hard-law efforts were met with strong opposition from actors in the private sector and ultimately abandoned.<sup>65</sup> Their softer alternatives, including the United Nations Global Compact (launched in 2000) and the UNGPs (endorsed in 2011), have gradually become a relatively pragmatic approach based on consensus, dialogue, and partnerships with business actors.

The 2000 United Nations Global Compact includes ten principles that are the model for major international instruments in the areas of human rights, labor, the environment and anti-corruption.<sup>66</sup> Yet the Global Compact is of a voluntary nature and is by no means legally binding.<sup>67</sup> The UNGPs set out fundamental principles that focus on human rights protections, respect, and remedy,<sup>68</sup> and they lay down a multi-stakeholder framework for both states and non-state actors to play a role in preventing detrimental human rights practices.<sup>69</sup>

More specifically, the UNGPs make clear that states’ duty to protect includes protecting their citizens from human rights abuses by third parties, including corporations.<sup>70</sup> The UNGPs also call upon states to enact and enforce laws requiring business enterprises to respect human rights,<sup>71</sup> especially in a manner designed to ensure the accountability of their domestic enter-

64. Scott Jerbi, *Business and Human Rights at the U.N.: What Might Happen Next?*, 31 HUM. RTS. Q. 299, 300 (2009).

65. For a thorough discussion, see David Weissbrodt & Muria Kruger, *Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights*, 97 AM. J. INT’L L. 901, 903–07, 913–15 (2003).

66. Omoteso & Yusuf, *supra* note 43, at 58–59. They are modelled upon the Universal Declaration of Human Rights, the International Labor Organization’s Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development and the United Nations Convention Against Corruption. *Id.*

67. U.N. GLOB. COMPACT OFF., CORPORATE SUSTAINABILITY IN THE WORLD 2 (2014), [http://d306pr3pise04h.cloudfront.net/docs/news\\_events%2F8.1%2FGC\\_brochure\\_FINAL.pdf](http://d306pr3pise04h.cloudfront.net/docs/news_events%2F8.1%2FGC_brochure_FINAL.pdf).

68. Jena Martin, *Hiding in the Light: The Misuse of Disclosure to Advance the Business and Human Rights Agenda*, 56 COLUM. J. TRANSNAT’L L. 530, 560 (2018).

69. *Id.* at 560–61.

70. John Ruggie (Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises), *Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework*, at 9, U.N. Doc. A/HRC/17/31 (Mar. 21, 2011) [hereinafter *Guiding Principles*]; Martin, *supra* note 68, at 563

71. *Guiding Principles*, *supra* note 70, at 8.

prises in terms of extraterritorial activities along the GSCs.<sup>72</sup> Furthermore, the UNGPs elaborate on corporations' responsibility to respect human rights, detect and disclose the human rights impacts of their activities, and take appropriate steps to mitigate and eliminate negative impacts.<sup>73</sup> A human rights due diligence process is therefore at the center of such requirements. Corporations must assess actual and potential human rights impacts along GSCs, implement measures in response to that assessment, record and review the effectiveness of such measures, and provide remedies for adverse human rights impacts.<sup>74</sup>

To further the development of the UNGPs, the Human Rights Council moved to create the Working Group on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises (also referred to as the Working Group on Business and Human Rights) in 2011,<sup>75</sup> for the purpose of inquiring into a legally binding instrument on multinational businesses.<sup>76</sup> However, it should be noted that the geopolitical and geo-economic tension implicated in the Working Group signaled that the treaty approach,<sup>77</sup> in both form and substance, may contain too many complex areas of national and international law to incorporate in a single undertaking. Put simply, a treaty cannot resolve all the issues across the full range of internationally recognized human rights.<sup>78</sup> Ultimately, the draft treaty does not place real and direct obligations on corporations, instead highlighting the need for a governance approach that goes beyond traditional state-centric measures.

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72. Martin, *supra* note 68, at 564.

73. *Guiding Principles*, *supra* note 70, at 17–19.

74. Julianne Hughes Jennett, Laila Hamzi, & Ram Mashru, *Corporate Human Rights Due Diligence in Times of COVID-19*, EJIL: TALK! (July 30 2020), <http://www.ejiltalk.org/corporate-human-rights-due-diligence-in-times-of-covid-19>.

75. Human Rights Council Res. 17/4, U.N. Doc. A/HRC/RES/17/4, ¶¶ 6, 12 (June 16, 2011).

76. Human Rights Council, *Elaboration of an International Legally Binding Instrument on Transnational Corporations and Other Business Enterprises with respect to Human Rights*, U.N. Doc A/HRC/26/L.22/Rev.1 (June 25, 2014); Ryan Turner, *Transnational Supply Chain Regulation: Extraterritorial Regulation as Corporate Law's New Frontier*, 17 MELBOURNE J. INT'L L. 188, 199–201 (2016).

77. Turner, *supra* note 76, at 202; Open-Ended Intergovernmental Working Group on Transnational Corporations and Other Business Enterprises with respect to Human Rights, *Written Statement Submitted by Law Society of England and Wales, a Non-Governmental Organization in Special Consultative Status*, at 13, U.N. Doc A/HRC/WG.16/1/NGO/6 (July 2, 2015).

78. See John Ruggie, *Quo Vadis? Unsolicited Advice to Business and Human Rights Treaty Sponsors*, INST. FOR HUM. RTS. & BUS. (Sept. 9, 2014), <http://www.ihrb.org/other/treaty-on-business-human-rights/quo-vadis-unsolicited-advice-to-business-and-human-rights-treaty-sponsors>; Turner, *supra* note 76, at 199–201.

## 2. OECD Guidelines for Multinational Enterprises

The OECD Guidelines are a collective endeavor by OECD member governments to address the business conduct of MNCs in relation to human rights and other issues, including environmental protection, anti-corruption, and fair labor practices.<sup>79</sup> Despite their non-binding nature, the OECD Guidelines have had a substantial influence on OECD member states’ regulatory decisions covering a range of business conduct by various actors along GSCs, including suppliers, franchisees, licensees, joint venturers, investors, clients, and contractors, among others.<sup>80</sup> In addition, OECD member governments, under ESG reporting requirements, generally allow for referral to the Guidelines as a suitable due diligence platform.<sup>81</sup> The OECD has further developed guidance on human rights due diligence with implementation steps, including embedding responsible business conduct into policies and management systems, identifying and assessing adverse impacts, preventing and mitigating adverse impacts, tracking and communicating implementation results, and facilitating appropriate remedies.<sup>82</sup>

## 3. Limits of International Regulatory Endeavors

Despite developments at the international level, pioneered by the U.N. and OECD member states, the fact that such documents are of a soft-law nature signals to many that they are not solid rules, but rather only contain “aspirational goals that aim for the best possible scenario with limited constraints if such goals are not met . . . .”<sup>83</sup> Essentially, such documents are different from conventional treaties and conventions that directly bind states to international legal requirements, instead merely urging them “to use their domestic laws and institutions to protect the human rights of persons within their jurisdiction, including from violations by third parties.”<sup>84</sup>

If implemented effectively, these documents may address, at least in part, behaviors of MNCs along the GSC in relation to their human rights practices. However, the voluntary nature of these instruments, as one commentator noted, “undercuts their effectiveness and normative power, invit-

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79. OECD, THE OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES (2011).

80. *Id.* at 24.

81. *Id.*; Marcia Narine Weldon & Rachel Epstein, *Beyond Bitcoin: Leveraging Blockchain to Benefit Business and Society*, 20 *TRANSACTIONS: TENN. J. BUS. L.* 837, 892 (2019); see also ALICE D. JONGE, *TRANSNATIONAL CORPORATIONS AND INTERNATIONAL LAW: ACCOUNTABILITY IN THE GLOBAL BUSINESS ENVIRONMENT* 52–53 (2011).

82. OECD, *OECD DUE DILIGENCE GUIDANCE FOR RESPONSIBLE BUSINESS CONDUCT* 21 (2018), <http://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf>.

83. Nolan, *supra* note 59, at 13.

84. Douglass Cassel & Anita Ramasastry, *White Paper: Options for a Treaty on Business and Human Rights*, 6 *NOTRE DAME J. INT’L & COMPAR. L.* 1, 14–16 (2016); see Eric Engle, *Third Party Effect of Fundamental Rights (Drittwirkung)*, 5 *HANSE L. REV.* 165, 168–69 (2009).



ing speculation as to whether the international community is committed to regulating business.”<sup>85</sup> Therefore, the UNGPs and the OECD Guidelines for Multinational Enterprises largely rely on “public accountability, transparency and disclosure,” which may subsequently supplement any existing regulations.<sup>86</sup>

### B. National Laws and Regulations

A number of governments have taken a narrower approach to shaping their business and human rights agendas by targeting specific issues that call for urgent attention.<sup>87</sup> For instance, the United States enacted Section 1502 of the Dodd-Frank Act in response to problems with certain minerals that are sourced in a manner that violates human rights. The United Kingdom and Australia also enacted the Modern Slavery Act to tighten control over the labor practices of transnational business actors. Domestic laws and regulations, such as regular mandatory disclosure requirements discussed below, have been established; this emphasizes the necessity of implementing auditing and human rights due diligence to follow. Specifically, due diligence plays a crucial role in domestic regulatory measures because proper scrutiny and enforcement rely on the disclosure of corporate practices in relation to human rights.<sup>88</sup>

#### 1. Conflict Mineral Regulations in the United States and the EU

In 2010, the U.S. Congress passed the Dodd-Frank Act,<sup>89</sup> which requires issuers to disclose the use of any conflict minerals necessary to their processes.<sup>90</sup> The Dodd-Frank Act requires the submission of an annual report that specifies the due diligence process and discloses the use of minerals that are not “DRC conflict free.” It also requires the disclosure of the

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85. Turner, *supra* note 76, at 199–200.

86. U.N. GLOB. COMPACT OFF., CORPORATE SUSTAINABILITY IN THE WORLD 2 (2014), [http://d306pr3pise04h.cloudfront.net/docs/news\\_events%2F8.1%2FGC\\_brochure\\_FINAL.pdf](http://d306pr3pise04h.cloudfront.net/docs/news_events%2F8.1%2FGC_brochure_FINAL.pdf); see Omoteso & Yusuf, *supra* note 43, at 58–59; see also Jena Martin Amerson, *The End of the Beginning?: A Comprehensive Look at the U.N.’s Business and Human Rights Agenda from a Bystander Perspective*, 17 FORDHAM J. CORP. & FIN. L. 871 (2012).

87. Turner, *supra* note 76, at 193.

88. For a basic definition of due diligence in the context of regulatory measures, see the example of human rights due diligence (HRDD). HRDD is an audit process of mitigating and investigating risks that is supposed to include “assessing actual and potential human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed.” ALICE OLLINO, DUE DILIGENCE OBLIGATIONS IN INTERNATIONAL LAW 59 (2022).

89. Dodd-Frank Wall Street Reform and Consumer Protection Act, 15 U.S.C. § 78m.

90. Weldon & Epstein, *supra* note 81, at 897.

name of the independent auditor, source country, and measures taken to determine which mine site produced the minerals.<sup>91</sup>

Similarly, in 2017, the EU Parliament adopted a resolution that established risk management systems and third-party auditing requirements for importers of conflict minerals.<sup>92</sup> According to this resolution, importers of conflict minerals shall prepare annual reports on the measures that they have taken to ensure supply chain due diligence and responsible sourcing. Importers must also disclose third-party audit reports and due diligence conformity evidence.<sup>93</sup>

## 2. Modern Slavery Legislation in the UK and Australia

The UK Modern Slavery Act takes a regulatory approach similar to mandatory disclosure, requiring certain business actors to make annual disclosures on slavery and human trafficking.<sup>94</sup> However, the subject of the disclosure obligation is technically narrow, and the scope of the disclosure obligation is unclear. Moreover, if the covered business actors do not properly disclose, “there is limited room for civil society to act upon it...[as civil society has] no standing for enforcement.”<sup>95</sup>

Australia’s Modern Slavery Act seems to have adopted a different means of strengthening regulation, by way of procurement power of major Australian businesses’ supply chains,<sup>96</sup> thereby creating “a level playing field for reporting on human rights risks, managing reputational risks, and driving internal organizational cultural and procedural systems changes.”<sup>97</sup> There are other examples of the differences between the UK and Australian approaches. For one, the Australian version requires firms to depict “the due diligence and remediation they perform on suppliers,” while the UK version does not. Furthermore, with respect to a company’s anti-slavery statement, the UK approach merely requires firms to talk over “the steps taken to pre-

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91. 15 U.S.C. § 78m(p)(1)(A)(i)–(ii); *see also* Weldon & Epstein, *supra* note 81, at 897.

92. Regulation 2017/821, of the European Parliament and of the Council of 17 May 2017 on Laying Down Supply Chain Due Diligence Obligations for Union Importers of Tin, Tantalum and Tungsten, Their Ores, and Gold Originating from Conflict-Affected and High-Risk Areas, 2017 O.J. (L 130) 1 (EU).

93. Villiers, *supra* note 6, at 561.

94. Iris H.-Y. Chiu, *Disclosure Regulation and Sustainability: Legislation and Governance Implications*, in *THE CAMBRIDGE HANDBOOK OF CORPORATE LAW, CORPORATE GOVERNANCE AND SUSTAINABILITY* 521, 527 (Beate Sjäfjell & Christopher M. Bruner eds., 2019).

95. *Id.* at 528.

96. JUSTINE NOLAN & JOLYON FORD, *REGULATING TRANSPARENCY AND DISCLOSURES ON MODERN SLAVERY IN GLOBAL SUPPLY CHAINS* 10 (U. New S. Wales Fac. L. Rsch. Ser. No. 57, 2019); *see also infra* Part III.C.3 (illustrating fragmentation between countries’ approaches).

97. NOLAN & FORD, *supra* note 96, at 10.

vent modern slavery.”<sup>98</sup> This is interpreted at will, whereas the Australian approach requires a firm’s anti-slavery statement to discuss the due diligence and remediation that it performs. The Australian approach goes further than the UK statute and, thus, a statement published to comply with the UK version would not necessarily meet requirements set in Australia.<sup>99</sup>

### C. *The Limits of Public Approaches*

While international organizations and individual states have taken various regulatory endeavors to address human rights problems caused by transnational businesses, their effectiveness and efficiency are frequently questioned. The international community has not been able to agree upon a binding convention to either impose obligations directly on businesses or to require states to rigorously regulate their businesses.<sup>100</sup> Further, existing domestic mechanisms are limited in scope and only target specific issues in an *ad hoc* manner.<sup>101</sup> Below, this article examines crucial limits of public approaches at both the domestic and international levels.

#### 1. Weak Enforcement

One of the most heavily criticized downsides of existing approaches are the lack of binding power and enforceability, although most public measures claim to be *mandatory* in name. For instance, the U.S. Dodd-Frank Act requires public companies to report annually on whether their products contain certain minerals from the Congo,<sup>102</sup> while the EU Conflict Minerals Regulation of 2017 imposes prescribed due diligence procedures

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98. Matt Kelly, *What Is the Australian Modern Slavery Act & How Does It Differ from UK’s*, NAVEX: RISK & COMPLIANCE MATTERS (Jan. 2, 2020), <http://www.navex.com/blog/article/what-is-the-australian-modern-slavery-act-how-does-it-differ-from-uks>.

99. *Id.* For an EU version similar to the UK and Australian approaches, see Marti Flacks & Madeleine Songy, *European Union Releases Draft Mandatory Human Rights and Environmental Due Diligence Directive*, CTR. FOR STRATEGIC & INT’L STUD. (Mar. 11, 2022), <http://www.csis.org/analysis/european-union-releases-draft-mandatory-human-rights-and-environmental-due-diligence> (noting that the “draft regulation requires large EU companies, and some non-European companies doing significant business in Europe, to assess their actual and potential human rights and environmental impacts throughout their operations and down their supply chains and to take action to prevent, mitigate, and remedy identified human rights and environmental harms,” and that “[c]ompanies that fail to conduct effective due diligence or to implement preventative or remediation measures face both administrative penalties and civil liability”).

100. Turner, *supra* note 76, at 198; see also David Kinley & Rachel Chambers, *The U.N. Human Rights Norms for Corporations: The Private Implications of Public International Law*, 6 HUM. RTS. L. REV. 447, 454–57 (2006).

101. Turner, *supra* note 76, at 198.

102. 15 U.S.C. § 78m. For empirically-informed assessments of the effectiveness of this regime, see Jeff Schwartz, *The Conflict Minerals Experiment*, 6 HARV. BUS. L. REV. 129 (2016). See also Nik Stoop, Marijke Verpoorten & Peter van der Windt, *More Legislation, More Violence? The Impact of Dodd-Frank in the DRC*, PLOS ONE, Aug. 9, 2018, at 1.

on importers of specific precious minerals and on third-party auditors.<sup>103</sup> Both the U.S. and EU conflict minerals regulations rely on the same five-step due diligence framework established by the OECD Guidelines.<sup>104</sup> However, a great number of businesses have not complied with the disclosure requirements, as a result of the weak sanctions for non-compliance (namely, non-complying businesses will likely face almost no enforcement actions).<sup>105</sup> Therefore, it is no surprise that some commentators have argued that governments should establish a minimum standard for due diligence and strengthen enforcement mechanisms.<sup>106</sup>

The same problem also exists with modern slavery acts. For instance, while the UK Modern Slavery Act requires certain business actors to make annual disclosures on slavery and human trafficking,<sup>107</sup> there are no sanctions for failure to comply with this disclosure requirement. In practice, therefore, the implications of the Modern Slavery Act for business actors are not enforcement, penalties, and sanctions, but rather “the risk of negative publicity, [and] the threat to brand value, company reputation and investor relations.”<sup>108</sup> The due diligence process is by no means compulsory, nor is reporting on due diligence required under such laws.<sup>109</sup> As a result, the worst-case scenario is that businesses face no legal consequences if they simply state that they have taken no steps to address the risk of modern slavery.<sup>110</sup>

## 2. Ineffective Audits

Many studies show that “audit programs often fail to detect, report, and resolve labor and environmental problems in global supply chains.”<sup>111</sup> For

103. Regulation 2017/821, 2017 O.J. (L 130) (EU).

104. Dionysia Katelouzou & Peer Zumbansen, *Transnational Corporate Governance: The State of the Art and Twenty-First Century Challenges*, in *THE OXFORD HANDBOOK ON TRANSNATIONAL LAW* 615, 635 (2021). See generally OECD, *supra* note 27, at 17–19.

105. See, e.g., BHRRC, *supra* note 110, at 13 (compiling summaries of analyses of company statements under mandatory disclosure laws).

106. See David Monciardini, Nadia Bernaz & Alexandra Andhov, *The Organizational Dynamics of Compliance with the UK Modern Slavery Act in the Food and Tobacco Sector*, 60 *BUS. & SOC’Y* 288, 309 (2021); see also Hess, *supra* note 15, at 278–83.

107. Modern Slavery Act 2015, c. 30, § 54 (UK). “Certain business actors” indicates those with a turnover of over £36 million net of taxes. Modern Slavery Act 2015 (Transparency in Supply Chains) Regulations 2015, SI 2015/1833, art. 2 (UK).

108. Caroline Noblet et al., *The Modern Slavery Act 2015: 10 Key Points for Businesses*, SQUIRE PATTON BOGGS (Oct. 29, 2015), <http://www.squirepattonboggs.com/en/insights/publications/2015/10/the-modern-slavery-act-2015>.

109. Chiu, *supra* note 94, at 527.

110. *BUS. & HUM. RTS. RES. CTR.* [hereinafter BHRRC], *MODERN SLAVERY IN COMPANY OPERATION AND SUPPLY CHAINS* 10 (2017).

111. Genevieve LeBaron, Jane Lister, & Peter Dauvergne, *Governing Global Supply Chain Sustainability Through the Ethical Audit Regime*, 14 *GLOBALIZATIONS* 958, 960 (2017).

instance, auditors usually lack formal investigative powers and are only allowed to inspect areas chosen by suppliers, speak to workers who happen to be present, and may only come away with a “partial snapshot of a supplier on a given day.”<sup>112</sup> In addition, because most audits are announced in advance, or at least hinted in advance, suppliers oftentimes have the opportunity to give a false appearance of proper practices or even to “drill their people on what they need to say.”<sup>113</sup> Increasingly, suppliers are incentivized to “adopt[] double sets of books, document[] false emissions . . . , and secretly re-locat[e] production to unknown ‘shadow factories.’”<sup>114</sup>

### 3. Fragmentation and Duplication in Regulation

As previously noted, governing GSCs poses significant challenges, since MNCs operate across countries and hence are “subject to different regulatory regimes which may or may not be enforced,”<sup>115</sup> providing “opportunities for regulatory arbitrage, resulting in governance and regulatory gaps.”<sup>116</sup> While such endeavors have a similar focus on transparency and disclosure, mandatory due diligence, and public procurement, they incorporate different substances, forms, and enforcement, thereby creating fragmentation in the regulations on the ground. In addition, such fragmented regulations across borders apply simultaneously to transnational business actors, creating (sometimes unnecessarily) duplication in regulations. Once again, this problem of fragmentation and duplication in domestic regulations has not been remedied by a internationally harmonized set of rules.

#### D. Transnational Private Governance

Parts III.A and III.B center on the roles of public institutions at the national and international level in mapping the regulatory complex of human rights protections in GSCs. However, this public-oriented perspective seems incomplete, as discussed in Part III.C. Part III.D highlights transnational private regulation by non-state actors, particularly in addressing human rights abuses such as labor issues. There is a critical need to address labor rights abuses along GSCs, primarily because “[s]uch violations frequently occur within global supply chains, where host countries have weak legal institutions and home states are unable to extraterritorially regulate third party

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112. *Id.* at 968–69.

113. *Id.*

114. *Id.* at 970. Commentators advised in their study that most of the company representatives and auditors they interviewed noted the above-mentioned problems of auditing along GSCs; strikingly, one of the interviewees, who is a director in an NGO, “argued that the audit regime is designed to be ineffective, and that this is a ‘win-win’ for every key actor in the audit industry: consistent labor and environmental problems means that companies keep auditing, NGOs have issues to campaign about, and auditors continue to profit.” *Id.*

115. Millington, *supra* note 7, at 364.

116. Villiers, *supra* note 6, at 552–53; *see also* Sarfaty, *supra* note 24.

suppliers.”<sup>117</sup> Additionally, such violations “can occur at any level of a supply chain, from the first tier of direct suppliers to layers of sub-contractors to the firms providing raw material inputs.”<sup>118</sup> Private actors such as NGOs, international industry organizations, and purchasing firms have themselves become private regulators, establishing voluntary codes of conduct with which suppliers must comply. Although those codes are of a non-binding, lead or focal companies may enter into supply contracts with their suppliers and rely on third-party certification to ensure that practical implementation conforms to the contractual terms, which are based upon the aforementioned voluntary codes.<sup>119</sup>

### 1. A Primer for Transnational Private Governance

Private organizations without governmental regulatory power are in a critical position to formulate rules that should be followed by their members. These rules are then “enforced” via market pressure.<sup>120</sup> Such pressure from transnational markets has become more influential in the era of globalization, when more and more non-state actors, such as the NGOs discussed below, appear able to act as regulators. This is because globalization makes it harder for national governments to regulate activities overseas or for concerned stakeholders in a host country to request that the company headquarters in their home country take responsibility for injuries caused by local foreign subsidiaries or affiliated legal entities.<sup>121</sup> For example, in the realm of human rights, many international standards were established by NGOs, which also serve as active monitors by keeping an eye on the aforementioned MNCs.<sup>122</sup> Therefore, a cross-border regulatory regime is required in order to hold MNCs responsible for the negative effects resulting from their overseas activities, such as the outsourcing of manufacturing.<sup>123</sup>

There are several ways to make rules and implement them by means of transnational private governance. One standard type of development organi-

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117. Sarfaty, *supra* note 24, at 425.

118. *Id.*

119. *See infra* Parts III.D.1 and III.D.3.

120. Chang-hsien Tsai & Yen-nung Wu, *What Conflict Minerals Rules Tell Us About the Legal Transplantation of Corporate Social Responsibility Standards Without the State: From the United Nations to the United States to Taiwan*, 38 NW. J. INT’L L. & BUS. 233, 243 (2018).

121. Gregory R. Day, *Private Solutions to Global Crises*, 89 ST. JOHN’S L. REV. 1079, 1090–91 (2015).

122. Colin Scott, Fabrizio Cafaggi, & Linda Senden, *The Conceptual and Constitutional Challenge of Transnational Private Regulation*, 38 J. L. & SOC’Y 1, 7–8 (2011). The Responsible Business Alliance (“RBA”) Code of Conduct and Social Accountability 8000A illustrates standards created by NGOs. *Code of Conduct*, RBA (2021), [http://www.responsiblebusiness.org/media/docs/RBACodeofConduct7.0\\_English.pdf](http://www.responsiblebusiness.org/media/docs/RBACodeofConduct7.0_English.pdf) [hereinafter RBA Code of Conduct]; *SA8000 Standard*, SOCIAL ACCOUNTABILITY INT’L, <http://sa-intl.org/programs/sa8000> (last visited Feb. 11, 2021) [hereinafter SA8000]; *see infra* Part III.D.2.

123. Day, *supra* note 121, at 1092–96.

zation is a hybrid organization consisting of industrial associations and NGOs.<sup>124</sup> For example of this is the Forest Stewardship Council. Another common type is a code of conduct or set of regulatory standards developed by private firms that exclusively apply to them. Most large MNCs also have their own supplier codes of conduct, with which they require their suppliers to comply.<sup>125</sup> Across various fields, “these voluntary rules already play important roles in guiding business behavior, as a category of regulatory measures with tangible effects.”<sup>126</sup>

When it comes to the effectiveness of the aforementioned regulatory power of private bodies, some commentators have argued that such voluntary codes laid down and promoted by private organizations are “not legislatively required.” Hence, they lack the compulsory power of traditional laws.<sup>127</sup> Even if companies that adopt the rules violate any of them, there might not be any direct way of imposing a punishment.<sup>128</sup> Still, at times, contracts and agreements could promote human rights protection to some extent. This illustrates how noncompliance with contracts and agreements sanctioned by private remedies or voluntary codes, as discussed below, have positive effects.<sup>129</sup>

## 2. Examples of Industry Initiatives Related to Labor Rights

A range of private, voluntary, non-state initiatives have been taken to address violations of labor rights along the global supply chain. These initiatives provide labor standards and guidance to promote workers’ rights. This section illustrates some initiatives related to labor rights, namely, the Responsible Business Alliance’s (“RBA”) Code of Conduct and Social Accountability International’s (“SAI”) Social Accountability 8000 (“SA8000”) project,<sup>130</sup> Both are overseen by the private sector and their members are required to comply with these initiatives.<sup>131</sup>

However, as one commentator noted, “[t]ragic evidence of the insufficiency of long-established voluntary company codes of conduct and industry responsibility initiatives continues to accumulate.”<sup>132</sup> One example of

124. See, e.g., Errol Meidinger, *The Administrative Law of Global Private-Public Regulation: The Case of Forestry*, 17 EUR. J. INT’L L. 47, 51–53 (2006).

125. See *infra* Part III.D.3; Lesley K. McAllister, *Harnessing Private Regulation*, 3 MICH. J. ENV’T & ADMIN. L. 291, 301–07 (2014).

126. Tsai & Wu, *supra* note 120, at 244.

127. See, e.g., Webb, *supra* note 62, at 41–42.

128. See Curtin & Senden, *supra* note 6363, at 169.

129. See Day, *supra* note 121, at 1082–83, 1095–97; Lipson, *supra* note 47, at 1109.

130. See *SA8000 Program*, SOCIAL ACCOUNTABILITY INTERNATIONAL, <http://sa-intl.org/programs/sa8000> (last visited Feb. 11, 2021); SA8000, *supra* note 122.

131. RBA Code of Conduct, *supra* note 122; SA8000, *supra* note 122.

132. Cynthia A. Williams, *Corporate Social Responsibility and Corporate Governance*, in OXFORD HANDBOOK OF CORPORATE LAW AND GOVERNANCE 634, 667–68 (Jeffrey N. Gordon & Wolf-Georg Ringe eds., 2018); see also Jaakko Salminen, *Sustainability and the*

this is the collapse of the Rana Plaza.<sup>133</sup> This point demonstrates limits to the private approach to human rights abuses along GSCs.<sup>134</sup>

#### i. The Responsible Business Alliance Code of Conduct

One representative example of transnational private governance is the RBA, a U.S. trade association.<sup>135</sup> For a recent example, as of November 10, 2020:

According to Apple, Pegatron was found to have allowed students to perform work at its Chinese factories that was unrelated to their majors under its student work-study program. Until Pegatron corrects its conduct, the probation will remain in effect and the company will not get any new Apple orders, the U.S. company said...Pegatron admitted the violations of the labor code at its plants in Shanghai and Kunshan and said it has come up with measures to correct its conduct by immediately adopting the Code of Conduct of the Responsible Business Alliance (RBA). It also said it will use the RBA’s Code of Conduct to evaluate the performance of its executives in the future. Pegatron has reportedly fired the executive who oversaw the student study-work program.<sup>136</sup>

It seems likely that the pledge of Pegatron (a Taiwan-based contract electronics maker for Apple) to “correct its conduct by adopting the Code of Conduct of the Responsible Business Alliance (RBA)” was at least somewhat related to being placed on probation by Apple for violating its Supplier Code of Conduct.<sup>137</sup> At present, more than 160 RBA members, many of which are large MNCs, voluntarily comply with the RBA Code of Conduct. Notably, both Pegatron and Apple are RBA members.<sup>138</sup> These organizations also require their first-tier suppliers to comply with this voluntary code to satisfy the RBA Code of Conduct’s requirements.<sup>139</sup>

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*Move from Corporate Governance to Governance through Contract, in* CAMBRIDGE HANDBOOK OF CORPORATE LAW, CORPORATE GOVERNANCE AND SUSTAINABILITY 57, 65 (Beate Sjøfjell & Christopher M. Bruner eds., 2019).

133. *See supra* Part II.B.

134. *See infra* Part III.E.

135. RBA Code of Conduct, *supra* note 122.

136. Jeffrey Wu & Frances Huang, *Pegatron Shares Down on Apple Probation for Labor Code Violations*, FOCUS TAIWAN CNA ENGLISH NEWS (Nov. 10, 2020), <http://focus.taiwan.tw/business/202011100005>.

137. *Id.*

138. *See Members*, RBA, <http://www.responsiblebusiness.org/about/members> (last visited Feb. 10, 2021) [hereinafter RBA Members].

139. *Id.* However, the Electronic Industry Citizenship Coalition (“EICC”)/RBA Code of Conduct did not specify any sanctions and thus has to rely on market monitoring power. For example, “Microsoft, whose Xbox game system is assembled by Foxconn, said it has a code of conduct that suppliers are required to meet, including factory inspections, or they risk losing contracts.” Adam Satariano & Peter Burrows, *No Company Follows Apple’s Expanded*



The seminal name of the RBA was the Electronic Industry Citizenship Coalition (“EICC”). The EICC rebranded itself as the RBA in October 2017 in order to mark the beginning of its next phase. It also changed the EICC Code of Conduct to the RBA Code of Conduct.<sup>140</sup> RBA member businesses, such as Apple, usually have transnational supply chains.<sup>141</sup> Therefore, their foreign suppliers and especially their first-tier suppliers may also face pressure from RBA buyers to abide by the RBA Code of Conduct, even if the suppliers themselves are not RBA members.<sup>142</sup> To be sure, in the aforementioned case of Pegatron, the supplier was put on probation by Apple for violating its Supplier Code of Conduct; because Pegatron and Apple are both RBA members, and the former is the first-tier supplier of the latter, Pegatron committed to making corrections via the adoption of the RBA Code of Conduct.<sup>143</sup>

Another representative example of transnational private governance by the RBA is the Conflict-free Sourcing Initiative, which was co-established by the RBA and the Global Enabling Sustainability Institute (“the GeSI,” a European NGO) to provide relevant certifications, build a database of certified smelters and refineries, and help members procure conflict-free minerals.<sup>144</sup> As one commentator noted, although the RBA Code “not only improves working conditions of the electronics industry but also fosters the relationship between participants and the local community,” challenges to the implementation of the voluntary rule remain if participants are unable to ensure the smoothness and success of the implementation.<sup>145</sup>

## ii. Social Accountability 8000

SAI created the SA8000 project,<sup>146</sup> which includes commitments to a living wage, as well as to compliance with U.N. international human rights

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*China Factory Audits*, BLOOMBERG BUSINESSWEEK (Feb. 26, 2012, 7:31 AM), <http://www.bloomberg.com/news/articles/2012-02-26/no-company-follows-apples-expanded-china-factory-audits>.

140. RBA Code of Conduct, *supra* note 122.

141. See, e.g., Jason Dedrick, Kenneth L. Kraemer, & Greg Linden, *Who Profits from Innovation in Global Value Chains?: A Study of the Ipad and Notebook PCs*, 19 INDUS. & CORP. CHANGE 81, 81 (2010); Yuqing Xing & Neal Detert, *How iPhone Widens the US Trade Deficits with PRC* 2–3, (Nat’l Graduate Inst. for Pol’y Stud., Discussion Paper No. 10-21, 2011).

142. Tsai & Wu, *supra* note 120, at 252–54.

143. Wu & Huang, *supra* note 136; RBA Members, *supra* note 138.

144. See Tsai & Wu, *supra* note 120, at 237; Jeff Schwartz & Alexandra Nelson, *Cost-Benefit Analysis and the Conflict Minerals Rule*, 68 ADMIN. L. R. 287, 328 (2016).

145. Ong Choon Hee, *The Implementation of EICC Code of Conduct in the Electronics Industry Supply Chain in Malaysia*, 5 INT’L J. MANAGING VALUE & SUPPLY CHAINS 43, 46 (2014). For specific limits to private approaches to human rights issues along GSCs, see *infra* Part III.E.

146. See *SA8000 Program*, SOCIAL ACCOUNTABILITY INTERNATIONAL, <http://sa-intl.org/programs/sa8000> (last visited Feb. 11, 2021); SA8000, *supra* note 122.

protections in addition to the International Labor Organization (“ILO”) Fundamental Principles and Rights at Work.<sup>147</sup> Specifically, SA 8000 was created by SAI in 1997 as the first credible social certification to demonstrate its commitment to the fair treatment of workers. This Standard “applies a management-systems approach to social performance and emphasizes continual improvement—not checklist-style auditing.”<sup>148</sup> It is worth noting that “meeting SA 8000 standards requires third party certification of individual production facilities, based upon an inspection by SAI-approved inspectors and other third party inspectors,” and that businesses that seek such approval must require all their suppliers to comply with the SA 8000 standards in written purchase contracts.<sup>149</sup>

Critics have questioned the prospect of “meeting SA 8000 requirements because the SA 8000 process is costly, often requiring that fees be paid to certification bodies not only for the certification itself, but also for consulting assistance required to meet the standards.”<sup>150</sup> Other critics have questioned SA 8000’s effectiveness due to the lack of more detailed implementation guidance or stakeholder involvement.<sup>151</sup>

### 3. Codes of Conduct Embedded in Supply Contracts

Even though such initiatives may be initially and formalistically non-binding in nature, companies can create a common code of conduct according to relevant initiatives and can enforce these standards through supply contracts.<sup>152</sup> For example, Apple proactively enforces its code of conduct via supply contracts with its Taiwanese suppliers.<sup>153</sup>

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147. Williams, *supra* note 132, at 638 (footnote omitted).

148. SA8000, *supra* note 122. The following nine key fields are measured to ensure how companies perform: child labor, forced or compulsory labor, health and safety, freedom of association and right to collective bargaining, discrimination, disciplinary practices, working hours, remuneration, and management systems. *Id.*

149. Margaret M. Blair, Cynthia A. Williams, & Li-Wen Lin, *The New Role for Assurance Services in Global Commerce*, 33 J. CORP. L. 325, 343 (2008); see also BARTLEY, *supra* note 4, at 9.

150. Blair, Williams, & Lin, *supra* note 149, at 349.

151. Michael J. Hiscox, Claire Schwartz, & Michael W. Toffel, *Evaluating the Impact of SA8000 Certification*, in *SA8000: THE FIRST DECADE. IMPLEMENTATION, INFLUENCE, AND IMPACT* 147, 148 (Deborah Leipziger ed., 2009).

152. Sarah Di Martino, *Questioning the Legitimacy of Corporate Codes of Conduct as Instruments to Regulate B2B Relations: A Precarious Balance Between States and Multinational Corporations*, TRANSNAT’L L. INST. THINK!, Aug. 11 2020, at 11, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3671535](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=3671535).

153. See *supra* Part III.D.2.i; Josh Horwitz & Yimun Lee, *Apple Puts Taiwanese Supplier Pegatron on Probation Over Student Workers*, REUTERS (Nov. 9, 2020, 12:39 AM), <http://www.reuters.com/article/us-apple-suppliers-pegatron/apple-says-pegatron-put-on-probation-after-violating-supplier-code-of-conduct-idUSKBN27P0E8?il=0>; Sankalp Phartiyal & Chandini Monnappa, *Apple Puts Supplier Wistron on Notice After Indian Factory Violence*, REUTERS (Dec. 19, 2020, 4:28 AM), <http://www.reuters.com/article/apple-india/apple-puts-supplier-wistron-on-notice-after-indian-factory-violence-idUSKBN28T0DW>.

When it comes to the governance evolution of GSCs, where global firms interact with local corporations in transitional economies, MNCs have undergone a crucial change. They have moved “from a hierarchical unit” to a complicated “fragmented structure with subsidiaries and networks of distributors and suppliers,” leading to the concomitant transformation in codes of conduct “from self-regulatory instruments to tools for regulating ‘contractual relations through the supply chain.’” This has made them, from the perspective of business partners, binding requirements for the survival of the business relation itself.<sup>154</sup> Regarding how to ensure the aforementioned contractual relations self-enforcing, contracting parties of GSCs will “develop systems of private contract enforcement, such as agreements to rely on the assessments of third-party inspectors and verifiers for a determination of whether contract terms were satisfied.”<sup>155</sup>

The aforementioned approaches, oriented toward private actors, use supply contracts to create somewhat self-enforcing mechanisms. However, such mechanisms request a massive scope of information from upstream suppliers along lengthy GSCs. The sheer volume of information will render it difficult for lead firms to ensure real-time monitoring of work environments in the facilities of distant suppliers.<sup>156</sup>

#### E. *The Limits of Private Approaches*

MNCs with dominant market power along GSCs can play the role of regulators by way of contractual requirements, audits, and certification mechanisms to discipline their suppliers. According to Barley, such leading MNCs can “construct factories as sufficiently compliant” with various standards (on freedom of association, working hours, or domestic anti-corruption compliance), even when such standards do not readily exist in the entire industry.<sup>157</sup> Through such systems and processes, employed as verification measures, lead firms can make supply contracts with their upstream suppliers self-enforcing. Nonetheless, because GSCs often embrace multi-tiered suppliers that are not easy to monitor or manage,<sup>158</sup> we frequently find the following deficiencies within the verification measures discussed above.<sup>159</sup>

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154. Di Martino, *supra* note 152, at 10 (footnote omitted). For analytical and typological framework of GSC governance, see Gereffi & Lee, *supra* note 30, at 25–26. See also Gereffi, Humphrey, & Sturgeon, *supra* note 31, at 83–84.

155. Blair, Williams, & Lin, *supra* note 149, at 356; see also *infra* Part III.D.4; Milton C. Regan & Kath Hall, *Lawyers in the Shadow of the Regulatory State: Transnational Governance on Business Human Rights*, 84 *FORDHAM L. R.* 2001, 2007, 2013 (2016).

156. Lipson, *supra* note 47, at 1121, 1123. For other constraints on GSC monitoring, see *id.* at 1123.

157. BARTLEY, *supra* note 4, at 56.

158. See *supra* Part II.A.

159. See Sarfaty, *supra* note 24, at 454, 458. Since the MNCs are not compelled by government authorities, they must battle their own self-interest. For how reputational concerns

### 1. Shortfalls in Due Diligence, Disclosure, and Reporting

The fact that modern slavery is still rampant illustrates shortfalls in due diligence, disclosure, and reporting due to inherent limits of the voluntary approach.<sup>160</sup> To end modern slavery along GSCs, transparency and due diligence will play key roles.<sup>161</sup> Specifically, it is argued that “[t]ransparency of the due diligence process is a *sine qua non* of its effectiveness,” and that “[t]ransparency is also a prerequisite of effective participation and independent monitoring.”<sup>162</sup> In short, if lead firms of GSCs are held accountable “for due diligence and consequently make their supply chains transparent then it is possible to establish grievance procedures that can facilitate remedy of any violations of rights at work from forced labour.”<sup>163</sup> To be sure, mandatory disclosure and reporting requirements do not appear to be effective in improving firm behavior.<sup>164</sup> This might be because of the potential of circumvention around the disclosure obligations through strategic and complex business group structures.<sup>165</sup>

Further, stakeholder engagement is key to ensure the effectiveness of due diligence.<sup>166</sup> Nevertheless, the United Nations’ Working Group found that some shortfalls remain in company human rights due diligence practices, such as the lack of “meaningful engagement with stakeholders.”<sup>167</sup> A few stakeholder theorists have also argued that “corporate responsibility is too modest, given its emphasis on disclosure and voluntarism,” and that “[s]ome serious, even extreme, human rights problems persist despite two decades of corporate responsibility initiatives and expanded ESG disclo-

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give them and their suppliers incentives to conform to the verification measures, see *infra* Parts III.E.2, III.E.3, and III.E.4.

160. Williams, *supra* note 132, at 667–68.

161. BHRRC, *supra* note 110, at 1.

162. James Harrison, *Establishing a Meaningful Human Rights Due Diligence Process for Corporations: Learning from Experience of Human Rights Impact Assessment*, 31 IMPACT ASSESSMENT & PROJECT APPRAISAL 107, 112–13 (2013).

163. BHRRC, *supra* note 110, at 1.

164. See, e.g., Kishanthe Parella, *Protecting Third Parties in Contracts*, 58 AM. BUS. L.J. 327, 359 (2021).

165. Turner, *supra* note 76, at 194 (illustrating that if the subject of the disclosure obligation is so constrained in respect of vertical integration to take as its focus individual entities rather than the group or supply chain of which that entity forms a part, “the disclosure obligation may be circumvented or its effect limited through careful business structuring”).

166. See Villiers, *supra* note 6, at 564 (noting that “[t]he guidance documents published by the OECD and the [Ethical Trading Initiative] confirm that due diligence is not a process to be carried out in isolation from those who have a stake in their outcomes but requires communication with and involvement of stakeholders”).

167. Rep. of the Working Group on the Issue of Human Rights and Transnat’l Corporations and Other Business Enterprises, ¶ 25, U.N. Doc. A/73/163 (July 16, 2018); see also LISE SMIT ET AL., EUROPEAN COMMISSION, STUDY ON DUE DILIGENCE REQUIREMENTS THROUGH THE SUPPLY CHAIN 63–67, 93 (2020), <http://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1/language-en>.

sure.”<sup>168</sup> Additionally, when companies fail to comply with the disclosure obligation, there are few penalties, weakening the efficacy of regulating GSCs.<sup>169</sup> Moreover, imposing mandatory disclosure provides more leeway for policymakers to evade the need to clearly stipulate specific substantive requirements.<sup>170</sup>

## 2. The Limited Credibility of Assurance and Auditing

It has been noted that “multinational corporations have been expanding ‘ethical’ audit programs with the stated aim of reducing the risk of sourcing from suppliers with poor practices.”<sup>171</sup> Therefore, a supplier “may have strong incentives to develop a reputation as an honest and reliable trading partner over time, but may initially need to expend resources to build that reputation.”<sup>172</sup> When it comes to how third party assurance services may enhance the credibility of suppliers’ sustainability reports and the reporting practices of those suppliers, they “facilitate that process by acting as reputational intermediaries . . . because the assurance firm has little in the way of assets except its reputation, and it has no direct stake in the outcome of any evaluation it performs.”<sup>173</sup>

Notwithstanding the fact that “the provision of assurance statements does succeed in enhancing the credibility of reporting,” these statements have failed to detect or correct human rights problems in GSCs.<sup>174</sup> This is because, generally, “audits are a form of checking, not deep investigation, that rely on readily available and quantifiable indicators to produce simplified, decontextualized versions of truth.”<sup>175</sup> Additionally, auditors have limited time and ability to conduct holistic investigations of suppliers’ factories. The coverage of audits is also often so limited – typically to only tier-one suppliers – that “there is actually a risk that ‘audits have worsened conditions by shifting problems further down the supply chain.’”<sup>176</sup> Some fun-

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168. Williams, *supra* note 132, at 667.

169. Turner, *supra* note 76, at 195.

170. Chiu, *supra* note 94, at 529.

171. LeBaron, Lister, & Duvergne, *supra* note 111, at 958.

172. See Blair, Williams, & Lin, *supra* note 149, at 356. *But see* discussion *infra* Part III.E.4.

173. Blair, Williams, & Lin, *supra* note 149, at 356; *see also* David L. Owen & Brendan O’Dwyer, *Corporate Social Responsibility: The Reporting and Assurance Dimension*, in *THE OXFORD HANDBOOK OF CORPORATE SOCIAL RESPONSIBILITY* 384, 401 (Andrew Crane et al. eds., 2008).

174. Owen & O’Dwyer, *supra* note 173, at 401–02.

175. BARTLEY, *supra* note 4, at 51; *see also id.* at 56 (“[P]rivate regulation has mostly brought the ‘institutionalization of paperwork,’ as factory managers create more and more records to be shown to auditors.”).

176. Hess, *supra* note 15, at 270 (quoting GENEVIEVE LEBARON & JANE LISTER, *ETHICAL AUDITS AND SUPPLY CHAIN OF GLOBAL CORPORATIONS* 3 (2016),

damental questions concerning the accuracy, effectiveness, independence, and reliability of assurance services provided have been raised in empirical research.<sup>177</sup>

### 3. The Low Practicality of Implementing Certification

Companies using “highly labor-intensive manufacturing and assembly processes” have usually developed codes of conduct both “for their own factories and for supplier factories.”<sup>178</sup> Having learned that “[j]ust telling factories that they must meet certain standards does not make it happen in practice,”<sup>179</sup> lead firms of GSCs are required to “develop implementation strategies and arrange for inspection and certification to be sure the codes are in fact implemented.”<sup>180</sup>

When it comes to how certification schemes work, “[i]f market participants intend to behave ethically, be it as consumers (‘political consumerism’) or as investors (‘impact investors’), and if they therefore prefer certified over uncertified companies, then companies have a significant incentive to comply with the certification criteria. [Therefore] companies can improve their reputation.”<sup>181</sup> Nevertheless, although the aforementioned market participants “need subjectively to perceive the certificate as largely congruent with their own preferences . . . the preconditions on which the trustworthiness of certification depends are surprisingly under-explored.”<sup>182</sup>

### 4. The Weakness of Reputational Risk

A lead firm for a GSC, vis-à-vis its local suppliers in developing countries, “is likely to have more reputational capital at stake to constrain its be-

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<http://speri.dept.shef.ac.uk/wp-content/uploads/2018/11/Global-Brief-1-Ethical-Audits-and-the-Supply-Chains-of-Global-Corporations.pdf> [<https://perma.cc/XBL5-7WUH>].

177. See Owen & O’Dwyer, *supra* note 173, at 403.

178. Blair, Williams, & Lin, *supra* note 149, at 340; see also *supra* Part III.D.3 (illustrating the cases of Pegatron and Wistron, the two Taiwanese suppliers put on probation for violating Apple’s “Supplier Code of Conduct”).

179. Blair, Williams, & Lin, *supra* note 149, at 348.

180. *Id.* at 340; see also Williams, *supra* note 132, at 638 (describing an example of SA 8000). For the example of the Kimberly Process, see Johnston, *supra* note 40, at 102.

181. Florian Möslin, *Certifying ‘Good’ Companies A Comparative Study of Regulatory Design*, in CAMBRIDGE HANDBOOK OF CORPORATE LAW, CORPORATE GOVERNANCE AND SUSTAINABILITY 669, 680 (Beate Sjäffell & Christopher M. Bruner eds., 2019) (alteration in original) (footnote omitted). For more discussion on corporate reputational risks, see *infra* Part III.E.4.

182. Möslin, *supra* note 181, at 681. For other criticism of certification, see Timothy D. Lytton, *How Private Certification Can Overcome Constraints that Frustrate Government Regulation*, 15 THEORETICAL INQUIRES L. 539, 568 (2014).

havior and bond its commitments.”<sup>183</sup> Reputational concerns have been exploited to pressure global companies to be more socially responsible.<sup>184</sup>

Nevertheless, market-based mechanisms underlying the soft regulatory approach of disclosure regulations, such as reputational risk, may be too weak to serve as an effective governance or regulatory tool in managing ethical GSCs.<sup>185</sup> In addition, a lack of coercive power and transparency in private regulatory approaches also leads to obstacles, such as the concealment of facts or “blind spots in social and environmental auditing, such as blindness to deep categorical inequalities of gender and ethnicity.”<sup>186</sup>

#### F. *The Lack of Supply-Chain Transparency and Traceability as a Root Cause*

Both public and private regulatory approaches to transnational supply chains count on transparency and traceability. Because large information flows create many problems along GSCs, in order to trace transactions precisely, “[m]any companies choose to outsource the reconciliation and verification of their records to a neutral third party.”<sup>187</sup> In a process that has not generated meaningful benefits, “companies incur considerable costs in employing professionals to audit the records on their behalf.”<sup>188</sup> Because “this entire process of having to crosscheck such massive amounts of data in an attempt to synchronize them is redundant and inefficient,”<sup>189</sup> how can blockchain, as a measure to verify transactional records on all sides of GSCs,<sup>190</sup> substitute for or supplement the role played by the aforementioned third-party auditors? At a more general level, what are the promises and pitfalls of blockchain in addressing issues of supply-chain transparency and traceability?

### IV. HOW MIGHT BLOCKCHAIN BE LEVERAGED TO FILL THE GOVERNANCE GAP?

Defined broadly, blockchains (or distributed ledger technologies) are decentralized databases that are collaboratively stored, maintained, and up-

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183. Blair, Williams, & Lin, *supra* note 149, at 356.

184. See Claire A. Hill, *Marshalling Reputation to Minimize Problematic Business Conduct*, 99 B.U. L. REV. 1193, 1197 (2019); Lipson, *supra* note 47, at 1140.

185. See ROBERT BALDWIN, MARTIN CAVE, & MARTIN LODGE, UNDERSTANDING REGULATION: THEORY, STRATEGY AND PRACTICE 119–20 (2d ed. 2012); Turner, *supra* note 76, at 196–97.

186. BARTLEY, *supra* note 4, at 51.

187. Bhandari, *supra* note 28, at 4 (footnotes omitted).

188. *Id.*

189. *Id.*

190. *Id.* at 7.

dated by a distributed network of computing nodes.<sup>191</sup> The blockchain connects to all network nodes based on a predefined algorithmic structure that keeps “complete information about transactions (and ownership) from the genesis block to the most recently completed block.”<sup>192</sup> Each and every participant on the blockchain has a unique digital signature that is attached to each of the transactions added to the blockchain with specific timestamps and details.<sup>193</sup> Using cryptographic keys across the shared ledgers, the history of all transactions is securely and accurately recorded on the blockchain.<sup>194</sup>

As this article argues below, some key features of blockchain technology may help strengthen transparency and traceability along GSCs and help to tackle business and human rights challenges. Given its potential governance benefits, blockchain has been considered by the OECD to facilitate “transparency, traceability, and trust” along GSCs.<sup>195</sup> As noted by the OECD, the use of blockchain to increase transparency and traceability in some areas along the supply chain has proven promising, including the footwear and textile, food, and mineral sectors, “prevent[ing] regulatory arbitrage and avoid[ing] market fragmentation . . . enabl[ing] efficiency and scaling of business.”<sup>196</sup> While blockchain technologies may be leveraged to provide a promising future, risks and limitations remain, such as issues of “technical capacity and infrastructure gap, scalability and implementation costs, global standardization politics, and cybersecurity and data protection,”<sup>197</sup> which will be addressed below.

#### A. *Potential Governance Benefits*

Indeed, blockchain technology has been promoted in various contexts to serve as a technical fix for regulatory problems in both public administra-

191. See PRIMAVERA DE FILIPPI & AARON WRIGHT, *BLOCKCHAIN AND THE LAW: THE RULE OF CODE 13* (2018).

192. PAVEL CIAIAN, *MARKET TRANSPARENCY WORKSHOP: BLOCKCHAIN TECHNOLOGY AND MARKET TRANSPARENCY* 8 (2018), [http://ec.europa.eu/info/sites/info/files/law/consultation/mt-workshop-blockchain-technology-and-mt\\_ciaian\\_en.pdf](http://ec.europa.eu/info/sites/info/files/law/consultation/mt-workshop-blockchain-technology-and-mt_ciaian_en.pdf) [<https://perma.cc/VX8J-4SSS>].

193. See Tracie Scott, Armand L. Post, Johnny Quick, & Sohail Rafiq, *Evaluating Feasibility of Blockchain Application for DSCSA Compliance*, 1 *SMU DATA SCI. REV.* 1, 9–10 (2018). Blockchain technologies have “operational resilience” where data is accurate, secure, and accessible, resulting in a situation of: “I know who you are. I know who owns this asset. We have a shared record of trusted, validated transactions; no reconciliation required.” *Id.*

194. *Id.*; see also Philipp Paech, *The Governance of Blockchain Financial Networks*, 80 *MOD. L. REV.* 1073, 1080–82 (2017); Lin, *supra* note 16, at 598.

195. Greg Medcraft, Directorate for Fin. and Enter. Affs., OECD, *The OECD and the Blockchain Revolution*, Speech at the OECD Friends of Going Digital Meeting (Mar. 29, 2018) (transcript available at <https://www.oecd.org/parliamentarians/meetings/meeting-on-the-road-london-april-2018/The-OECD-and-the-Blockchain-Revolution-Presentation-by-Greg-Medcraft-delivered-on-29-March-2018.pdf>).

196. *Id.*

197. Lin, *supra* note 16, at 586.



tion and the private sector.<sup>198</sup> As such, “regulatory technologies” may be used to “*define and incorporate* legal or contractual provisions into code, and to *enforce* them irrespectively of whether or not there subsists an underlying legal rule.”<sup>199</sup> However, those in public and private sector administration roles should familiarize themselves with “the technical elements and nature of blockchain as well as the technology’s advantages in addressing governance challenges in the global . . . supply chain.”<sup>200</sup>

### 1. Data Consistency and Authenticity

When data is input into the blockchain, it is then “simultaneously permanently recorded and updated in each node of the network. The use of cryptography allows for a mathematical consensus to ensure the consistency and authenticity of such data across the network.”<sup>201</sup> Each new transaction is stored as an additional “block” and is cryptographically tied to the “chain” of existing blocks, creating a so-called blockchain.<sup>202</sup> As long as these “blocks” are validated and recorded, businesses “could conceivably use the technology to provide proof that they have complied with various steps required by regulation. Internal and external auditors could thus track compliance, as could regulators.”<sup>203</sup> Furthermore, “[b]lockchain also has the potential to automate certain audit transactions because it will reduce the need for an auditor to test them,”<sup>204</sup> rendering auditors better able to “focus on more complex transactions and internal controls, fundamentally changing the scope and approach of an audit opinion.”<sup>205</sup>

### 2. Data Security and Immutability

Each block on a blockchain system is considered immutable. It becomes impossible for it to be erased or changed, because “information that conflicts with existing copies of the database [will] not be accepted. Similarly, information (*e.g.*, transactions) that has been permanently recorded on the blockchain cannot be easily deleted or altered.”<sup>206</sup> Blockchain’s immutability, tamper-resistance, and timestamping measures mean that it can

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198. See generally Primavera De Filippi & Samer Hassan, *Blockchain Technology as a Regulatory Technology: From Code is Law to Law is Code*, FIRST MONDAY, Dec. 5, 2016.

199. De Filippi & Hassan, *supra* note 198, at 15.

200. Lin, *supra* note 16, at 598.

201. *Id.*

202. U.K. GOV'T CHIEF SCI. ADVISOR, DISTRIBUTED LEDGER TECHNOLOGY: BEYOND BLOCK CHAIN 33 (2016), [http://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/492972/gs-16-1-distributed-ledger-technology.pdf](http://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf).

203. Weldon & Epstein, *supra* note 81, at 879.

204. *Id.*

205. *Id.* at 880.

206. Lin, *supra* note 16, at 598 (footnote omitted).

serve as a governance tool for compliance.<sup>207</sup> In addition, the immutability of blockchain has powerful benefits related to cybersecurity for MNCs.<sup>208</sup>

### 3. Transparency and Traceability

Blockchain technology also promises to offer transparency and traceability along GSCs.<sup>209</sup> Because it allows for all actors along the supply chain to track products and information in real time, blockchain is seen by the audit community as a potential tool.<sup>210</sup> Importantly, the United Nations, the OECD, and the GRI, among others, have leveraged blockchain as a governance tool for a variety of use cases, as discussed below. However, the most powerful potential for blockchain likely rests in helping companies with disclosure (such as providing information to consumers and investors or reporting due diligence details to governments).<sup>211</sup>

### 4. Use Cases of Blockchain-Based Supply Chain Governance

Given the above-mentioned governance benefits of leveraging blockchain technologies to strengthen the control and monitoring of the global supply chain, several initiatives are experimenting with blockchain in the area of identity management in an effort to comply with human trafficking and forced labor regulations. For instance, Moldova, which has one of the highest rates of human trafficking in Europe,<sup>212</sup> has worked with ConsenSys, a blockchain technology solutions company based in New York, by using digital identification and blockchain technologies to combat child trafficking.<sup>213</sup> Regarding the issue of conflict minerals, Everledger, a digital technology company providing technical solutions to increase transparency along GSCs, has placed the records of more than one million diamonds onto a blockchain that securely captures the defining characteristics and key information (for example, whether the diamond has been verified as free from slave labor) of the diamonds at their source.<sup>214</sup> This blockchain “is relied

207. Weldon & Epstein, *supra* note 81, at 878.

208. *Id.* at 884–85.

209. Lin, *supra* note 16, at 597.

210. Weldon & Epstein, *supra* note 81, at 879; WILLIAM BIBLE ET AL., DELOITTE, BLOCKCHAIN TECHNOLOGY AND ITS POTENTIAL IMPACT ON THE AUDIT AND ASSURANCE PROFESSION 2 (Chartered Pro. Accts. Can. & Am. Inst. CPAs, 2017), <http://www.aicpa.org/content/dam/aicpa/interestareas/frc/assuranceadvisoryservices/downloadabledocuments/blockchain-technology-and-its-potential-impact-on-the-audit-and-assurance-profession.pdf>.

211. Weldon & Epstein, *supra* note 81, at 903–04.

212. Jill Robinson, *Public Perceptions of Human Trafficking in Moldova*, 20 PSYCHOSOCIAL INTERVENTION 269, 270 (2011).

213. Umberto Bacchi, *Scan on Exit: Can Blockchain Save Moldova’s Children From Traffickers?*, REUTERS (June 18, 2018), <http://www.reuters.com/article/us-moldova-trafficking-technology-block-idUSKBN1JF00J>.

214. *Diamonds*, EVERLEDGER, <http://www.everledger.io/industry-solutions/diamonds> (last visited Oct. 9, 2022).

upon by multiple stakeholders across [GSCs] to verify each diamond’s authenticity” and track it *ex post*.<sup>215</sup> Similarly, the U.N. World Food Programme (“WFP”) launched the “Building Blocks” pilot program in 2017,<sup>216</sup> which uses iris-scanning and blockchain technologies to help refugees, provide aid, and reduce unfair practices in Jordan’s Azraq camp.<sup>217</sup> It also created an Ethereum-based blockchain platform “to make cash-based transfers faster, cheaper and more secure.”<sup>218</sup>

A prime example is a UK-based start-up, Provenance, which leverages blockchain and Radio-frequency identification (RFID) technologies in the global fishery industry to strengthen supply chain control, tracking, and monitoring measures to combat forced labor as well as to ensure human rights, product authenticity, and compliance with social and sustainability standards.<sup>219</sup> Provenance constructs “a shared and secure platform” premised on blockchain, which provides transparency and information certainty, and allows for better audits and enhanced supply chain management.<sup>220</sup>

Provenance applies blockchain to “enable[] every physical product to come with a digital ‘passport’ that proves authenticity . . . and origin . . . creating an auditable record of the journey behind [it].”<sup>221</sup> Strengthened supply chain transparency further helps companies in the fishery industry detect and prevent modern slavery or labor abuse, in line with other social and environmental standards.<sup>222</sup> The company has been working with retail-

215. THE MEKONG CLUB, USING BLOCKCHAIN TO COMBAT MODERN SLAVERY 5 (2018), <http://respect.international/wp-content/uploads/2018/05/Using-Blockchain-To-Combat-Modern-Slavery-The-Mekong-Club-2018.pdf>.

216. See *Blockchain Against Hunger: Harnessing Technology in Support of Syrian Refugees*, U.N. WORLD FOOD PROGRAMME (May 30, 2017), <http://www.wfp.org/news/blockchain-against-hunger-harnessing-technology-support-syrian-refugees>.

217. *Id.*

218. Rep. of the Joint Inspection Unit, *Blockchain Applications in the United Nations System: Towards a State of Readiness*, ¶ 158, U.N. Doc. JIU/REP/2020/7 (2020). The U.N. World Food Programme (“WFP”) can establish a full record of every transaction that occurs on the retailer’s end and reduce transaction costs due to market inefficiency, corruption, and logistics. *Id.* The WFP can establish a full record of every transaction that occurs on the retailer’s end and reduce transaction costs due to market inefficiency, corruption, and logistics. *Id.*

219. See PROVENANCE, FROM SHORE TO PLATE: TRACKING TUNA ON THE BLOCKCHAIN (2016), <http://www.provenance.org/tracking-tuna-on-the-blockchain#overview>; Alex Capri, *How Blockchain Could Help End Modern Day Slavery in Asia’s Exploitative Seafood Industry*, FORBES (Feb. 14, 2018), <http://www.forbes.com/sites/alexcapri/2018/02/14/how-blockchain-could-help-end-modern-day-slavery-in-asias-exploitative-seafood-industry/?sh=3adb27d74b65>.

220. PROVENANCE, BLOCKCHAIN: THE SOLUTION FOR TRANSPARENCY IN PRODUCT SUPPLY CHAINS (Nov. 21, 2015), <http://www.provenance.org/whitepaper> [https://perma.cc/5ZPS-HYJB].

221. *Id.*

222. See Tom Levitt, *Blockchain Technology Trialled to Tackle Slavery in the Fishing Industry*, THE GUARDIAN (Sept. 7, 2016), <http://www.theguardian.com/sustainable-business/2016/sep/07/blockchain-fish-slavery-free-seafood-sustainable-technology> [https://perma.cc/G8QJ-RAUH].

ers on a trial of the “shore to plate” system,<sup>223</sup> requiring local suppliers in source areas (in particular, Indonesia) to key in data about their daily catch and labor practices to a public blockchain with an identification number via text message.<sup>224</sup> According to Provenance, with the successful implementation of this blockchain system, the entire history of a seafood product and fishery practices can be recorded online—from labor’s working circumstances, to catching and processing, to certification, to packaging and distributing, to marketing and selling—and accessed by consumers and other actors with a smartphone app.<sup>225</sup>

### B. *Potential Governance Limits and Risks*

Despite such promising developments, blockchain is not a silver bullet to solve all business and human rights governance issues. Specifically, “blockchainizing governance . . . poses another layer of regulatory questions about technical capacity and infrastructure gap[s], scalability and implementation costs, global standardization politics, cybersecurity and data protection, and technologically inherent limits of blockchain.”<sup>226</sup> Further, the use of blockchain as a governance tool may also create policy challenges to both developed and developing countries (albeit in different ways), such as the lack of operational expertise and technical infrastructure, high costs of scalability and implementation, as well as the power politics in international standard-setting.<sup>227</sup>

Again, we refer to the case of Provenance as an example. Due to the potential limits and risks discussed below, Provenance may offer only a partial solution if it leaves all such limits and risks unaddressed.<sup>228</sup> In the issue area of the Provenance case, the fishery and seafood industry, problems of insufficient governance, weak institutions, forced labor, inferior working conditions, and market opacity occur “at the level of production and first intermediaries/processors,” according to the United Nations Environmental Program (UNEP).<sup>229</sup> Accordingly, while blockchain technologies can ensure a high level of transparency, traceability, and immutability, the data ini-

223. See PROVENANCE, *supra* note 219 (providing a detailed report on this blockchain pilot system for tracing yellowfin and skipjack tuna fish in Indonesia).

224. See Luke Parker, *Provenance Tackles Slavery in the Fish Trade, with Blockchain Technology*, BRAVE NEW COIN (Sept. 15, 2016), <http://bravenewcoin.com/insights/provenance-tackles-slavery-in-the-fish-trade-with-blockchain-technology> [<https://perma.cc/YF8T-H9PA>].

225. *Id.*; see also Scott, Post, Quick, & Rafiq, *supra* note 193, at 14.

226. Lin, *supra* note 16, at 590.

227. *Id.* at 586, 589.

228. See Margaret D. Fowler, *Linking the Benefit to the Corporation: Blockchain as a Solution for Certification in an Age of “Do-Good” Business*, 20 VAND. J. ENT. & TECH. L. 881, 913–15 (2018).

229. NANCY VALLEJO, PIERRE HAUSELMANN, & RACHEL ASANTE, U.N. ENV’T PROGRAMME, *THE ROLE OF SUPPLY CHAINS IN ADDRESSING THE GLOBAL SEAFOOD CRISIS* 7, <http://wedocs.unep.org/20.500.11822/25943> [<https://perma.cc/4V27-WAQN>].

tially input by local producers (namely, the first actor along the supply chain) remain vulnerable to mistakes and adulteration.<sup>230</sup> The “garbage in, garbage out” conundrum—flawed or nonsense input data will only produce meaningless or problematic output—is not going to be easily solved. Provenance aims to address illegal fishing, modern slavery, and fraudulent certification problems by registering each catch and each sale of fish on the blockchain.<sup>231</sup> Yet the action of registering itself cannot be readily verified using technology without human auditors.<sup>232</sup> In addition, as this article explains below, the lack of infrastructure, technical expertise, and financial support for small- and medium-sized actors along the global supply chain across jurisdictions (which have different stages of economic development and legal systems) may also pose formidable challenges.

### 1. Infrastructure Support and Scalability

Leveraging blockchain technologies in both developed and developing countries requires adequate infrastructural support.<sup>233</sup> The development of network infrastructures for public key applications in developing countries may prove a formidable challenge, because of the wider scope and higher costs of their applications.<sup>234</sup> Further, the effective use of blockchain in GSCs also requires operational knowledge and technical expertise, which are areas for capacity building.<sup>235</sup> Such infrastructure support requires time and money, as well as broader cooperation, in order to be successful. The promise of blockchain as a technical fix for transparency and traceability mechanisms “requires a well-organized and standardized supply chain between all (internal and external) actors.”<sup>236</sup> Across borders and actors, vari-

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230. See TIMOTHY D. LYTTON, *OUTBREAK: FOOD BORNE ILLNESS AND THE STRUGGLE FOR FOOD SAFETY* 191–93, 227 (2019), for an in-depth discussion on the dependence of “technical fixes” for traceability on human data input.

231. *From shore to plate: Tracking tuna on the blockchain*, Provenance (February 3, 2023, 4:13 PM), <https://www.provenance.org/tracking-tuna-on-the-blockchain#overview>.

232. See *infra* Part IV.B.3 for more discussion.

233. See Lin, *supra* note 16, at 606.

234. See RAÚL ZAMBRANO, *BLOCKCHAIN: UNPACKING THE DISRUPTIVE POTENTIAL OF BLOCKCHAIN TECHNOLOGY FOR HUMAN DEVELOPMENT* 12 (2017). For blockchain applications, a private key is shared between a smaller and defined group (the sender and the receiver) and used for both encryption and decryption (symmetric cryptography), which makes it a faster mechanism with better scalability; whereas a public key is used for asymmetric cryptography and used as different keys for encryption and decryption respectively, which makes it a slower but publicly accessible mechanism with less confidentiality and scalability. For an introduction, see Ayushi Abrol, *Private Key Vs Public Key – How They Work?*, BLOCKCHAIN COUNCIL (July 27, 2022), <http://www.blockchain-council.org/blockchain/private-key-vs-public-key>.

235. See Lin, *supra* note 16, at 606.

236. Kay Behnke and Marijn F.W.H.A. Janssen, *Boundary Conditions for Traceability in Food Supply Chains Using Blockchain Technology*, 52 INT’L J. INFO. MGMT., June 2020, at 1, 9.

ous types of blockchain technologies and data structures should be clearly and consistently defined by key stakeholders in the ecosystem in a technologically-informed manner under commonly agreed rules and standards regarding interoperability of blockchain systems (which will require public-private dialogue and collaboration).<sup>237</sup>

It is therefore not surprising to see existing blockchain systems appear to operate exclusively at a relatively low capacity in the face of scalability problems.<sup>238</sup> Energy and physical space consumption remains a challenge to effective and efficient implementation.<sup>239</sup> Capacity and scalability problems will need to be addressed to ensure the solid application of blockchain technologies, which may be alleviated as computing power advances and with increased public-private partnership.<sup>240</sup>

## 2. Cybersecurity

As shown by the recent discussion on cyber-attacks and threats to cryptocurrencies, inadequate cybersecurity or data safeguards can result in significant losses for blockchain users.<sup>241</sup> Ironically, without adequate safeguarding of the system’s cybersecurity, the blockchain-strengthened transparency and traceability of the GSCs may at the same time open the door for privacy risks and concerns at a larger scale. Indeed, to facilitate broader application of blockchain technologies in business and human rights governance, it is necessary to harness cybersecurity risks so as to protect the integrity of data, ensure user trust, and safeguard against data breaches and related economic loss.<sup>242</sup>

## 3. The “Garbage in, Garbage out” Conundrum

The integrity of the governance system should not be taken for granted. While it is true that data, after being inputted into the blockchain, is generally immutable at different nodes of the GSC, there is not necessarily a verification mechanism to ensure that the integrity of the process of inputting the initial source data itself is free from mistakes, adulteration, or manipula-

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237. Lin, *supra* note 16, at 607.

238. *Id.* at 609; Kenny Li, *The Blockchain Scalability Problem & the Race for Visa-Like Transaction Speed*, HACKERNOON, (Jan. 27, 2019), <http://hackernoon.com/the-blockchain-scalability-problem-the-race-for-visa-like-transaction-speed-5cce48f9d44>.

239. See Davit Babayan, *Bitcoin’s Energy Consumption Equaled That of Hungary in 2018*, NEWSBTC (Mar. 14, 2019), <http://www.newsbtc.com/2019/03/14/bitcoins-energy-consumption-equalled-that-of-hungary-in-2018>.

240. Lin, *supra* note 16, at 611.

241. See, e.g., Luke Fitzpatrick, *A Hacker’s Take on Blockchain Security*, FORBES (Feb. 4, 2019), <http://www.forbes.com/sites/lukefitzpatrick/2019/02/04/a-hackers-take-on-blockchain-security/#2246f27e4334>; Arthur Herman, *Why Blockchain Is No Silver Bullet for Cyber Threats*, FORBES (Oct. 2, 2018), <http://www.forbes.com/sites/arthurherman/2018/10/02/why-blockchain-is-no-silver-bullet-for-cyber-threats/#7e47d757343>.

242. Lin, *supra* note 16, at 608.

tion.<sup>243</sup> The “garbage in, garbage out” conundrum, in other words the problem that entries may not be correct or credible, reinforces the need for a human auditor at the initial point of data input.<sup>244</sup> In practice, a business actor that dedicates itself to blockchain governance could still have transactions on the chain that are “unauthorized, fraudulent or illegal; executed between related parties; linked to a side agreement that is ‘off-chain;’ or incorrectly classified in the financial statements.”<sup>245</sup> Further, “[a]uditors will thus have to understand the consensus protocol for the blockchain to ensure its reliability.”<sup>246</sup> All in all, private sector actors who are seeking to implement blockchain in their GSCs need to consider the limitations to the use of blockchain or, more specifically, that “[t]he use of blockchain relies on the integrity of the initial data input to say that the factory, plantation, vessel etc. is legitimate and does not use slave labour,” and that “the use of blockchain technology does not remove the need for proper due diligence and checks to ensure that the source data is legitimate.”<sup>247</sup>

## V. CONCLUSION

One of the crucial problems with business and human rights governance along GSCs is the lack of correct, complete, and trustworthy information that allows for due diligence, traceability, and regulatory scrutiny. Even when MNCs vow to address potential human rights abuses even across borders, they must rely on all participants along the supply chain to communicate the correct information in a timely manner with integrity.<sup>248</sup> This remains a formidable challenge. Many businesses choose to outsource to third party actors to conduct the reconciliation and verification of records, which is a very expensive process that has not yielded the necessary results.<sup>249</sup> Among the many emerging technologies, blockchain shows promise for radical disruption and opportunity in GSCs and may serve as a governance tool for disintermediation to address business and human rights issues across

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243. *Id.* at 609; Juan F. Galvez, J.C. Mejuto, & J. Simal-Gandara, *Future Challenges on the Use of Blockchain for Food Traceability Analysis*, 107 TRENDS ANALYTICAL CHEMISTRY 222, 230 (2018).

244. Lin, *supra* note 16, at 608.

245. BIBLE ET AL., *supra* note 210, at 10.

246. Weldon & Epstein, *supra* note 81, at 880.

247. THE MEKONG CLUB, *supra* note 215, at 6.

248. See DELOITTE, CONTINUOUS INTERCONNECTED SUPPLY CHAIN: USING BLOCKCHAIN & INTERNET-OF-THINGS IN SUPPLY CHAIN TRACEABILITY 4, 14 (2017), <http://www2.deloitte.com/content/dam/Deloitte/lu/Documents/technology/lu-blockchain-internet-things-supply-chain-traceability.pdf>.

249. JOSEPH FRANCIS, ACCENTURE CONSULTING, CLOSING THE HALL OF MIRRORS: HOW BLOCKCHAIN WILL SIMPLIFY AND TRANSFORM THE SUPPLY CHAIN 9 (2018), [http://www.accenture.com/t20180214t053948z\\_w\\_/us-en/\\_acnmedia/pdf-71/accenture-blockchain-for-supply-chain.pdf](http://www.accenture.com/t20180214t053948z_w_/us-en/_acnmedia/pdf-71/accenture-blockchain-for-supply-chain.pdf).

borders.<sup>250</sup> Blockchain has a robust potential to ensure transparency and facilitate traceability, altogether reinforcing governance effectiveness. Actors along the GSCs have an opportunity to proactively address governance gaps by using blockchain technology to resolve issues pertaining to business and human rights. However, it is not a silver bullet that will solve all governance issues. To successfully leverage blockchain technologies in the governance of business and human rights, issues such as adequate infrastructural support, scalability, cybersecurity, and the “garbage in, garbage out” conundrum must be appropriately addressed, in addition to any other challenges that may arise.

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250. Joseph Verberne, *How Can Blockchain Serve Society?*, WORLD ECON. F. (Feb. 1, 2018), <http://www.weforum.org/agenda/2018/02/blockchain-ocean-fishing-sustainable-risk-environment>.



