BSR | HERproject

Digital Technology and Data in the Garment Supply Chain during COVID-19

BSR's HERproject and Tech and Human Rights teams have researched the increasing use of digital technology and data in the garment supply chain to better understand the impacts on women workers. As technology changes the nature of work, innovations can substantially impact worker well-being positively while also posing significant risks to workers' rights. The misuse of data may violate privacy, contribute to discrimination, and infringe upon labor rights, with female workers often bearing the largest adverse effects.

A shortage of adequate data protection frameworks for workers has led to scenarios in which rights conflict with each other and actors have had to determine which right should triumph. Even when actors seek the most benevolent use of data, the dependence on best practices by buyers, suppliers, and technology providers continuously puts workers' rights at risk of violation.

In the garment supply chain, where work is precarious and the right to privacy is not highly prioritized, the crucial component of informed consent is also missing from workers' rights. As technologies advance and the use of worker data becomes increasingly ubiquitous in the garment supply chain, shortcomings in regulation, limited awareness, and a lack of worker representation leaves vulnerable workers—especially women workers—without key protections.

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1. Introduction

Technological innovation in the garment supply chain has revolutionized the way goods make it to market by making manufacturing faster, safer, and more efficient. Buyers and suppliers are deploying tools that track workers' temperatures in an effort to improve health conditions, tracking workers' movements to boost efficiency on the production line, partnering with third parties to promote the workers' voice through grievance mechanism tools, and much more. In the process, workers are being required to relinquish more and more personal data.

There is huge variance in the approach toward the collection, use, and safeguarding of data across locales and workplaces, with no standardized framework addressing the potential impacts on workers' rights. Although the International Labour Organization (ILO) provided guidance on the protection of workers' personal data in 1997, there have since been rapid leaps in technology and data collection. The lack of international frameworks and adequate local laws addressing worker data protection has left buyers, suppliers, supply chain technology providers, compliance organizations, and non-governmental organizations (NGOs) to make judgment calls of their own regarding the protection of data.

Women make up the largest portion of the Ready Made Garment (RMG) sector workforce, so the impacts of technology and data use on female workers demand particular attention. Existing inequalities that women face in the workplace are compounded by the fact that technology design, implementation, and governance disproportionately exclude them. Women feel the brunt of negative consequences from data misuse through amplified impacts on their right to privacy, nondiscrimination, the right to work, and so forth.

While these gaps persist, the use of technology and data only increases. The COVID-19 pandemic has resulted in increased digitization of workplaces. Employers began collecting new types of data via temperature checks and apps that monitor workers' movements. Governments created databases of worker contact information as factories halted operations and workers scrambled back to their villages. The pandemic is contributing vastly to rapid acceleration in the use of technology and data in the RMG supply chain.

The need for discussion of the responsible use of data in the supply chain has thus become more urgent than ever. This paper explores the landscape of digital technology in the garment supply chain and analyzes the actual and potential impacts of data use on workers, with a special focus on women workers. Findings in this paper will be used to strengthen the protection of workers' data in BSR member company consultations and in HERproject on-the-ground implementation. This paper also makes recommendations to key stakeholders in the garment supply chain on how to implement digital technologies in a way that respects and promotes workers' rights.

This paper's findings are derived from conversations with HERproject country representatives and implementing partners from India, Bangladesh, and Kenya; consultations with subject matter experts; and interviews with supply chain technology providers. BSR hopes that this paper will highlight the importance of these issues and underscore where further research is needed.

The Impact of COVID-19

The effects of the COVID-19 pandemic are being felt strongly throughout the garment supply chain. As the pandemic changes the nature of work, there is growing interest in how data can be used to manage these changes. Garment factories are increasingly leveraging digital technology to adapt to the new circumstances created by the pandemic. **Throughout the paper, callout boxes will be used to draw attention to the effects triggered by COVID-19.**

The Impact of COVID-19 on the Garment Industry

The garment industry has suffered greatly as a result of COVID-19. As buyers struggled financially, they canceled orders that suppliers counted on to maintain operations. Government measures to respond to the health crisis forced businesses to close for several months to minimize the spread of the virus. The result was a massive job loss for workers as they were laid off or put on furlough. The struggle of the garment business significantly affected countries such as Bangladesh, where the industry is one of the largest contributors to the economy.

The Impact of COVID-19 on Women Workers in the Garment Industry

The impact of COVID-19 is felt disproportionately by female workers in the garment supply chain. Where women were already working long days and managing heavy burdens of care at home, COVID-19 has exacerbated strains on women's time, money, and resources.

- With the shuttering of workplaces, many workers who could not afford to live in cities without a salary had to return to their villages. Especially for women, this return home often meant losing economic independence. The unexpected loss of wages also has the potential to lead women to marry earlier in order to provide for the needs of their families.

- Disruptions in transportation due to the pandemic have made it difficult—sometimes impossible—for workers to reach their jobs. In addition to disruption in public transportation, factory-provided transport has also been affected as factories suffering economic fallout struggled to provide this service for their workers. Women are less likely to own independent modes of transportation, so

the unavailability of public or factory-provided transport, and thus the inability to reliably get to work on time, has diminished the earning capacity of female workers.

- Temperature checks at workplaces have placed pressure on women who are the primary caregivers of children and the elderly at home. Long lines at workplace entrances have meant departing for work earlier and leaving children or elderly household members in need of care, or prioritizing unpaid care burdens at home—and thereby being late to their workstations and endangering their jobs.

- Caregiving duties that typically fall on women prevent them from taking precautions for their own health during the pandemic. In the majority of households, women are the primary caregivers for children and the elderly. Given this role, when a family member contracts COVID-19, female caregivers face greater risk of contracting the virus. Moreover, caregiving women who may suspect they have contracted COVID-19 frequently lack the option to self-isolate in their homes because other family members rely on them.

Challenges introduced by the pandemic increase female workers' already heavy burden of providing unpaid care, adding to complexities in balancing priorities and exacerbating the difficulties women generally face in maintaining their right to work.

2. Digital Technology and Data in the Garment Supply Chain

In the garment supply chain, we see two main motives leading to an increased use of digital technology and data: the digitization of factory operations and compliance with supply chain transparency standards.

Digitization of factory operations

With the general rise of workplace technology solutions, digital systems are replacing analog ones at garment factories, resulting in increased monitoring of workers. Electronic systems for punching in and out are tracking workers' start and end times, and time-monitoring technologies installed on new machines in garment factories are monitoring productivity at workstations. Surveillance cameras are regularly used to address public safety concerns, and digital key cards are used to limit or grant access for specific individuals. Wages are increasingly distributed via digital payroll systems, linking worker's personal cell phone numbers with payroll disbursements. Although they were originally developed to enhance workplace productivity and security, these tools have the capacity to be used to increase supplier transparency by providing insights to auditors with regard to working conditions.

Compliance with supply chain transparency standards

The Rana Plaza disaster in 2013 in Bangladesh exposed huge gaps in companies' adherence to labor standards. This important turning point led to heightened compliance measures across the garment supply chain. As buyers were increasingly held accountable for labor and human rights concerns in the lower tiers of their supply chains, suppliers implemented security and monitoring systems at their factories.

For multinational companies with extensive supply chains, fulfilling compliance expectations is difficult because they lack sufficient visibility into their chains' deeper layers. In ever more complex and increasingly globalized supply chains, buyers do not have clarity as to where raw materials have been sourced, where subcontracting may have occurred, or where such other informal aspects as homework may have entered a supply chain without its knowledge. This lack of transparency can lead to improper checks on labor rights and negatively impact health and safety conditions.

Faced with increasing regulation and shareholder expectations for transparent environmental, social, and governance (ESG) measures throughout their supply chains, companies are digging deeper into their sourcing practices and trying to identify the gaps in their due diligence. These efforts have spurred development of new technology solutions that grant buyers increased visibility into supplier behavior and worker conditions. The market for socially responsible supply chain solutions, estimated to range from US$807 million to US$2.1 billion in 2018, is predicted to reach as high as US$2.7

billion annually over the next five years.[1] These technology solutions address the supply chain transparency problem from different angles and can be grouped into two main categories:

- **Worker empowerment tools:** Often appearing in the form of mobile phone apps, these tools interface directly with workers to enhance their voice. They provide mechanisms for workers to file grievances, allow employers to conduct surveys to determine gaps in working conditions, and frequently offer training to workers.

- **Supply chain transparency tools:** Typically used by buyers, these tools trace sourcing patterns in real time to preempt potential risks in the supply chain. Some of these tools aggregate data by researching immigration corridors or problems in immigration practices to determine where hidden labor risks might be brought to light. Additional tools track shipping patterns to determine the proportion of likelihood that raw materials sourced from areas with forced labor might end up in certain factories. Other technologies work to chemically analyze textiles in order to determine the source of the fibers; this data can be mapped to help a company monitor potential hotspots of labor violations.

The digitization of company operations and increased focus on supply chain compliance has naturally led to an expansion in the amount of data in use. This data can take several forms and have manifold impacts. In order to discuss effects, it is essential first to examine what kinds of worker data are being collected and used in garment factories.

Types of Worker Data and Data Use Cases in the Garment Supply Chain		
Type of Data	**Examples**	**Employer Use Case**
Productivity data	Completion of work, production numbers per batch per day	Productivity tracking, operations planning, incentivizing workers, performance assessment, promotion/demotion, hiring/firing
Movement and location data	Punch cards, bathroom breaks	Tracking attendance and productivity

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[1] https://humanrights.berkeley.edu/sites/default/files/publications/technology_solutions_for_advancing_human_rights_in_global_supply_chains_june_2019_0.pdf.

Health and safety data (typically collected by the on-site health clinic)	Blood pressure, screening for anemia, blood sugar, pregnancy, maternity record, menstrual cycle, sanitary pad usage COVID-19: temperature, antibody checks	Assignment of work based on health conditions, referrals to hospital
Data on working conditions	Security cameras, worker grievances	Compliance, audit, supply chain transparency
Human resources data	ID card numbers, family details, phone numbers, union affiliation	General HR operations, wage payments

Technology and Data Use Cases during COVID-19

The COVID-19 pandemic has accelerated the use of digital technologies and data in the workplace. Three main trends are relevant in the context of the garment supply chain:

1) Employers are using technology-enabled monitoring solutions to track the health status of their employees and limit the spread of the virus.

➤ Many factories have implemented temperature checks for workers at workplace entrances. Some employers are collecting data on their workers' movements and even asking workers via questionnaires where they have recently been.

➤ Companies that provide supply chain technology solutions are repurposing their tools to address the challenges of the pandemic. For example, worker voice platforms are asking more questions related to health and safety and are trying to assess whether working conditions are safe enough for workers to return to their workplaces. Tools that measure body heat are being used to assess workers' health conditions and their proximity to other workers in order to enforce social distancing measures.

➤ Some employers are making use of tools implemented by countries at a national level, such as contact tracing apps and immunity certificates.

2) Digitization of employer tasks is increasing the amount of worker data collected.

> ➢ In many garment factories, COVID-19 has accelerated the switch to mobile wage payments as employers try to minimize contact among workers. Mobile payments are also being used by governments for emergency relief through cash transfers. For example, the government of Bangladesh made its COVID-19 relief package available only to digital accounts, which led to mass factory digitization of payroll for garment workers.[2] To facilitate this transition, employers are collecting personal data from workers like phone numbers and national ID numbers.
>
> ➢ Due to changing work conditions, employers more frequently need to contact workers outside the workplace. As more and more workers left cities to return to their villages, employers collected data on workers' revised home addresses and phone numbers to be able to reach them when workplaces reopened.
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> ➢ In some countries where garment sectors are crucial to the economy, governments are creating databases of factories and workers in the industry in order to streamline digitization efforts and communications with workers. Such large-scale data collection by the government could increase risks to worker rights unless safeguards are put in place.
>
> **3) Buyers are increasingly using digital methods for auditing.**
>
> ➢ As buyers try to keep abreast of human rights due diligence, the inability to send representatives into factories because of health risks is causing an uptick in the digitization of social auditing. This fosters increased reliance on technology solutions like worker voice platforms that provide insight and transparency on working conditions.

Risks Inherent in the Data Lifecycle

The increased collection of personal data from workers may generate risks to workers' rights if the data are not safeguarded by effective controls that adhere to privacy and security standards. The responsible use and management of workers' data needs to span all phases of the data lifecycle, including the collection, analysis, storage, and off-boarding of data.

> ➢ **Collection:** Several distinct actors are involved in the collection of workers' data in the garment supply chain. In addition to employers themselves, auditors, technology providers, and NGOs collect data on behalf of employers. This data is then shared with buyers, suppliers, or factories, depending on the arrangement. While most data is collected with the consent of workers, their consent is typically

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[2] https://www.bsr.org/reports/BSR-Mastercard-Digitizing-for-Inclusion.pdf.

not well-informed, and they are not presented with a viable alternative. The difficulty of securing informed consent from workers in garment factories will be discussed in detail later in the paper.

➢ **Analysis:** The most significant opportunities for, and risks to, worker rights arise when insights are drawn from the data collected. In most cases, different pieces of data are combined to make inferences about workers that will affect their work and livelihoods. For example, health data collected through workplace health clinics may be combined with other personal information to make decisions as to whether a worker is fit for certain types of work.

Combining data from various sources to draw insights about workers may hold particular risks for women. For example, some factories keep records on women's menstrual cycles, which risks allowing employers to predict potential pregnancies. This information may lead employers to make discriminatory decisions about workers' job status.

Furthermore, automated decision-making tools are utilized in other industries to predict certain behaviors, such as whether a given worker is likely to want to unionize or whether a strike is likely to occur. In such instances, workers typically have no opportunity to object to the inferences these algorithms make about them. Although these technologies are not yet used in garment factories, it is only a matter of time until they begin playing an important role in all workplaces.

➢ **Storage:** In low-tech garment factories, data is often stored in filing cabinets or on client computers without standardized protections. Technology offers the potential for improved privacy and security for the storage of sensitive information in secure infrastructure with robust access controls. If such controls are lacking, data can potentially be misused or abused.

Data collected through tech platforms is often sent to "data havens"—places where data storage systems are not subject to governmental control or regulation. Certain countries require that applications operating domestically store data within their borders. In countries that do not have data protection laws, such requirements can hold severe implications for workers' privacy.

➢ **Off-boarding**: Privacy concerns continue to exist when employees cease working at factories that have their data. Standards regarding the duration of data storage are unclear; workers are not provided with transparency and cannot know how far into the future their data might be accessed.

Further risks occur when data is shared with other parties. For example, worker data can be shared among suppliers and buyers without clear procedures regarding privacy and data protection. Workers are typically not provided with the information to know whether or how their data is being protected.

Challenges of Technology Solutions and Data Use

Our research into the landscape of digital technology and data use in the garment supply chain surfaced several overarching challenges encountered by buyers, suppliers, and technology solutions providers. Understanding these challenges is critical to addressing the potential adverse human rights impacts that will be discussed later in the paper.

➢ **Variance across locales and workplaces:** The use of technology and data in the garment supply chain varies drastically across locales and workplaces. Some workplaces keep paper-based records; others have fully digitized their personnel data storage. While most garment factories do not use cutting-edge technology yet, it is only a matter of time until they start using wearable sensors and artificial intelligence (AI)-enabled cameras, as counterparts in other industries do. The lack of uniformity in the ways technology and data are used allows arbitrary choices by different companies or tech providers and makes it challenging to apply universal standards to protect workers' rights.

➢ **Absence of participatory governance mechanisms:** While digital tools are increasingly being used in the workplace, the decision-making around the governance of these tools continues to exclude workers. Workers do not have a say in how these tools are used or how the data collected from them informs decisions in the workplace. Female workers are even further removed from the governance of technology and data since men are typically put in charge of using and maintaining these new tools.

Workers are not only excluded from the governance of workplace technology but also from data ownership structures. Data are continuously being extracted from workers, but insights drawn from that data are not shared with them. This is a lost opportunity when it comes to increasing worker efficiency and productivity, not to mention promoting worker rights. Participatory governance mechanisms and ownership structures that include workers are beneficial not only for workers, but also for employers.

➢ **Tech-solutionism:** Technology solutions have incredible potential to increase transparency in the supply chain and promote workers' rights; however, they should not be viewed as a panacea for all workplace problems. The systemic issues that cause labor rights abuses in the first place continue to exist, and we must acknowledge that technology can go only so far. For example, while it was thought that the widespread use of security cameras might help disincentivize sexual harassment in the workplace, we are seeing in reality that "cameras simply displace criminal activity to areas that are not being watched."[3] The promise of technology solutions should be thoughtfully assessed and discussed critically.

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[3] https://genderingsurveillance.internetdemocracy.in/cctv/.

➢ **Limited amount of gender-disaggregated data:** Data collection and analysis are typically gender-neutral processes. Companies rarely focus on gender breakdowns of the data they collect from their value chains. A 2020 report by the World Benchmarking Alliance found that corporate gender-data disclosure in the garment sector is not sufficient; companies disclose less than 40 percent of the information that stakeholders expect to see.[4] The limited amount of data specifically related to women workers and their conditions is one of the primary reasons that gender inequalities in the sector go unnoticed. For example, companies typically do not glean the gender breakdown of grievance data that they receive through worker empowerment tools; hence, they are unable to measure the impacts of their actions on women.

Gender-disaggregated data is critical for companies to be able to address inequities across their value chains. However, collection of additional data on vulnerable populations such as women heightens risks of privacy violation and discrimination. Therefore, sufficient safeguards need to be in place to mitigate risks and maximize the potential positive impact of this type of data.

➢ **Difficulty of securing informed consent:** Informed consent is defined by both participation (i.e., the ability to participate in decisions) and empowerment (i.e., the ability to understand both risks and rights when consenting). It is essential for workers to be able to provide informed consent for how their data is collected, processed, and used by employers.[5] The formal contracting process that underpins the employer-worker relationship provides a well-defined pathway for providing informed consent, but existing practices show that workers in the garment supply chain typically lack the opportunity to provide meaningful consent.

The employer-worker relationship involves an inevitable power dynamic that must be carefully acknowledged. Even when the privacy implications of data usage are clearly explained to workers, it is questionable whether informed consent can truly be secured in a workplace context where jobs are so precarious. Additionally, data in these workplaces are often collected without provision of an alternative for workers reluctant to give consent. Such consent has little meaning.

Low-income garment workers—particularly women—often lack digital literacy and have lower education levels. As such, they do not always understand the potential implications that privacy violations may hold regarding their rights. Even when implications are clearly understood, data privacy is often not the highest priority for workers who are struggling to secure basic needs. These two factors further complicate employers' ability to acquire informed and meaningful consent from workers.

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[4] https://www.worldbenchmarkingalliance.org/publication/gender.

[5] https://www.bsr.org/en/our-insights/blog-view/worker-data-protection-central-to-a-21st-century-social-contract.

> **Limited oversight:** Without sufficient oversight regarding the use of technology and data, discretion lies mainly in the hands of suppliers and buyers. While tech providers and NGOs active in this space typically seek to use technology and data to promote workers' rights, a lack of oversight perpetuates vulnerability among workers. What results is a technology and data ecosystem that requires individual actors to make judgment calls as to what constitutes best practices.

Many workplace technology solutions do not sufficiently protect the worker data they collect. For example, factory management in some cases allowed purview into worker grievances that are filed, which eradicates any presumed anonymity and threatens the right to work. Potential impacts are harsher for women because anonymity is critical for female workers to be able to file grievances about male supervisors.

In a fast-growing market, supply chain technology providers find themselves in a race to the bottom, incentivized to create products that may not sufficiently protect worker data. Whether technology solutions can remain responsible and deliver profits at the same time depends on the choices companies make. The protection of worker data should not depend on volatile market trends; stronger laws, standards, and norms are needed to protect workers from the precarity of case-by-case determinations.

3. Data Protection Measures

The challenges raised above bring into question the measures that are available to ensure the protection of workers' data. It is important that international standards of privacy be applied at the factory level. These rights originate in the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights, which explicitly outline the right to privacy and other associated rights.

National and regional governments establish laws and regulations to protect and enforce these rights. However, laws and regulation safeguarding these rights are so unevenly approached that only a few good examples have emerged. From 2018 to 2020, monumental privacy legislation went into effect in Europe and California: The European Parliament passed the General Data Protection Regulation (GDPR), and the state of California adopted the similar California Consumer Privacy Act (CCPA). Both pieces of legislation brought significant milestones in giving individuals greater control over their data. However, in the drafting stage of the GDPR, stronger protections for workers' data were diluted, and the CCPA did not enable worker protections for the first three years following enactment.

Due to the irregularity of legal protections in place, global supply chains are in need of common norms and standards for worker data protection that would apply without regard to location or jurisdiction. Efforts have been made. Several supply chain technology providers working in transparency came together in 2017 to establish the WEST Principles, whose mission is to guarantee that "technology interventions are designed and deployed to ensure worker inclusion, security and benefit."[6] In the absence of legal protections, such voluntary efforts will have only limited impact. Enforcement mechanisms are needed.

We believe workers would benefit from clearly stated global norms, such as a new ILO convention or recommendation setting out minimum expectations for worker data protection and workplace privacy. This would enable buyers, suppliers, civil society organizations, and worker organizations to apply international standards in the absence of regional, national, or local laws and regulations.

Industry codes of conduct offer a bridge to global norms. For example, the Responsible Business Alliance (RBA) Code of Conduct, predominantly used in the electronics industry, addresses data privacy under two clauses. Clause 6 describes "Protection of Identity and Non-Retaliation," and Clause 8 describes business' adherence to protecting privacy.[7] Among garment industry codes of conduct we surveyed, none included provisions on employee privacy or data protection.

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[6] https://westprinciples.org/start-with-integrity-and-purpose/.

[7] http://www.responsiblebusiness.org/media/docs/RBACodeofConduct7.0_English.pdf

Not all buyers are signatories to codes of conduct, either. For active signatories, however, there remains the difficulty of ensuring that suppliers adhere to the tenets put forth in industry codes of conduct that the buyers embraced. These codes would benefit from being able to reference global standards on worker data protection, just as they do on such other topics as working hours, workplace harassment, and child labor. Referencing global standards would help formalize these industry codes—and hopefully, accomplish wider adherence.

4. Impacts of Digital Technology and Data on Workers' Rights

The advent of digital technology has brought great innovation across the global supply chain. Historically, oversight of employees and operations was completely analog: Employers tracked worker attendance with physical punch cards and used paper logs and files to keep records of each individual. Monitoring of workers was done by supervisors, not cameras. Because physical records were cumbersome to transfer, workers generally left only a limited, even nonexistent, paper trail as they moved from employer to employer. Records could also be easily destroyed, and details about individual workers could expire. Several workplaces still use analog records, whose risks are significantly lower than those posed by digitized records. The rate at which workplaces are moving toward increased digital record keeping without proper safeguards is cause for concern.

As more and more workplaces begin adopting digital mechanisms in place of analog systems, often with little or no oversight, the rights of workers are increasingly open to infringement. The greatest, most consequential change is that these digital systems are unavoidable and instantaneous. The data collected can no longer be easily destroyed and can readily follow workers from workplace to workplace. Onetime transgressions, disagreements with management, or worse—records that contain slander by management following refusal by female workers to countenance advances or sexual harassment—can follow any worker via a digital record. Workers are now being monitored from all angles with surveillance cameras, many of which involve artificial intelligence (AI) technology that can identify individuals and track their movements in the workplace at all times. Real-time collection of data provides employers with instantaneous feedback about their workers and allows them to make swift determinations regarding their rights.

The transition from analog to digital has also contributed to a growing loss of trust between workers and employers. As more tools are installed to track and monitor workers, employee frustration over the lack of agency and autonomy has increased. The complexity of the technological tools used to collect data and monitor workers has also fed burgeoning discontent. An analog time-punch machine is easy to understand regarding what data is being collected and how. A sensor that a worker is instructed to wear poses far greater ambiguity. When such tools are not explained in detail, workers feel vulnerable and mistrustful. The relationship between employer and employee is fundamentally damaged by the increasingly common practice of siphoning and storing worker data.

Actual and Potential Human Rights Impacts

The increased use of supply chain-technology solutions has brought many positive impacts for workers' rights. Empowerment tools have given voice to workers who were

previously an invisible part of the supply chain. Data related to working conditions have helped many buyers and suppliers implement improvements, and they have enabled civil society actors and unions to push for increased transparency and better standards. But while digital technology and data usage have positive impacts, their misuse can also harm workers' rights.

Privacy: The right to privacy inherently demands that privacy be compromised only for a legitimate purpose and at a level that is both necessary and proportionate to that purpose. The advent of emerging technology tools, however, has made data collection practices progressively more intrusive and unnecessary. It is increasingly common that the complexity of these tools allows mass capture of data: Employees may be unaware that monitoring and data collection are taking place.

Nondiscrimination: Data collection tools also have the potential to cause discrimination. For example, tools that monitor how many times a worker leaves a workstation to use the bathroom and that subsequently use that information to make value judgments about said worker can lead to discriminatory decisions. This worker might have a health condition or could be using these trips to the bathroom to take medicine. Employing tools to track workers with the goal of maximizing efficiency can pose unintended consequences that facilitate discrimination in the workplace.

Human Dignity: Although not yet widespread in the garment sector, the use of digital tools that gauge productivity—with claims of insights into a worker's mood, energy, and overall satisfaction—pose serious harm to workers' dignity and autonomy. It is often impossible for workers to know how an analysis of their psychology and sentiment has been created. The use of such tools must also consider the limits to how much machines can ever truly understand elements like mood and sentiment.

Privacy, discrimination, and the right to human dignity have been highlighted here because they are the first to be infringed upon, though it is inevitable that other rights could be negatively impacted, too. Privacy is an enabling right, which means that protecting the right to privacy is a precondition for the fulfilment of such other rights as personal safety, freedom of expression, association, and assembly, as well as the right to a decent standard of living. For example, if a worker's personal data are leaked, he or she may subsequently be targeted for their religion or affiliation with certain worker representation groups, thereby infringing upon their right to religion or right to freedom of expression. Inadvertent discrimination by digital productivity tools could lead to a woman being offered lower wages in a system that docks pay according to productivity, infringing upon her rights to work and to an adequate standard of living. Digital tools affect privacy, discrimination, and the right to human dignity, but they inevitably impact subsequent human rights as well.

Specific Impacts on Women Workers

Increased digitization and the use of monitoring technologies in factories can positively impact female workers. For example, the digitization of wages has the potential to empower women by increasing financial inclusion and financial literacy. Workplace monitoring tools such as security cameras have the capacity to enforce discipline in the workplace and disincentivize male workers from committing acts of sexual harassment. However, these technologies are also capable of negative side effects that frequently impact women workers disproportionately, because technologies are often not designed with them in mind. For example, digital tools that measure productivity may discriminate against women in not taking into account the slower productively of a pregnant worker, or the time a woman might require to breastfeed. As female workers are typically less educated and less digitally literate and have less access to training, they are more vulnerable to the negative impacts of data collection.

The digitization of wage payments is increasing, a process accelerated by the COVID-19 crisis. Bangladesh, for example, catalyzed countrywide payroll digitization to help workers cope with the shuttering of factories.[8] Without proper training and support around the wage digitization process, women in particular can be more vulnerable to fraud; they may lack training for engagement via personal identification numbers (PIN) and thereby share private information with family members and even with ATM security guards. Women do not always have their own mobile phones or SIM cards and must therefore share sensitive information with others. This amplifies the likelihood that their private data will be accessed more readily than that of their male counterparts.

Increased use of monitoring technologies and perusal of worker data may intensify discrimination against female workers. Some issues that have arisen from the implementation of security cameras in factories are: voyeurism; tracking of the amount and length of bathroom breaks; and punishment of women workers for such ordinary activities as talking, laughing, and resting.[9]

In some factories, an on-site health clinic may collect data on women workers' menstrual cycles, pregnancy, and maternity conditions. It remains critical that patient confidentiality is adhered to and information not shared with management. Still, such information can come forward when women ask supervisors for bathroom breaks. The data associated with female workers' reproductive health can be stored somewhat innocuously, with the view toward supporting a female worker in her needs (e.g., providing menstrual health products at the clinic). However, tracking this kind of data is fraught with risks of discrimination. Any judgments regarding that personal data can result in employer discrimination against women. This can take the form of prematurely terminating a

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[8] https://www.bsr.org/reports/BSR-Mastercard-Digitizing-for-Inclusion.pdf.

[9] https://genderingsurveillance.internetdemocracy.in/cctv/.

woman's employment to avoid paying maternity leave if the data collected arouses suspicion that a woman may be pregnant, or a woman's productivity may be judged when she does not have her period as an excuse for bathroom breaks. Safeguards need to be put in place to ensure that this data is not used to discriminate against female workers.

Sexual harassment is also an issue that women workers in garment factories face frequently. Widespread workplace monitoring tools such as security cameras might help disincentivize such behavior. In reality, though, we are seeing that "cameras simply displace criminal activity to areas that are not being watched."[10] Having operational knowledge as to how these tools work skews power dynamics in favor of supervisors, who are typically male, limiting the tools' potential benefit.

Systemic issues such as sexual harassment cannot be solved by implementing technology solutions alone. Given potentially easy methods of avoiding detection by such technology, it is important to ensure that the seeming reliability of testimony provided by a CCTV camera does not effectively obstruct women's access to justice in potential grievances brought forward regarding sexual harassment.

Sexual harassment concerns can be amplified by technologies that promise to provide data supporting grievances but do not protect worker anonymity. Women are already vulnerable to being harassed, and shortcomings in data protections which amplify vulnerability can result in their having little or no recourse to address such problems. If a woman loses her job over a failure to protect data, she will not have as many opportunities as a man would to get a new job. This is because women often have lower education levels and suffer from limited job choices due to entrenched societal gender norms.

Impacts of the Increased Use of Technology and Data during COVID-19

COVID-19 has accelerated the use of technologies with the aim of bolstering health and economic security. This has resulted in some positive effects, such as increased enrollment in digital payrolls across Bangladesh. Digitized wage payments have been shown to increase financial empowerment among female workers when paired with the right training and support. However, a lack of proper infrastructure and support can enhance risks. Indeed, the rapid mobilization of new technologies and data collection as a response to COVID-19 can adversely impact the rights of workers in several areas.

Right to work: The extent to which COVID-related health data is being retained by employers is unclear. For example, workers' temperature data is not being recorded, but health-related data is being used to make decisions about workers' right to work,

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[10] https://genderingsurveillance.internetdemocracy.in/cctv/.

either as stand-alone pieces of data or as part of immunity certificates. Limiting the right to work may pose huge implications for individuals and their families, whose livelihoods depend on the ability to work each day. Therefore, employers need to ensure that these measures are necessary and proportionate. Inhibiting an individual's right to work based on their body temperature may not be a proportionate measure, because body temperature is not recognized as a fully reliable indicator of health status. Similarly, granting an individual the right to work based on a COVID test result may not reflect a scientifically accurate conclusion. Any such measures must specifically be scientifically justified and deemed necessary by public health authorities.

Employers must also ensure that the measures they are taking do not lead to further discrimination against female workers. Digital immunity certification or contact-tracing tools may be less accessible for women, who typically have lower levels of smartphone adoption and digital literacy. Women may also have less access to health care and to COVID tests, as they typically have less mobility and fewer resources. Such limitations may therefore limit women workers' ability to establish that they are healthy and to maintain their right to work.

Privacy: Increased collection of sensitive personal data during COVID has heightened the risks to individual privacy. Workplaces are taking unprecedented measures to track worker movements outside the workplace to further contact-tracing efforts. Collection of movement and location data may especially harm such vulnerable groups as migrant workers. Women often leave small, rural communities to work and send money home to their families. Visibility into their movements by employers may be leveraged to impact their job security, or information may be sent to family members in their villages, where women may have previously maintained autonomy of movement.

Consideration of Individual vs. Collective Rights

Given the lack of an overarching regime to govern engagement with technology and/or data in these workplaces, individual actors have been making decisions regarding which rights should be privileged when rights are at odds. The risks here are great. Without universal guidance on how to proceed when faced with seemingly disparate rights of the individual or collective, judgments are made on an ad hoc basis.

While a factory might wish to protect the health rights of the collective group by taking workers' temperatures before they enter the facility, temperature checks may require standing in an hour-long queue before work can commence. This can impinge upon an individual worker's right to family life, as they now need to arrive at the workplace an hour earlier. Such a procedure will have disproportionate consequences upon women, who frequently have large, unpaid duties of care at home. In some scenarios, then, emphasizing the rights of the collective group may foster gendered dynamics: The

collective rights may be more favorable to men, and the individual rights most adversely affected may be those of female workers.

Moreover, new technologies that can monitor workers' body heat levels may be used to prevent those who are developing a fever from being able to enter or remain on the premises. While this can protect against infection from COVID-19, it can also result in discriminatory practices. Those whose heat levels show they are more tired than others during a production workday can be weeded out in favor of those with more vigor. Those who are not showing heat levels that indicate fatigue by the end of a workday may be asked to work longer hours, thereby keeping them from going home to their families. Hence, a technology that can work to prevent health rights infringements also has the potential to breach individual rights to nondiscrimination or the right to family life.

An additional example regarding the need to determine which right to emphasize is exemplified in a case study relayed by one of our respondents: A factory maintained a higher than normal level of health monitoring in order to detect adverse effects of chemicals in the factory before serious symptoms could develop. While put in place with the goal of minimizing adverse health effects, such heightened monitoring can result in a workplace having an abnormal amount of purview into workers' private health data—all in the name of ensuring worker health and safety.

Protections governments put in place to safeguard the right to privacy may indirectly lead to a breach of the right to information. A consultation with a partner revealed that in the Philippines, where informed consent is necessary, having a signed-paper requirement can impede those who are illiterate from getting access to training materials that could provide crucial information to enhance their well-being. One right is thus favored over others, without proper oversight or guidance on how to determine best practice when two rights conflict. This can lead to choices that may not serve the overall needs of a worker.

5. Recommendations

Realizing that the use and protection of worker data vary greatly across locales and sectors, the following recommendations represent a baseline to maximize the positive impacts and to mitigate the potential harms of digital technologies and data use in the workplace. Recognizing that harms may appear different to female workers, these recommendations take a gendered approach and include suggestions that are specific for women. These recommendations build upon BSR's recent work highlighting the importance of worker data protection for a 21st century social contract.[11]

Recommendations for Companies:

While these recommendations apply to both buyers and suppliers, buyers have the ability and responsibility to influence their suppliers by requiring that these measures be applied throughout their supply chain.

1. **Include worker representation in the design, implementation, and governance of workplace technology.** Whether technology solutions are used to promote or harm workers' rights ultimately depends on contextual factors such as who has a say in the governance of the technology. To maximize the benefits and mitigate the harms of these solutions, companies should take proactive measures to include the voice of workers. Buyers and suppliers may consider creating a worker voice task force that includes worker representatives across the value chain. Engaging with labor unions and creating labor-management partnerships that facilitate dialogue can help increase the benefits of new workplace technologies and data use for both the employer and the worker.

   Most technology solutions are designed and governed by men, yet have a disproportionate impact on women workers, as laid out in previous sections of this paper. Therefore, including women's perspectives is a crucial step forward. **Women's representation must be ensured when including worker voices.**

2. **Undertake human rights due diligence for any data collection mechanisms, including surveillance tools.** As described in Principle 17 of the UN Guiding Principles on Business and Human Rights (UNGPs): "In order to identify, prevent, mitigate and account for how they address their adverse human rights impacts, business enterprises should carry out human rights due diligence," and such due diligence "should be ongoing, recognizing that the human rights risks may change over time as the business enterprise's operations and operating context evolve."[12] Undergoing a due diligence process will allow buyers to identify potential adverse impacts arising from data use and to identify whose rights are impacted; to

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[11] https://www.bsr.org/en/our-insights/blog-view/worker-data-protection-central-to-a-21st-century-social-contract.

[12] https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf.

establish appropriate action to avoid, prevent, or mitigate those impacts; and to review and track effectiveness and progress.

🧍‍♀️ **Due diligence for new technologies and data collection mechanisms should include a gender lens.** The UN Human Rights Council's Gender Guidance on the UNGPs recommends that businesses undertake "gender-responsive assessments."[13] The commentary to Principles 18 stresses that "when identifying any adverse human rights impacts, business enterprises should bear in mind the different risks that may be faced by women and men."[14]

3. **Undertake Data Protection Impact Assessments (DPIA) when the processing of data is likely to result in a high risk to employees.** Article 35 of the GDPR states that, "where a type of [data] processing … is likely to result in a high risk to the rights and freedoms of natural persons, the controller shall, prior to the processing, carry out an assessment of the impact of the envisaged processing operations on the protection of personal data." We recommend that buyers include the DPIA requirement for all of their suppliers. DPIAs should cover all rights and freedoms in the EU Charter, not just privacy. When appropriate, DPIAs should seek to include the views of workers as data subjects.[15]

4. **Collect data for a clear purpose.** Workplaces will inevitably need to collect data on their workers; however, buyers and suppliers must attempt to collect for a clear purpose. Collecting data for a specific and necessary purpose, as well as limiting the amount of data collected, reduces the potential harms associated with data collection and usage. Data that is collected from workers, and the insights drawn from this data, have the potential to be beneficial to workers themselves. Companies should find ways to utilize worker data in ways that lead to dialogue with the workers, instead of just extracting it from them.

🧍‍♀️ **Gender-disaggregated data can be helpful in assessing and improving the conditions of women workers.** To determine which data is most necessary, companies can use guidelines such as BSR's framework on gender-responsive due diligence in supply chains.[16]

5. **Ensure that any data collected is done with the meaningful and informed consent of the worker.** A justifiable purpose for data collection must be clearly communicated to the worker in his or her native language. In addition to the purpose of such data collection, workers should also be informed of the method of data collection and the intended duration of data use and storage. Workers must

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[13] https://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/41/43.

[14] Ibid.

[15] See https://www.thewhynotlab.com/post/are-you-involved-data-protection-impact-assessments-at-work.

[16] https://www.bsr.org/en/our-insights/report-view/making-women-workers-count-gender-responsive-due-diligence-report.

also be given a reasonable alternative to whatever data collection tool is introduced so they have a meaningful option if they choose not to participate in the data collection.

In thinking about consent, employers should keep in mind the impact of gender. Literacy levels among women workers are typically lower than those of men, and the power dynamics between employer and worker affect female workers differently, making women more vulnerable and making their meaningful informed consent even more difficult to ensure.

6. **Include data privacy protections in supply chain codes of conduct.** Including data privacy clauses in codes of conduct will make it easier for buyers to influence their suppliers to ensure the necessary protections for worker data. Companies should include data privacy clauses not only for the data they collect from users but also for their employees.[17]

Recommendations for Supply Chain Technology Providers:

Having strong connections to both buyers and suppliers, providers of supply chain technology solutions have a unique position and responsibility to influence actors throughout the value chain.

1. **Engage worker representatives in the design and implementation of workplace technology solutions**. A human-centered design approach will enable technology providers to create effective solutions that are beneficial for workers. With insights gained from engaging with workers, technology providers can ensure that technology solutions prioritize their rights. Additionally, technology providers often have a strong influence as to how their solutions are deployed and used by factories; they are typically seen as trusted advisors when it comes to interpreting the data and employing it. Therefore, they have the opportunity to influence buyers and suppliers to use these tools in ways that will maximize their positive impact on workers' rights.

In engaging with workers, technology providers should ensure that women workers' voices are heard throughout the process. Technology tools should not exacerbate existing inequalities women face in the workplace but should seek to close these gaps.

2. **Adopt privacy by design principles.** When designing supply chain technology solutions, data privacy should be a main consideration, not an afterthought. Adopting standards such as the Principles for Digital Development[18] will help provide a framework for human rights considerations, including privacy. Leading

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[17] As an example, see the Credit Agricole Code of Conduct: https://www.credit-agricole.com/en/pdfPreview/170175.

[18] https://digitalprinciples.org.

with human rights implications will help technology providers create tools that maximize positive impacts on workers' rights.

3. **Advocate for worker training, primarily on informed consent.** As they are the primary data subjects of workplace technology tools, workers need to have a clear understanding of what informed consent means. However, workers in the garment supply chain typically have low literacy levels and little tech savvy. To ensure the meaningful consent of workers vis-à-vis technology solutions and data use, technology providers can support the development and dissemination of training that strengthens workers' understanding of consent.

4. **Improve industry-wide principles and ensure effective enforcement.** Principles that are created by supply chain technology providers such as the WEST Principles[19], or those that are created by industry coalitions such as the Responsible Business Alliance Code of Conduct,[20] can be updated to include stronger clauses on workers' data rights and more effective enforcement mechanisms. Other multistakeholder initiatives may be considered, as well as ways to engage tech partners with buyers on common agreements for protection of worker data and privacy.

Recommendations for Civil Society:

Labor rights groups and digital rights groups are the two main actors that can lead efforts to ensure that increased digitization in the workplace positively impacts workers.

1. **Advocate for workers' data rights and a rethinking of data ownership structures.** Labor and digital rights organizations should advocate for better protection of workers' data. Labor unions can play a more active role in negotiating for workers' data rights[21] and facilitating increased understanding of labor and digital rights for workers. Furthermore, civil society organizations can also encourage a rethinking of data ownership structures to ensure that workers have sufficient control over their data. Tools that allow workers to collectively own their data might offer a promising solution.[22]

2. **Educate workers on privacy and data rights.** Civil society organizations can develop robust training materials to increase workers' understanding of data rights in the workplace. A stronger understanding of these rights would help achieve meaningful consent on the use of data and ultimately provide workers with the confidence to influence workplace decisions regarding technology.

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[19] https://westprinciples.org/start-with-integrity-and-purpose/.

[20] http://www.responsiblebusiness.org/code-of-conduct.

[21] See https://www.thewhynotlab.com/post/workers-rights-negotiating-and-co-governing-digital-systems-at-work.

[22] As an example, see https://www.weclock.it.

3. **Facilitate collaboration between labor rights and digital rights organizations.** Research for this paper has demonstrated that these two areas of expertise are currently siloed. As technology in the workplace is here to stay, stronger dialogue between labor rights and digital rights organizations should be prioritized. More synthesized thinking on this important and complex topic is needed to push forward innovative and thoughtful solutions that prioritize workers' digital rights.

Further collaboration with women's rights organizations may help these civil society efforts gain a stronger gender lens, and collaboration in these various approaches to rights will strengthen the representation of, and advocacy for, women workers.

Recommendation for Intergovernmental Organizations (IGOs):

1. **Develop stronger data protection norms.** Stronger norms are needed to be able to effectively enforce the protection of workers' data. BSR recommends the creation of an ILO convention or standard that would cover workplace data protection, privacy, and nondiscrimination to help governments and businesses effectively safeguard workers' data rights.

ABOUT HERPROJECT

BSR's HERproject is a collaborative initiative that strives to empower low-income women working in global supply chains. Bringing together global brands, their suppliers, and local NGOs, HERproject™ drives impact for women and business via workplace-based interventions on health, financial inclusion, and gender equality. Since its inception in 2007, HERproject™ has worked in more than 850 workplaces across 14 countries and has increased the well-being, confidence, and economic potential of more than 1,000,000 women and 450,000 **men.** For more information about HERfinance Digital Wages and questions, please e-mail getinvolved@herproject.org.