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# Pivoting technology: understanding working conditions in the time of COVID-19

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# Pivoting technology: understanding working conditions in the time of COVID-19

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**Abstract**

State lockdowns and travel restrictions introduced in response to COVID-19 have limited the ability of frontline responders to conduct on-site visits and inhibited their efforts to assess working conditions and monitor for labour exploitation within global supply chains. These challenges have increased multinational corporations' reliance on remote technologies to assist in their supply chain due diligence processes. Our research investigates the use of one such example, Apprise Audit, which is a digital solution used for worker interviews in social compliance auditing that was modified to enable remote data collection. Based on a series of interviews with implementing partners and industry experts, our research finds that Apprise Audit Remote helps to overcome the difficulties of gathering worker feedback in the presence of COVID related constraints. Using this work as a case study, we then further elaborate on the practical opportunities and limitations associated with ICT-enabled remote auditing.

**Keywords**

Digital technology; remote auditing; forced labour; supply chains; worker interviews

## Introduction

The COVID-19 crisis has created and exacerbated multidimensional social and economic risks for vulnerable individuals throughout the world, increasing their susceptibility to forced labour and human trafficking. It has been speculated that the massive increases in unemployment rates seen over the past year fueled an increase in trafficking in persons, particularly in countries and sectors where social protections are limited and job seekers are more willing to take risks to secure employment[1]. An estimated 1.6 billion workers in the informal economy had their earning capacity disrupted as a result of COVID-19, potentially pushing them into further precarity and

[1] UNODC, "Global Report on Trafficking in Persons 2020," 2020.

vulnerability to abuse[2]. Migrant workers who were already in debt from recruitment costs reported having to borrow even more money to cover the cost of necessities as they lost wages, further their risk of debt bondage to agencies and employers[3]. The combination of prolonged school closures and the economic downturn put pressure on families to have children work to support household income, intensifying the risk of child labour[4]. The global demand for medical supplies gave employers greater incentives and perhaps even greater latitude for exploitation as buyers reduced scrutiny of supply chains when procuring personal protective equipment to meet their immediate domestic needs[5]. As factories faced shortages of raw materials, difficulties in obtaining other components of production, and order cancellations, workforces were slashed, often resulting in employees being forced to work without pay to maintain profitability[6]. These are but a few examples of the knock-on effects the pandemic has had for those already at risk of exploitation.

The COVID-19 pandemic has also caused unprecedented disruptions to the established operational paradigms of labour inspection and social compliance auditing. These processes are considered to be crucial pathways for identifying and preventing forced labour[7]. Restrictions on mobility and the diversion of human and financial resources within governments and companies have either curtailed inspections or stopped them altogether[8]. Movement and gathering restrictions have in many cases made it very difficult to conduct human rights due diligence and auditing activities[9]. Specialized mobile inspection groups that support workers to exit exploitative situations have in some cases been halted, over fears of infection risk to victims and officials[10]. Although such services are key mechanisms for the proactive identification of victims by frontline responders, in many national and local contexts they were considered "non-essential" and therefore adversely impacted by government COVID-19 pandemic response

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[2] ILO, "Impact of Lockdown Measures on the Informal Economy," 2020.

[3] Penelope Kyritsis, Genevieve LeBaron, and Scott Nova, "Hunger in the Apparel Supply Chain: Survey Findings on Workers' Access to Nutrition during COVID-19" (Worker Rights Consortium, 2020).

[4] Goodweave International, "Hidden and Vulnerable: The Impact of COVID-19 on Child, Forced and Bonded Labor," 2020.

[5] Iffat Idris, "Impact of COVID-19 on Child Labour in South Asia," 2020.

[6] Joy Murray and Arunima Malik, "Open Analysis Addressing Slavery in Supply Chains: Modern Slavery and COVID-19: Are We Really All in the Same (Life)Boat?," 2020.

[7] ILO, "Issue Paper on COVID-19 and Fundamental Principles and Rights at Work," 2020.

[8] ILO and UNICEF, "COVID-19 and Child Labour: A Time of Crisis, A Time To Act," 2020.

[9] Minderoo Foundation, "Protecting People in A Pandemic," 2020.

[10] Fabio Teixeira, "Brazil Halts Group's Anti-Slavery Operations Due to Coronavirus," *Thomson Reuters Foundation News*, 2020.

policies[11]. Under normal circumstances, reduced levels of oversight alone would leave workers more vulnerable to exploitation. However, the broad impacts of the pandemic have heightened the root causes and risks of forced labour and human trafficking making this lack of scrutiny a much greater policy priority[12].

In response to these challenges, our research investigates the opportunities and limitations of using remote technologies to support ongoing supply chain compliance initiatives against the backdrop of the COVID-19 pandemic. Specifically, we share findings on the implementation of Apprise Audit, an innovative mobile solution used by several multinational corporations in their social audits that was modified to allow for remote data collection. We provide insights on the operational usage of Apprise Audit Remote that were gathered through interviews with brand representatives, as well as general feedback on the future role of remote auditing from other industry experts.

## Technology Enhanced Monitoring and Detection of Forced Labour

The practical concerns that caused many assessment activities to be postponed or cancelled also created a sense of urgency for finding solutions to continue carrying out the processes that prevent, identify, and address serious labour violations. In some cases, private sector compliance departments, national labour inspectorates, and independent certification bodies resultantly sought to modify their policies and innovate their operations accordingly. Preliminary guidance released early in the pandemic recommended that businesses and employers adopt new due diligence mechanisms that make use of information and communications technologies (ICTs) to overcome constraints[13]. Leveraging technology to conduct research on forced labour during COVID-19 was identified as a priority to developing evidence-based action and an opportunity to test new ideas, potentially leading to emerging practices that supplement traditional approaches[14]. Adapting to the rapidly changing realities over the past year, institutional actors with mandates for evaluating working conditions sought to capitalize on the transformative potential of ICTs to facilitate remote monitoring where possible.

Prior to the pandemic, digital technologies were already increasingly being employed in researching, identifying, and monitoring for risks of labour exploitation. The digitalization of inspection and auditing services has the potential to enhance efficiency, transparency and accountability between parties and revolutionize the way information is collected, analyzed, and

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[11] UNODC, “Impact of the COVID-19 Pandemic on Trafficking in Persons,” 2020.

[12] Tomoya Obokata, “Impact of the Coronavirus Disease Pandemic on Contemporary Forms of Slavery and Slavery-like Practices,” 2020.

[13] IOM, “COVID-19: Guidance for employers and business to enhance migrant worker protection during the current health crisis,” 2020.

[14] ILO, “COVID-19 Impact on Child Labour and Forced Labour: The Response of the IPEC+ Flagship Programme,” 2020.

stored[15]. Advances in new technologies and the innovative applications of existing technologies further enable novel methods of gathering information to support decision making and action against exploitative employment practices[16]. COVID-19 has broadly accelerated the transition towards utilizing digital technologies across every aspect of life and the detection of indicators of forced labour in workplaces has been no exception to this trend. Without the ability to be physically present, inspectors and auditors alike have integrated ICTs as a means to continue their operations and to document, share, and examine information that would traditionally be collected in person. However, the use of ICTs in auditing and inspection processes, particularly for the purpose of worker interviews presents a range of challenges and opportunities that require further examination.

Proponents of applying technology to inspection and social auditing often cite its ability to overcome constraints in human and financial resources by offering new capabilities for collecting data in a more cost-effective, scalable and efficient manner. Digital tools can further support larger and more integrated datasets, empower workers through greater levels of engagement, and help to evaluate outcomes meant to improve working conditions[17]. Combining traditional methods of labour inspection with innovative technological solutions can increase institutional capacity for compliance and respect for labour standards[18]. ICTs can extend service provision to new facilities and enable better communication and coordination between central and local authorities. Innovative examples applying new technologies and techniques can be found across a number of sectors and geographies, either deployed directly by relevant agencies or companies, or by researchers to support frontline responders to take evidence-based action.

For example, in the aftermath of the Rana Plaza incident which killed more than 1,100 garment factory workers in a building collapse, Bangladesh's Ministry of Labour created a computerized information management portal for labour inspectors to more effectively access information before site visits and carry out their day-to-day functions as part of the subsequent reform measures to improve working conditions[19]. Similarly, Sri Lankan authorities have developed a 'Labour Inspection System Application' which digitizes and centralizes inspection procedures, reducing the administrative work of inspectors and enabling them to instantly upload

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[15] Pavel Castka, Cory Searcy, and Jakki Mohr, "Technology-Enhanced Auditing: Improving Veracity and Timeliness in Social and Environmental Audits of Supply Chains," *Journal of Cleaner Production* 258 (June 10, 2020): 120773, https://doi.org/10.1016/j.jclepro.2020.120773.

[16] "Labour Administration and Labour Inspection" (Geneva: International Labour Conference, 2011).

[17] Laurie Berg, Bassina Farbenblum, and Angela Kinitominas, "Addressing Exploitation in Supply Chains: Is Technology a Game Changer for Worker Voice?," *Anti-Trafficking Review*, no. 14 (April 2020): 47–66, https://doi.org/10.14197/ atr.201220144.

[18] Anna Milena Galazka, "Report on the Global Survey into the Use of Information and Communication Technologies in National Labour Administration Systems," ILO Working Papers (International Labour Organization, 2015).

[19] http://lima.dife.gov.bd/

photo evidence of violations to higher authorities[20]. The Ministries of Labour in the United Arab Emirates and Brazil have both reported utilizing drone technology to detect rights violations and instances of forced labour on construction sites and in rural areas[21]. Satellite data and imagery has been used to model forced labour risk on deep-sea fishing vessels[22], helped to estimate the extent of bonded labour in the South Asian brick belt[23], and explored the relationship between deforestation and slavery[24]. Private companies have also developed an array of due diligence technology solutions that gather and aggregate different forms of primary data, providing multinational corporations with information to support ethical supply chain decision making[25]. Tools that utilize blockchain to store copies of employment contracts or identity documents on a transparent and immutable ledger can enable workers and brands to eliminate the risk of contract substitution and document retention[26]. Satellite monitoring and blockchain technology can also be used to provide end-to-end traceability monitoring for raw materials (e.g. minerals) or products (e.g. seafood) that are associated with illegal labour and environmental practices[27].

Although ICTs and frontier technologies offer new ways to collect data, conduct analysis and promote transparency and accountability, such tools may also be narrowly conceptualized as techno-managerial solutions that avoid probing more fundamental questions of power dynamics, unionization and workers' rights[28]. In addition to raising practical and ethical concerns about privacy and data security, there is also a risk that a reliance on technology becomes seen as the

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[20] ILO, "Technology Lightens the Load for Factory Inspector," April 1, 2015.

[21] Adriana Brasileiro, "Brazil Will Use Drones to Fight Slave Labour in Rural Areas," *Thomson Reuters Foundation News*, 2015, https://news.trust.org/item/20150728135023-q1ldw/; Reem Ashour et al., "Site Inspection Drone: A Solution for Inspecting and Regulating Construction Sites," 2016, https://doi.org/10.1109/MWSCAS.2016.7870116.

[22] Gavin G. McDonald et al., "Satellites Can Reveal Global Extent of Forced Labor in the World's Fishing Fleet," *Proceedings of the National Academy of Sciences* 118, no. 3 (January 19, 2021), https://doi.org/10.1073/pnas.2016238117.

[23] Doreen S. Boyd et al., "Slavery from Space: Demonstrating the Role for Satellite Remote Sensing to Inform Evidence-Based Action Related to UN SDG Number 8," *ISPRS Journal of Photogrammetry and Remote Sensing* 142 (August 1, 2018): 380–88, https://doi.org/10.1016/j.isprsjprs.2018.02.012.

[24] Bethany Jackson et al., "Understanding the Co-Occurrence of Tree Loss and Modern Slavery to Improve Efficacy of Conservation Actions and Policies," *Conservation Science and Practice* n/a, no. n/a (2020): e183, https://doi.org/10.1111/csp2.183.

[25] Samir Goswami, "Technology to Address Human Trafficking & Forced Labour in Supply Chains" (Issara Institute, 2016).

[26] IOM, "IOM Thailand, Diginex Deploy Blockchain Solutions to Better Protect Migrant Workers," *Corporate Responsibility in Eliminating Slavery and Trafficking*, 2020.

[27] Cynthia Urda Kassis, Jonathan Handyside, and Naffie Lamin, "How Blockchain Can Track Conflict Minerals," September 25, 2019; ILO, *Digitalization to Promote Decent Work for Migrant Workers in ASEAN*, 2019.

[28] United Nations Centre for Policy Research, "Developing Freedom: The Sustainable Development Case for Ending Modern Slavery, Forced Labour and Human Trafficking," 2021.

solution itself, rather than a means by which to solve the problem of trafficking and forced labour in a broader context[29].

**Remote Technologies & Social Compliance Auditing**

Social compliance auditing (often interchangeably referred to as as ethical auditing or social auditng) can be described as the processes by which corporations monitor the application of and adherence to social standards throughout their supply chains[30]. Although individual companies and standard setting bodies may vary widely in specific operational aspects, there are generally three phases within a social compliance audit: onboarding, on-site inspections, and corrective action. The first step in the process involves the onboarding of new facilities, including processes for a review of procedures for hiring (i.e. non-discrimination), licenses or certificates (e.g. fire safety), a walkthrough of the premises and interviews with factory management. As part of the onboarding process, factories agree to adhere to brand-specific, non-negotiable workplace health and safety standards, allowing brands (or their representatives) to regularly inspect their premises to ensure that they comply. These regular inspections can be announced or unannounced, and consists of the site inspection itself, interviews with factory management, and interviews with workers. Lastly, based on the findings of the audits, if any issues were identified, a corrective action plan is developed, listing steps that a facility must take if it wishes to continue to do business with the brand. This plan lists minimum steps that are required to show progress towards compliance with health and safety standards. In subsequent audits or additional site visits, factories must demonstrate that they have adhered to their plan and have addressed issues that were non-compliant.

Note must be made of the differences between announced and unannounced site inspections. With announced inspections, factories are given time to prepare for an auditor's visit (for example in order to assemble documentation that is required). Researchers[31] and practitioners[32] often highlight weaknesses in the announced audit methodology, because as well as assembling documentation, it has also been shown to provide factories with: time to rectify access to health and safety equipment (e.g. toilets, drinking water, soap, face masks, first aid kits

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[29] Office of the Special Representative and Co-ordinator for Combating Trafficking in Human Beings and Tech Against Trafficking, *Leveraging Innovation to Fight Trafficking in Human Beings a Comprehensive Analysis of Technology Tools*, 2020, https://www.osce.org/files/f/documents/9/6/455206_1.pdf.

[30] Muhammad Azizul Islam, Craig Deegan, and Rob Gray, "Social Compliance Audits and Multinational Corporation Supply Chain: Evidence from a Study of the Rituals of Social Audits," *Accounting and Business Research* 48, no. 2 (February 23, 2018): 190–224, https://doi.org/10.1080/00014788.2017.1362330.

[31] Genevieve LeBaron, Jane Lister, and Peter Dauvergne, "Governing Global Supply Chain Sustainability through the Ethical Audit Regime," *Globalizations* 14, no. 6 (September 19, 2017): 958–75, https://doi.org/10.1080/14747731.2017.1304008.

[32] Clean Clothes Campaign, "Looking for a Quick Fix - How Weak Social Auditing Is Keeping Workers in Sweatshops" (The Netherlands: Clean Clothes Campaign, 2005), https://core.ac.uk/download/pdf/144977443.pdf.

and gloves); and to coach workers on how to respond to questions about work conditions[33]. Research has also illustrated how these working conditions change over time and in response to personal, situational and circumstantial factors faced by workers[34]; as well as systemic factors, including buyers' business practices. Workplace inspections have been described as providing a snapshot of current conditions, or a "picture in time"[35], so by including multiple snapshots, there is greater chance to uncover changing practices of work.

In 2019, researchers undertook a survey of 185 auditors from 27 multinational corporations in Asia Pacific region, to understand the problems faced in on-site worker interviews[36]. Auditors described facing language barriers due to the high number of migrant workers in factories. They also described facing time constraints in undertaking worker interviews due to large factory sizes, meaning that they were either unable to interview a representative sample, or were forced to interview workers in groups. Respondents also described a lack of privacy during interviews (both in group interviews and individual interviews), with workers often appearing coached and not willing to speak out.

Technology has been increasingly integrated over time to augment in-person aspects of this auditing process, but the applications and implications of using remote technologies to replicate the steps outlined above have come into particular focus under the circumstances of COVID-19. Remote auditing, also known as virtual auditing, can be defined as "an audit that uses electronic means to remotely obtain audit evidence in order to determine the extent of conformity to the audit criteria"[37]. Recent research suggests that following the onset of COVID-19 there has been a significant uptake in remote auditing and the use of ICTs to execute assessments of social and environmental conditions throughout supply chains[38]. Remote auditing can take a wide variety of forms: sharing and reviewing electronically secured relevant documentation such as employment contracts, license certificates, payment slips, and records of

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[33] Clean Clothes Campaign.

[34] Global Migration Group, "Exploitation and Abuse of International Migrants, Particularly Those in an Irregular Situation: A Human Rights Approach" (Geneva: UNODC, 2013), https://www.unodc.org/documents/human-trafficking/2013/2013_GMG_Thematic_Paper.pdf.

[35] Anne Manschot, "Can a Picture Say More than a Thousand Words? Examining the Effectiveness of Social Compliance Auditing" (Rotterdam, Netherlands: Erasmus University, 2018), https://media.business-humanrights.org/media/documents/files/20180920_Can_a_picture_say_more_than_a_thousand_words___Anne_Manschot.pdf.

[36] Hannah Thinyane, Silvia Mera, and Francisca Sassetti, *Unmasking Labor Exploitation Across Supply Chains* (United Nations University Institute on Computing and Society, 2019), https://collections.unu.edu/view/UNU:7351#stats.

[37] J. P. Russell and Shauna Wilson, *E-Auditing Fundamentals: Virtual Communication and Remote Auditing* (Quality Press, 2013).

[38] Pavel Castka, Cory Searcy, and Sönke Fischer, "Technology-Enhanced Auditing in Voluntary Sustainability Standards: The Impact of COVID-19," *Sustainability* 12, no. 11 (June 10, 2020): 4740, https://doi.org/10.3390/su12114740.

working hours in advance of an audit/inspection; interviewing management personnel via videoconferencing platforms (Zoom, Skype); capturing information with remote sensors and technology (satellite imagery, drones, sensors); snapshots or virtual facility tours (smartphones, 360 cameras, smart glasses); and obtaining survey responses from workers (mobile phone apps, SMS, interactive calls).

One of the most widespread technology applications in supply chain due diligence is a category of digital tool that collects feedback from workers about facility-level working conditions. Many social audits either do not collect this information directly from workers or do so in a manner that is not conducive to uncovering sensitive issues and can potentially further expose workers to security risks like retaliation[39]. The exclusion of worker insights and perspectives, particularly at the lower tiers of global supply chains, ultimately undermines the legitimacy of private compliance initiatives and inhibits social dialogue that can improve working conditions[40]. The widespread use of mobile phones by workers and the failings of traditional social compliance auditing mechanisms have prompted the design and exploration of mobile solutions to capture worker feedback and enhance the detection of serious labour risks[41]. Through the creation of data-driven, technology-enabled feedback loops between businesses and employees, self-reported insights on working conditions can help identify abuses, driving change that improves the realization of social and labour rights.

Commonly referred to as "worker voice tools", these technologies can help companies proactively identify compliance issues in their supply chains by gathering data from workers in real-time and on an ongoing basis[42]. Worker voice tools are effective in capturing user-generated data that may be missed or difficult to uncover in standard protocols and can also extend to tiers of the supply chains that are typically not reached by social auditing[43]. Worker voice platforms have been adapted in the COVID-19 context to ask more questions related to health and safety and to help companies decide if conditions are safe enough for workers to return[44]. As buyers became increasingly reliant on digital methods for auditing during the pandemic, there is much

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[39] Lisa Rende Taylor and Mark Latonero, "Updated Guide to Ethics & Human Rights in Anti-Human Trafficking" (Issara Institute, 2018).

[40] ILO, "Workplace Compliance in Global Supply Chains," 2016, https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_540914.pdf.

[41] Lisa Rende Taylor and Elena Shih, "Worker Feedback Technologies and Combatting Modern Slavery in Global Supply Chains," *Journal of the British Academy* 7 (2019): 131–65, https://doi.org/10.5871/jba/007s1.131.

[42] OECD, "Monitoring Labor Risks Through Technology," 2020, https://mneguidelines.oecd.org/OECD-Garment-Forum-2020-Session-Note-Monitoring-Labour-Risks-Through-Technology.pdf.

[43] Human Rights Center, "Technology Solutions for Advancing Human Rights in Global Supply Chains: A Landscape Assessment," 2019.

[44] BSR, "Digital Technology and Data in the Garment Supply Chain during COVID-19," 2021.

greater use of worker voice platforms to provide insight and transparency on working conditions[45].

*Apprise Audit*

Over the past four years, we have been working with civil society, auditors, corporate social responsibility experts, and private sector representatives to understand the role that technology can play to support them to uncover exploitative work practices[46]. Worker interviews have always been notoriously difficult, with communication, training and trust barriers impacting the traditional face-to-face interviews that occur. Through our engagement, we co-developed and released Apprise Audit in 2018, an innovative solution used by multinational corporations to detect indications of labour exploitation in their supply chains. This tool has been actively used by large multinational corporations to assess labour conditions in their supply chains for the past three years, in factories across Asia-Pacific and East Africa.

Apprise Audit is a screening tool that utilizes an audio questionnaire, to capture feedback in response to yes/no worded questions (currently supporting 15 South Asian and South East Asian languages and dialects, plus Amharic and English). When the app is installed on the frontline responders' phone, and when used in conjunction with a set of headphones, this provides workers with the ability to privately listen to questions and disclose conditions of work to auditors. As illustrated in Figure 1, a worker begins an interview by selecting their language from a list (Figure 1(a)). When a flag is clicked, the name of the language is played along with instructions to click on a green button to continue. The worker is then provided with an introductory video, stating the purpose of the interview, demonstrating how to use the interface, and asking for consent to continue (Figure 1(b)). If consent is given, a series of yes/no worded questions are played (Figure 1(c)), with each question aligned to ILO forced labour indicators and weighted to show the severity of the violation. After all worker interviews are complete, Apprise Audit shows an overview of the violations that have been indicated, summarizing violations across all respondents in the interview session. Figure 1(d) shows all responses that indicated 'Deception' (in particular, responses to two questions about the conditions of work, and the amount of pay received). This screen enables auditors to obtain an overview of key issues in order to inform their follow up actions, yet also provides the ability to drill down to each response if full details are required.

[45] BSR.

[46] Sassetti, Francisca, Mera, Silvia and Thinyane, Hannah (2019). Apprise Audit Impact Assessment: Detecting labour exploitation in supply chains. United Nations University. https://collections.unu.edu/view/UNU:7548

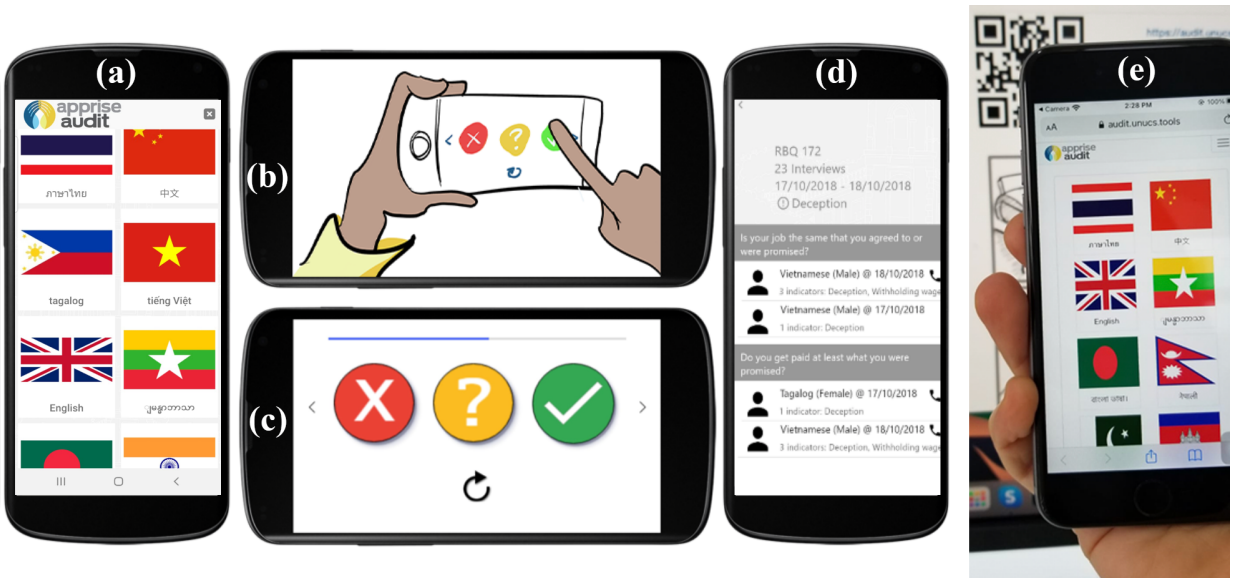


*Figure 1: Apprise Audit (a) language selection (b) introductory video (c) questions (d) summary of responses and (e) Apprise Audit Remote from QR code*

Based on a series of stakeholder consultations and extensive field evaluations, Apprise Audit's original functionality was designed to support in person audits. With an in-person audit, the tool is introduced by a trusted or external third-party actor (i.e. the auditor). Workers are also selected by the auditor themselves, helping to overcome coercion or skewed sampling by factory management. As the interview is undertaken using offline audio files stored on the auditor's mobile device, this also overcomes device access and network connectivity issues. Most importantly, with an on-site inspection, auditors are present and able to provide immediate support to workers if zero tolerance issues are raised, as well as use the findings to inform their further on-site investigations. However, because of the circumstances brought about by COVID-19, we decided to investigate what role remote audits could play in giving workers an opportunity to voice concerns, and for private sector partners to understand what is happening on the ground.

## Research Method

This research aimed to understand opportunities and limitations for ICTs to support auditors to assess working conditions in supply chains under COVID-19 conditions. The paper draws specifically on evidence first collected in a working group in April 2020. Based on the recommendations from the working group, we undertook a series of refinements to Apprise Audit to enable it to be used under COVID-19 conditions for remote monitoring of working conditions in global supply chains. These refinements will be presented in the next section, along with findings from evaluation sessions held in December 2020 and January 2021 to assess the system.

In the April working group, corporate social responsibility experts, and private sector representatives who were already using Apprise Audit self-selected to attend a workshop to brainstorm how we could pivot the way that ICTs were being used to support them to assess working conditions. In total, seven brand experts representing five multinational corporations, two labour rights / human trafficking experts, and two researchers took part in this working group. Participants were invited from existing partners who were using Apprise Audit in their supply chains, who in turn invited their counterparts from other multinational corporations. Due to COVID-19 movement restrictions, this meeting was held online. Brand representatives requested that no audio recordings were made of the session, as they felt more confident in openly expressing their concerns regarding their ability to assess working conditions under COVID-19 conditions. Instead they consented to the research team transcribing the meeting proceedings as they took place.

The December evaluation session was undertaken with five multinational corporations, some of which were involved in the initial working group meeting. Note that not all multinational corporations from the April working group participated in the pilot study. Instead, several participants from the April working group represented a parent group for a number of the multinational corporations who chose to use Apprise Audit Remote across their supply chains. Thirteen participants including auditors and brand experts participated in this evaluation session. We used a semi-structured interview schedule to obtain specific feedback about the auditors' and workers' perceptions of the tool. We also left time for a more natural discussion between participants afterwards. As with the April working group, participants requested that no audio recording was made of the session. Again, they consented to the research team transcribing the meeting proceedings as they took place. In late January 2021, we held another evaluation session with three brand representatives from one multinational corporation, following the same interview schedule and documentation process as in December 2020.

Immediately after each session, meeting notes were circulated between the research team members and the labour rights / human trafficking experts to enable a comparison to be made and ensure respondents' points were collected as accurately as possible. These notes were analyzed using a bottom-up thematic analysis method, and the results of are presented in a subsequent section. An obvious limitation of this study is that audio recordings were not taken of the meetings, but the use of multiple note takers and immediate discussion and circulation of notes between the research team aimed to overcome this lack of an objective record of the process.

## COVID-19 and Apprise Audit Remote

In the April 2020 working group, participants brainstormed opportunities and limitations of using ICTs to support them to assess working conditions under COVID-19 conditions. The working group came up with two needs. Firstly, auditors that did not face travel restrictions requested support to gather data on factories' response to COVID-19. For auditors who were

unable to travel due to movement restrictions, they sought a way to still gather information from workers while they were unable to undertake in-person interviews. In response to the first request, we extended the original question list to include new questions specifically targeted towards understanding current conditions in factories related to COVID-19 measures. In response to the latter, we extended the functionality of Apprise Audit, to enable self-reporting direct worker feedback as a data collection method. Using this method, a brand sends a QR code (with instructions for use in the form of a text-free comic, and a URL) to each factory that will participate in remote audits. Factory staff are required to post the printed sheet in a surveillance-free environment, where workers have direct access to their personal mobile devices. Workers then scan the QR code (or enter the link provided on the page- Figure 1(e)) and navigate directly to a web-based frontend to the Apprise Audit questioning system. This enables workers to undertake the interview themselves, on their own mobile device, and uploads responses to the brand's existing Apprise Audit account.

In October 2020, Apprise Audit Remote was launched for use by our partners. Between 1 October 2020 and 15 April 2021, 5,403 workers started an interview using Apprise Audit Remote. Of these workers, 1,539 did not provide consent to continue with the interview at the end of the introductory video (see Figure 1(b)) and the process ended. This means that 3,864 interviews were completed using Apprise Audit Remote over the period of time under review, and an additional 1,470 interviews were completed using in person interviews with Apprise Audit.

## Key Findings & Discussion

Thematic analysis of these discussions revealed several important themes, describing the practical insights and challenges partners experienced when adopting Apprise Audit Remote. Respondents also provided feedback more generally about the shortcomings and opportunities of remote auditing, which we summarize in the following section.

### *Effective channels of communication*

Brand representatives shared that Apprise Audit Remote was an effective channel to support communication between factory management, workers, and brands. They noted that by using the tool, workers were able to provide information that could be used as a starting point for social dialogue between employers and employees. Some auditors described undertaking site inspections to view how Apprise Audit Remote was being used. In these cases, they indicated that workers were pleased to be in control of the interview process, by selecting their own language, and listening to and responding to questions by themselves. In cases where responses indicated a minor issue, auditors described arranging follow-up meetings with factory management to seek clarification and further evidence of workplace issues. When responding to health and safety questions related to COVID-19, some workers indicated that their movements

were being unfairly restricted. To better understand the situation that led to these responses, worker groups were invited to a meeting with factory management and audit teams to provide an opportunity to voice their concerns. In this instance, the discussion resulted in a clarification for workers that movement restrictions were mandated by the government, and the factory was simply implementing restrictions as they had been ordered.

Rather than exclusively being used to uncover zero tolerance issues such as forced labour or child labour, the responses helped to reveal the way factories were operating in the time of pandemic and uncover key concerns that may have otherwise not been brought to attention. However, brands described that in cases where indicators of zero tolerance issues were in fact raised by workers, this information was used to justify and prioritize an in-person inspection as soon as possible. The data captured through Apprise Audit Remote also helped to contextualize other findings from the virtual audits by offering insights into any changes that had occurred in worker well-being and management practices since the pandemic began. The feedback provided by workers via Apprise Audit Remote encouraged focused communication around specific issues and helped to foster mutual understanding between brands and factory management.

*Access to Network & Data Privacy*

As we had anticipated, workers in factories in countries that have poor internet infrastructure reported having trouble connecting to the internet because of a weak signal. Due to the slow speed, auditors reported that occasionally workers would select an answer (Figure 1(c)), experience a delay, and then click the screen multiple times to try and cycle forward to the next question. This resulted in the next few questions being answered before they could be heard and potentially giving false positives/negatives about exploitation or lack thereof. This points to a critical design decision made in the development of Apprise Audit Remote, in providing a web interface to what was already a mobile phone app. App-based worker voice tools (such as Apprise Audit) are designed to take different levels of connectivity into account, providing a local repository of all media files and worker responses on the device that can be synchronized when connectivity is available. However, mobile apps are required to be downloaded and installed on the mobile device prior to use, a burden that many researchers have discovered hinders workers' uptake of mobile-app based screening tools[47]. Considering that workers rarely take part in interviews, mobile apps take valuable storage space on a workers' personal devices, and they require internet connectivity for synchronization, workers may be dissuaded from using a separate app for remote interviews. While targeting a web interface for Apprise Audit Remote was an obvious tradeoff, we believe that the advantages of low barrier of use, portability and cross-platform support outweighed the disadvantages of potential issues with connectivity.

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[47] Bassina Farbenblum, Laurie Berg, and Angela Kintominas, "Transformative Technology for Migrant Workers: Opportunities, Challenges, and Risks" (New York: Open Society Foundations, 2018), https://www.opensocietyfoundations.org/uploads/dfe50370-e15a-4a78-99f9-3954c0e73bb3/transformative-technology-for-migrant-workers-20181107.pdf.

Some auditors shared that in their follow-up discussions with workers, there were indications that despite assurances of confidentiality in reporting, workers still feared that their responses were not secure and may be shared. The fear of retaliation made at least some workers hesitant to provide negative feedback about factory management that was reflective of conditions they faced. Although technology offers new and innovative ways to collect data and to do so at greater scale, it simultaneously runs the risk of simply collecting a greater volume of low-quality data because digital technology alone cannot disrupt/overcome existing power imbalances.

In the April 2020 working group, brand representatives had described fears that factory management would complete surveys by scanning the QR code and answering questions themselves. There was discussion between the different brands about how advantageous this behavior would be to a factory as "they don't get bonus points for compliance"[48]. Nevertheless, we agreed to investigate different techniques that could be used to understand if a respondent is a worker, without exposing their actual identity. In our initial version of the system, we began capturing the IP address of the device that was used to undertake a survey, to monitor if one device had been used to answer the questionnaire multiple times. The use case was that if a factory manager was repeatedly scanning and generating responses, tracking the IP address may have been a way of detecting and signaling suspicious activity to the brand. When analyzing feedback from auditors, they described a number of occasions where they observed workers sharing a device, with a worker passing their phone to their friends after completing the questionnaire. As these two cases would have generated identical logs, we realized that capturing and storing IP addresses did not provide any actionable information. As such we removed this data collection point, in order to ensure data minimization.

*Announced and unannounced audits*

While Apprise Audit Remote was re-designed as a stop gap, rather than as a replacement for on-site inspections, brands described the potential for the tool to allow them to assess labour conditions more frequently, when used in conjunction with announced and unannounced site inspection. In our research, respondents shared that virtual audits could translate to cost savings in direct travel expenses and allow for ongoing monitoring of a factory's situation rather than an once-off audit providing a single snapshot in time. Gathering information at more frequent intervals of time could help give a more accurate portrayal of working conditions.

As briefly mentioned above, a known limitation of announced inspections is that it provides factories with a chance to change working conditions (at least temporarily) in order to show compliance with health and safety requirements. To overcome these limitations, many teams also undertake unannounced site inspections. Some multinational corporations have even reported carrying out unannounced remote audits to as part of their compliance measures during

[48] Quotation from brand representative, 29 April, 2020. Online working group.

COVID-19[49]. However, without the physical presence of an auditor, it is impossible to provide an immediate referral where indications of zero-tolerance issues (e.g. forced labour or child labour) are identified. Practitioners note the importance of rapid response to these cases, citing the first four hours after identification as the critical window to ensure child labour victims have access to assistance[50]. Other experts shared that one of the most important parts of an unannounced audit is when an auditor first enters the premises to conduct a rapid site inspection. Since this may catch management by surprise and they try to hide evidence of violations such as child labour, another member of the audit team will wait outside to see if anyone tries to run out of the premises[51]. Any person who exits the facilities as the announced auditor enters, would be of most interest to the audit team. Of course, without the audit team on-site, this same practice cannot be conducted.

*Limitations of Remote Monitoring & Worker Interviews*

Even though there are potentially many benefits to using ICTs for remote monitoring, there are also significant barriers and challenges to implementation. As illustrated earlier in this section, the effectiveness of digitally mediated interactions is dependent upon factors like a stable network connection, adequate bandwidth, and compatible software and hardware. Ensuring these basics of technological infrastructure may prove challenging in certain supply chain contexts, like remote geographical areas with poor internet access or facilities that lack financial or technical capacity for supporting digitally integrated management systems. For systems that require direct engagement, workers may be intimidated by or mistrustful of technology, particularly when they have limited voice and participation in the design of these solutions. Although mobile phones are becoming increasingly ubiquitous, simply having access to technology may still be a barrier for low-income or marginalized populations. If workers do own a smartphone or basic-feature phone, their access may be restricted when they are in the workplace. With Apprise Audit Remote, factories are required to post QR codes / URLs for accessing questionnaires in a position where workers have free access to their mobile phones and are not surveilled. In feedback sessions, brand representatives described undertaking spot checks with factories, by undertaking unannounced video calls with them, and asking them to do an on-the-spot site tour so they could demonstrate where QR codes were posted, proving that workers could access the code and that it was posted away from video and in-person surveillance.

A discussion of the impact of remote auditing cannot be complete without turning to the use of worker voice information. While ICTs can enable workers to overcome communication

[49] Intertek Group, "Intertek's Modern Slavery Act Statement 2020," 2021.

[50] Canaria Gaffar, Ines Kaempfer, and Enosh Jinan Kurz, "Best Response: Auditors' Insights on Child Labor in Asia" (Hong Kong: Centre for Child Rights and Corporate Social Responsibility, 2016).

[51] Quotation from brand representative, 29 April, 2020. Online working group

barriers, training deficits and privacy concerns[52], there are other significant hurdles that also need to be addressed. Firstly, without effective standard operating procedures in place, worker feedback may not lead to successful outcomes or redress for workers. Amongst other factors, these procedures need to enforce accountability for follow up of issues that have been identified (whether this identification occurs in-person or online). This process itself needs to provide feedback to workers, to ensure that workers accrue benefit from participating, and any issues that are raised are dealt with. If instead this becomes an extractive process with no benefit to workers, researchers have described how workers soon avoid participating in it[53].

Beyond issues of technical feasibility and motivation, another important consideration is the suitability of remote auditing for replicating tasks undertaken as part of an in-person audit. According to a recent review by the ISEAL Alliance[54], "the most commonly raised issue with remote auditing practice has been the inherent limitation of these approaches to replicate on-site worker interviews or the broader ability to see and engage with workers that comes with on-site audits"[55]. Although employees could be interviewed via videoconferencing platforms, there are numerous concerns about the reliability of the information provided and risks this approach presents to the workers. Similar to challenges with worker voice tools, it may be practically difficult to ensure that factory management does not interfere with the interview process itself, by listening in to responses and carrying out retaliation against workers. This process does not adequately address issues of privacy, a lack of training, communication barriers, or trust that were identified with face-to-face interviews. Instead, video conferencing interviews may exacerbate these issues, as workers may not feel comfortable disclosing highly sensitive information virtually for fear that the conversation is recorded and may be used against them. Additionally, common practice during audits is to select a random group of workers in an attempt to get representative sample of voices, but this randomization may be impossible to enforce when done remotely or it may increase the risk of workers being coached and threatened.

## Conclusion

Although technology may offer a partial solution, many critical social issues cannot be assessed remotely[56]. One company that was interviewed by ISEAL shared a frank outlook, warning "COVID had a timeline and that there was a risk of investing too much effort into

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[52] Hannah Thinyane and Karthik Bhat, "Supporting the Critical-Agency of Victims of Human Trafficking in Thailand" (ACM CHI Conference on Human Factors in Computing Systems, Glasgow, Scotland: ACM, 2019).

[53] Farbenblum, Berg, and Kintominas, "Transformative Technology for Migrant Workers: Opportunities, Challenges, and Risks."

[54] ISEAL is a global membership alliance that supports transparent sustainability systems

[55] ISEAL, "Remote Audit Practices and Alignment: Findings from Interviews with Sustainability Standards - October 2020," 2020.

[56] ISEAL.

technology to carry out remote worker interviews and for which results may ultimately be deceptive"[57]. Moreover, because gaining the trust of vulnerable individuals and uncovering highly sensitive information in a short amount of time is very difficult, social audits and digital worker voice tools are increasingly effective at gathering worker feedback but have yet to prove successful at uncovering hidden abuses like forced labour and trafficking in persons[58]. Due to concerns over feasibility and suitability of remote monitoring, a combination of both digital and in-person monitoring may be most beneficial. These hybrid approaches could leverage technology to expedite certain aspects of audits (e.g., conducting remote documentation review before a factory visit), while freeing up auditors to spend more time on other assessment activities that cannot be adequately replicated virtually (e.g. devoting more time in-person to worker interviews).

In the midst of a crisis situation that heightened the risks of labour exploitation, the priority concern described in this paper has been adapting technology to be able to obtain firsthand insights into the circumstances faced by vulnerable workers. As one of our focus group participants aptly put it, "There are no better choices as of now, it's a necessary compromise we have to afford"[59]. What remains unclear at this point in time is whether remote auditing practices will become standard operational practice under "normal conditions" in a post-COVID world or will only be deployed in specific responses to circumstances where in-person audits cannot be conducted[60].

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[57] ISEAL, "Remote Auditing Practices - Interview with Supply Chain Companies," 2020, https://www.isealalliance.org/about-iseal/our-work/remote-auditing.

[58] Rende Taylor and Shih, "Worker Feedback Technologies and Combatting Modern Slavery in Global Supply Chains."

[59] Quote from interview with brand representatives, 4 December 2020. Online working group.

[60] Castka, Searcy, and Fischer, "Technology-Enhanced Auditing in Voluntary Sustainability Standards."

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