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Supporting decent work and the transition towards formalization through technology-enhanced labour inspection

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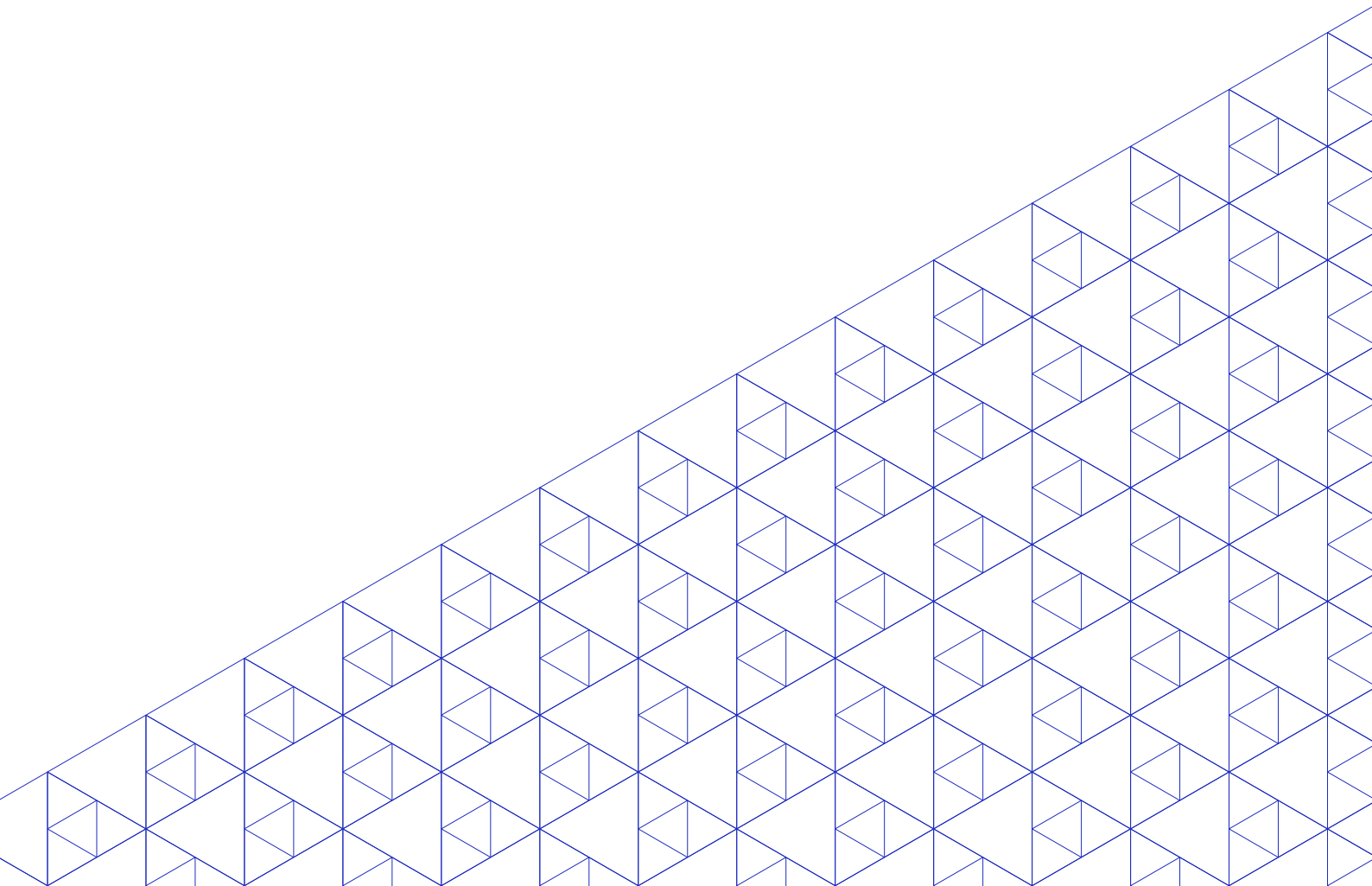

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Abstract

The development and expansion of information and communication technologies (ICTs) has had far-reaching consequences for governance and the world of work, including how labour administrations and inspectorates manage and deliver services. Labour inspection is an essential part of labour administration and ensures the enforcement of worker's rights and compliance with relevant legal obligations. As such, labour inspection is one of the many different pathways available for reducing informality through inspectorates' mandated information sharing and sanctioning activities.

An increasing number of governments around the world are interested in exploring, promoting and unlocking the full potential of new technologies to facilitate the transition from the informal to the formal economy. Research and evidence on effective strategies, programs, and practical applications of ICTs in this area to date is limited and policymakers stand to benefit from a greater understanding of what works in addressing informality through technology. In this working paper, we broadly explore the relationship and intersection between labour inspection, technology, and formalization and provide a detailed case study of Apprise, an innovative mobile solution that was developed to assist inspectors and other frontline responders in their preliminary screening of workers for indicators of labour violations and exploitation. Although additional impact evaluation studies are necessary, the study concludes that technology-enhanced labour inspection shows promise as a central component of integrated strategies targeting reductions in informality.

About the authors

Michael Gallo is currently a Research Assistant at the United Nations University Institute in Macau where he investigates how digital technology can be used to empower labour migrants at every stage of their migration and employment journeys. He has also previously worked for the United Nations University Centre for Policy Research to further develop the Delta8.7 global knowledge platform for data and evidence-based polices towards the achievement of SDG Target 8.7.

Hannah Thinyane has a 15-year career in transparency, accountability and technology. In focusing on the use of digital technology to support the identification of labour exploitation in global supply chains, her work has two themes: 1) innovating and inventing tools to support the identification of victims of exploitation; 2) and analysis of patterns of exploitation to inform action (prevention, protection, prosecution). She has a PhD in Computer Science from University of South Australia. She works as a Consulting Researcher at United Nations University Institute in Macau, as well as a Product Manager in the Supply Chains team at Diginex.

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Introduction

New technologies and technology-driven growth are having profound impacts on the world of work, reshaping labour relations and disrupting labour markets through trends like automation and digital labour platforms. More than 2 billion people, roughly two-thirds of the world's employed population, make their living within the informal economy and technological developments play a crucial role in shaping the outcomes experienced by them (ILO, 2018a; GIZ, 2020). While technology may contribute to informality by displacing workers from certain sectors through digitalization and automation (Chang and Huynh, 2016), it can simultaneously play a role in reducing the informality of both workers and enterprises. For example, digital technologies can improve financial inclusion for individuals and small and medium enterprises operating in the informal economy (GPFI, 2018). New technologies also help extend the coverage and scope of social protection schemes within the informal economy through innovative mechanisms of service delivery (i.e. digital platforms) that improve accessibility (Nguyen et al., 2019). Technology further supports the establishment of efficient and transparent public administrative processes that can encourage enterprises to formalize and reduce barriers in doing so.

Promoting the transition from the informal to the formal economy requires an integrated and holistic policy framework that approaches the challenge of informality through multiple dimensions. At the 2015 International Labour Conference, the ILO adopted Recommendation No. 204 – Transition from the Informal to the Formal Economy (hereinafter referred to as R.204) as the first ILO instrument providing guidance on how to help workers and economic units move out of the informal economy. Under Policy Outcome 6 (Formalization of the informal economy), the ILO further developed a broad policy framework that can strengthen the capacity of its tripartite constituents to promote this transition towards formalization, addressing both specific contexts as well as the structural drivers of the informal economy (ILO, 2015a). The ILO principally recommends four approaches for enterprise formalization (Gaarder and van Doorn, 2021):

- Making registration and compliance easier (through simplified laws and procedures);
- Making it more attractive to formalize (by increasing incentives and removing disincentives);
- Making formalization more feasible (by enhancing enterprise productivity);
- Making operating informally less attractive (notably through strengthened enforcement and compliance measures).

Debates on the issue of what works best to trigger formalization generally divide policy instruments into two camps: 'carrots' and 'sticks'; with the former enticing informally operating enterprises through positive incentives and the latter raising the cost of remaining informal through negative consequences such as fines. Although evidence is still limited, research has suggested that better enforcement policies through upgraded inspection capacity and frequency (the 'stick' approach) may have a greater impact on reducing informality than simplifying registration policies or stand-alone information provision (the 'carrot' approach) (Tansel, 2016). However, the different intervention typologies listed above are not mutually exclusive and have demonstrated success when undertaken in combination with one another as part of more comprehensive and coordinated strategies.

Since the adoption of R.204, a small yet growing body of research has compiled promising developments in policies and tools that make use of technology to support the transition towards formalization in a range of sectoral and geographic contexts. Policies that address public institutions' use of technology to promote formalization and tackle informality have been collectively referred to as 'e-formalization' (Divald, 2021). Researchers have developed a taxonomy to categorize these e-formalization initiatives as the following (Chacaltana, Leung and Lee, 2018):

- Formalization of economic units
- Registration of financial transactions

- Electronic registration of workers
- Upgrading labour inspection

A meta-analysis of formality initiatives in Asia described e-formality measures as "useful carrots – good and desirable in any case, but they are likely to work when used in combination with other measures to trigger formality" (Mehrotra, 2019, p. 24). Against the backdrop of the ILO's collective work and recommendations regarding formalization strategies, this working paper narrows its focus specifically on upgrading labour inspection through technology which in turn makes it less attractive to be informal through enhanced enforcement and compliance. This particular area of investigation is limited in scope relative to positive incentives to reduce informality, despite evidence that suggests it may be a more effective approach. Given the positive impacts that inspection and enforcement can have on formalization for both enterprises and individuals, inspectorates can directly and indirectly promote the transition towards formality through better harnessing digital technology. Recent research has begun to explore how national labour administrations have utilized ICTs to improve their core process, including the management and delivery of labour inspection services.

This working paper seeks to contribute to a specific knowledge gap by compiling examples of promising practices and further elaborating on the role that innovative labour inspection technologies can play in delivering positive outcomes for informal workers through reduced decent work deficits.[1] One gap that has previously been identified in the use of technology for labour inspection is the limited application of mobile devices for data collection. We share key findings from the development and implementation of one such tool, called Apprise, which is an innovative mobile solution developed to assist inspectors and other frontline responders in their preliminary screening of workers for indicators of labour violations and exploitation.

[1] The paper was presented at the ILO-UN ESCAP Research forum on Technology and the Transition from Informal to Formal Economy, held virtually from 18-19 January 2021. To find out more on the workshop and associated activities, see Sara Elder, "Is Asia ready for e-formalization?", 25 May 2021.

▶ 1 Enhancing labour inspection through technology

Over the past two decades, e-government initiatives have become a core part of institutional modernization efforts towards improving efficiency, effectiveness, and transparency while strengthening objective-based policy development (UNDESA, 2020). Most national labour administrations have recognized the operational benefits that ICT adoption can offer for both themselves and the ultimate end beneficiaries (workers and employers) and have invested in technological infrastructure and information systems. Digital technologies hold significant promise to overcome many challenges present in labour administration and inspection services, through procedural digitalization and innovative applications of transformative technologies. According to a recent ILO report on The Future of Work in the Digital Economy, "technology can reinforce the efforts of labour inspectorates to ensure compliance with labour regulations; can mitigate the risk of labour inspectorates being outpaced by developments in the ever-changing world of work; and can enhance inspectorate abilities to detect, prevent, and remediate decent work deficits" (ILO 2020a, p. 2). The ILO Report of the Global Commission on the Future of Work further acknowledged the opportunities surrounding technology to improve labour inspection systems, to make it easier to monitor working conditions, and to verify compliance in supply chains (ILO, 2019a).

Leveraging technology can help to strengthen labour inspectorates strategic planning, investigation, and data management functions towards improving their capacity, efficiency, and overall effectiveness (ASEAN Secretariat, 2018). Labour administrations use databases and information systems to provide background information to inspectors prior to site visits; to capture historical data across time; for risk-based prioritization and logistical planning; for compliance and follow-up monitoring; and for evaluating performance and impact (ITC and ILO, 2010). The OECD Best Practice Principles for Regulatory Enforcement and Inspections recommends that ICTs be used to maximize risk-focus, coordination, information sharing, and optimal use of resources (OECD, 2014). Large data sets within integrated management systems can help to produce a more rigorous and sophisticated understanding of compliance issues and how they change over time (Berg, Farbenblum and Kinitominas, 2020). Having a centralized information repository enables greater linkages between decentralized offices and operations, exchange of and access to data, and review of aggregate statistics and historical trends. Technology presents the prospect of quicker, more scalable, and cost-effective data collection that can be rapidly transmitted and updated to influence operational planning and decision making. Through enhanced capacity for data collection, greater communication capabilities, and the ease of information exchange, the organizational management of inspection services stands to greatly benefit from ICTs. These functionalities are crucial to developing risk-based prioritization for optimizing the deployment of limited personnel in the most cost-effective and time sensitive fashion.

ICTs can aid inspectors in their assessment of hard-to-reach work environments, support greater transparency and accountability between parties, and translate to improved monitoring and follow-up of inspections (ILO, 2017a). ICT-based policies and procedures offer time and cost-saving benefits for practices that have traditionally been reliant on non-electronic formats or required the physical presence of an inspector. Technology considerably eases administrative and documentation-related burdens by electronically gathering and organizing information that would otherwise need to be completed and stored using paper-based forms (Bignami, Casalae and Fasani, 2013). Transitioning to technology-oriented procedures allows inspectors or auditors to conduct a greater number of assessments per individual because of these time-saving gains, extending services into a wider scope of working environments (Galazka, 2015). Labour inspectors themselves therefore also benefit from ICTs through streamlined workflows, allowing them to cover a greater number of establishments within a similar timeframe (Bhattarai, 2018).

Due to their age, the most relevant Governance Conventions, the Labour Inspection Convention, 1947 (C081) and the Labour Inspection (Agriculture) Convention, 1969 (C129), do not contain specific provisions related to the use of ICTs in labour inspection. However, a recent assessment by the Committee of Experts on the Application of Conventions and Recommendations that reviewed these conventions did make note

that "labour inspectorates across all regions are making innovative use of online, mobile and networking approaches to expand their reach and accessibility. Information technology tools have also enabled significant improvements with respect to the capacity of inspectorates to collect, analyse and publish data" (ILO, 2020b, p. 2). The report further suggested that the ILO can assist member states by suggesting better uses of technology for achieving compliance.

Recognizing the capacity building potential of technology-enhanced labour administration, the ILO has undertaken a wide range of initiatives and technical advisory services to support national ministries in computerizing key inspection process and developing a variety of inspection information management systems and tools (ILO, 2019b; ILO, 2017b; ILO, 2015b). Other inter-governmental organizations have also recognized the growing role of ICTs in this area, with the 5th ASEAN Labour Inspection Conference being organized under the theme "Enhancing Labour Inspection through Information and Communication Technology". This conference underscored the need to upgrade labour inspection capacity through ICTs and ensure bilateral and regional cooperation through technology transfer and sharing of best practices.[2] Despite the many advantages outlined above that are offered by ICTs, the first ILO global survey on ICT usage within national labour administration systems found that although adoption is generally increasing across several domains, its potential remains largely underrealized (Galazka, 2015).

1.1 Labour inspection and formalization

The term informal economy encompasses an enormous variety of situations and manifests differently depending on a range of contextual factors. R.204 describes the informal economy as referring to all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements (ILO, 2015c). Informality can generally be subdivided into two categorizations: (a) employment in the informal sector and (b) informal employment. While the informal sector is defined by the characteristics of the enterprise in which employment takes place, informal employment refers to the nature of the employment relationship and protections associated with the job of the worker (Gaarder and van Doorn, 2021). This means that the informal sector refers just to informal enterprises, while informal employment refers to informal jobs, which can be found in both the informal and formal sector.

Workers are considered to have an informal employment relationship if in law or in practice they are not subject to labour regulations, lack access to social protections, or are not afforded certain employment benefits such as advanced notice of dismissal or paid leave. Guidelines developed by the International Conference of Labour Statisticians specify that the reasons for this may be any combination of the following: non-declaration of the jobs or employees; casual jobs or jobs of a limited duration; jobs with hours of work or wages below a certain threshold; employment by unincorporated enterprises or by persons in households; jobs where the employee's place of work is outside the premises of the employer's enterprise; or jobs for which labour regulations are not applied, not enforced, or not complied with for any other reason (Hussmanns, 2004). Concerning decent work and the informal economy, the ILO notes that "some workers are in the informal economy because national labour legislation does not adequately cover them or is not effectively enforced, in part because of the practical difficulties of labour inspection" (ILO, 2002a).

While many strategies are geared towards positive incentives to promote formalization, they should go hand in hand with strengthening enforcement through preventive and corrective measures, a function of labour inspection mechanisms. Labour inspection agencies play a central role in expanding the protections that the labour system provides into the informal economy (ILO, 2017c). Labour standards and instances of non-compliance are understood to be non-negotiable and should be subject to punishment and sanctions that increase the cost of being informal. The ILO report on Transitioning from the Informal to the Formal Economy mentions that "a pragmatic approach can be adopted, as regulations are more likely to

[2] ILO, 5th ASEAN Labour Inspection Conference: Enhancing Labour Inspection through Information and Communication Technology, Nov. 11, 2015.

be effective when different options are available for their enforcement, including innovations in workplace inspection" (ILO, 2013a, p. 40). Not only do inspectorates enforce laws specifically for workplace conditions like occupational health and safety, but they also ensure legal provisions pertaining to formality such as the extension and provision of social security and other protections (ILO, 2010). R.204 states "members should have an adequate and appropriate systems of inspection, extend coverage of labour inspection to all workplaces in the informal economy in order to protect workers, and provide guidance for enforcement bodies, including on how to address working conditions in the informal economy" (ILO, 2015c).

Many governments have devoted considerable attention to making it more attractive for informal business to formalize, but much less effort has been dedicated towards increasing the enforcement of regulations to raise the costs of remaining informal (Mehrotra, 2019). However, research suggests that public enforcement through inspections raises the average probability of formalization rates for both enterprises and workers, and this may occur for several different reasons. Measures taken to strengthen and improve labour inspection creates both direct and indirect incentives for formalization, as the costs of non-formalization faced by employers increases in conjunction with greater inspection frequency and capability (Maurizio, 2014). Inspectors have the ability to impose sanctions when they identify issues of non-compliance, which can raise the cost of informally employing workers which in turn motivates enterprises to reduce informal employment by complying with regulations and providing mandated health, safety, and social security benefits to workers. Additional inspections raise the likelihood of a fine being issued and also heighten employers' awareness of government oversight. A number of empirical studies have documented the positive effects that inspection has on formalization, providing evidence to support enforcement as a central component of strategies to reduce informality.

For example, Henrique de Andrade, Bruhn & McKenzie (2016) conducted a control study in Brazil that examined the effectiveness of different 'treatment' interventions on formalization, where firms either received only information about registration, received information about registration and a waiver for registration fees, received an enforcement visit from a municipal inspector, or a neighbouring firm received an inspection visit. The results of the study showed that informal firms who received a visit from an inspector were between 21-27 per cent more likely to complete a municipal registration and their cost benefit analysis suggested that the revenue benefits to the government from the increased registrations outweigh the resources needed to support increased inspection activities. Importantly, the other intervention types had no impact on formalization, suggesting that enforcement was more effective at getting firms to formalize than positive or neutral incentives.

Ronconi (2010) found that provinces in Argentina that had greater levels of enforcement also had higher levels of compliance with both employment and social security regulations. For every additional inspector per 100,000 people, there was a statistically significant increase in the percentage of private sector workers who were afforded their legally mandated benefits and protections pertaining to minimum wage, maximum working hours, paid vacation, extra annual monthly wages, workers' compensation insurance, and health insurance. Samaniego de la Parra (2017) found that randomly applied inspections from Mexico's Ministry of Labour increased the quarterly probability from 14 per cent to 20 per cent that a worker will transition from an informal to a formal job within the same establishment. Almeida and Carneiro (2005) found that increased enforcement activity through local inspections in Brazil led to a substantial reduction in the amount of informal workers being employed by firms. On average, when the number of fines for minimum wage, overtime, or registration violations per 1000 firms within a subregion increased by 1, the share of informal workers subsequently fell by 3.5 percentage points. Almeida and Carneiro (2012) found that state inspections increased the proportion of formal employment and lowered levels of informality, most particularly for workers who were informally employed within the formal sector (i.e. not being afforded their legal entitlements at a registered firm).

In Peru, modernized databases and a new electronic payroll system allows inspectors to conduct a simple cross validation of information between the labour and tax administrations, which led to a sharp increase in formalization rates and improved compliance with labour law following its implementation (ILO, 2014a). These systems are used by the labour authorities to determine a worker's level of formality and improves

the efficiency of inspection procedures, contributing to decision making and policy formulation to promote labour formalization in the country (ILO, 2015d). In 2019 alone, the National Superintendent of Labour Inspection reported being able to formalize 69,589 workers through this system (ILO, 2019c). Since 2003, Argentina's National Program for Employment Regularization has undertaken actions to reduce informality within formal businesses by making significant investments into increasing the number of inspectors and computerizing the process of inspection (ILO, 2014b). Through the use of a mobile application called INDI that assists with the labour inspection process, more than 1 million workers' conditions have been reviewed and more than 200,000 workers have regularized their working conditions (ILO, 2019d). The tool scans a variety of data sources to audit for unregistered work, a process which used to take 150 days but can now be done instantaneously.

Sri Lankan authorities have developed a "Labour Inspection System Application (LISA)" to support inspectors and promote compliance with labour law by replacing their paper-based system with a tablet application that can electronically record all relevant inspection information and link it to a centralized database (ILO, 2015b). Bangladesh's Ministry of Labour and Employment also launched a digitalized Labour Inspection Management Application (LIMA) to improve the collection, storage and analysis of labour inspection data where inspectors can view statistics on working conditions, worker registration, and factory licensing (ILO, 2018b). The system has been used extensively for inspections throughout industries that are notorious in the Bangladeshi context for having high degrees of informality such as ready-made garment manufacturing and shipbreaking.

Chacaltana (2016) notes that the strength of the State to enforce its employment regulations is contingent upon the number of inspections, the manner in which inspections are organized, and the technology that is used to carry out inspections. ICTs can support service provision and policy-making related to labour inspection and other functions charged with regulating the informal economy (Hastings and Heyes, 2016). Mobile technology and digital services offer a range of possibilities that can help to expand coverage of services into the informal economy. Governments can upgrade their inspection capacity by modernizing and adopting new technologies or implementing specific inspection procedures to facilitate the transition to formality, such as those outlined above (Chacaltana, Leung and Lee, 2018). R.204 further supports the use of ICTs to improve access to services, finding that ICT access and efficient and effective labour inspection are key areas to address within an integrated policy framework (ILO, 2015c). There is a continuum between formality and informality, with formalization being a gradual process that occurs over time (OECD, 2007). Although ICT based inspection tools are not always explicitly linked to objectives of formalization, they have been shown to have both direct and indirect implications for the transition in their support of greater transparency, accountability and enhanced compliance (Chacaltana, Leung and Lee, 2018). By leveraging technologies to improve their capacity, frequency and effectiveness, labour inspectorates can play a key role in driving formalization.

1.2 COVID-19 implications: Informality, inspection and digital technology

The COVID-19 crisis has had severe and long-lasting adverse impacts on those working in informal economy. Informal employment comprises a majority of total employment in low and lower-middle income countries that have been hit the hardest by the cumulative health, social, and economic impacts of the pandemic. The ILO estimates that 1.6 billion workers in the informal economy have been significantly affected by the pandemic (ILO, 2020c). Experiencing informality further exacerbated the immediate effects of the pandemic, as informal workers faced a greater likelihood of losing their jobs, suffering a decrease in earnings, and being excluded from any of the social protection measures that governments implemented. In many cases, informal workers continued working even without proper protective equipment and greater risk exposure to COVID-19, simply because they could not survive without an income (ILO, 2020d). As many enterprises have faced financial collapse and permanent closure as a result of the economic downturn, the informal economy is very likely to have expanded in scope since the start of the pandemic (ILO, 2020e).

This risk of growing informality was underscored in the UN Framework for the Immediate Socioeconomic Response to COVID-19, and informal workers were identified as one of the groups at highest risk of further economic marginalization (UN, 2020).

The pandemic has simultaneously caused unprecedented disruptions to labour inspection due to travel restrictions between and within countries, lockdowns, and social distancing measures. The normal operations of labour inspectors have been affected either by their need to stay home to comply with public health measures, or by an increased demand for their technical expertise to provide advice to employers on the implementation of new COVID-19 related policies. At the same time, financing for inspection and labour administration capacity have been curtailed in many instances, as public resources were diverted to meet other pandemic related needs (ILO, 2020f). As a result, inspections of both formal and informal workplaces have been reduced (and in some cases put on hold) from their pre-pandemic levels (Idris, 2020). Some jurisdictions have restricted the mandates of inspectorates by raising the threshold on the size of firms that are subject to inspection, further reducing the number of workplace assessments (ILO, 2020f). As economies reopen, inspectorates need the resources and capacity to proactively monitor highest risk sectors as part of the re-establishment and reinforcement of labour administration. Preliminary guidance released early in the pandemic encouraged the use of ICTs to enhance the protection of vulnerable workers as these traditional methods were disrupted (IOMa, 2020). Without the ability to be physically present in certain circumstances, inspectors relied on ICTs to document, share and examine information that would traditionally be collected during on-site visits.

The COVID-19 crisis has highlighted the need for significant support and investment into digital governance solutions and innovations to ensure continuity and effective service provision. COVID-19 has rapidly accelerated the pace of digital transformation through the uptake and use of ICTs and digitization of both public and private services (UNDESA, 2021). Digital technology has been indispensable throughout the course of the pandemic, enabling timely information dissemination, communication, and collaboration between policymakers and society. Even once the pandemic has subsided, a new "digital normal" will reinforce the necessity of optimizing technology to respond to challenges and contribute to sustainable development (World Bank et al., 2020). The decreasing costs of ICTs combined with greater network penetration will continue to be a driving force behind exploring the wider applications of technology to solve global challenges.

1.3 Challenges associated with labour inspection and technology adoption

Inspectorates play a crucial part in addressing issues related to the informal economy, requiring adequate support and resources to execute their mandate. Despite the essential role that they play in ensuring labour law is applied and promoting formalization, they often face very basic challenges such as being chronically underfunded and understaffed (ILO, 2014c). The failure to enforce labour laws and reduce informality in many countries stems from the overall weakness of labour administrations, but particularly from weaknesses in labour inspection (ILO, 2005). Despite the increasing number and complexity of enterprises subject to inspection, and the need to extend inspection services into the highly heterogenous informal economy, resources allocated for labour inspection are often insufficient for even the adequate inspection of medium and large sized formal enterprises (ILO, 2014c). Some estimates indicate that in developing countries less than 1 per cent of the national budget is allocated to labour administration, of which labour inspection systems only receive a small fraction (ILO, 2009a). The ILO's policy and technical advice recommends that the number of inspectors in relation to workers should approach: 1/10,000 in industrial market economies; 1/15,000 in industrializing economies; 1/20,000 in transition economies; and 1/40,000 in less developed countries (ILO, 2006). However, many countries fail to reach these benchmarks and the number of units and workers under the inspection mandate far outstrips the number of available inspectors. The ILO's Approach to Strategic Compliance Planning for Labour Inspectorates aptly summarizes the issue, observing "the number of workplaces subject to inspection dwarfs the resources available to inspect them,

leading to a situation in which workers are unprotected, violators operate with impunity, and unfair competition for compliant businesses pervades" (ILO, 2017d, p. 2).

Many countries facing these constraints have turned to technological innovations to reduce governance gaps and offset human and financial resource limitations through the scalable and replicable nature of ICT solutions. However, labour administrations in developing countries have reported placing more importance on following the practices of other institutions rather than innovating and making use of new technologies (Galazka, 2015). Developing countries also experienced a slower pace of adoption of ICTs when compared to developed countries, which may be at least partly explained by the double-edged nature of technology solutions. Although ICTs can potentially deliver substantial improvements and cost savings over time, they also may require high initial expenditures in both equipment and technical staff, along with needing ongoing investment in order to ensure their long-term success and replace outdated hardware and software. Inadequate ICT infrastructure and tools can pose several challenges, making information difficult to retrieve, inhibiting meaningful analysis of data and hampering the flow of information between interoperable systems. New technologies inevitably give rise to challenges such as data security and confidentiality, system interoperability, the need for ongoing maintenance and repair, duplication of efforts, and entrenched organizational or cultural resistance to change (ILO, 2010). With increased digitalization and reliance on networked technologies, there always remains the risk of security violations or unauthorized access that results in privacy breaches and the loss or misuse of personal data. Underdeveloped ICT infrastructure and unreliable connectivity within a country can further limit both the rate and scope of technological innovation. Although conceived with workers in mind as the end beneficiaries, workers may face problems with literacy, digital literacy, lack of skills, and lack of participation or inclusion in solution design (Nishinaga and Natour, 2019).

▶ 2 Decent work deficits, migrant workers and the informal economy

The ILO uses a lens of decent work deficits to understand issues within the informal economy. The informal economy is characterised by acute decent work deficits, where many workers are exposed to unsafe working conditions, have less regular and lower incomes than those in the formal economy, suffer from longer working hours, abusive recruitment practices and lack of voice and representation (ILO, 2009b). Informal workers are among the most vulnerable and least protected groups and are subject to the worst forms of labour and human rights violations, with child labour, forced labour, and human trafficking occurring overwhelmingly within the informal economy (ILO et al., 2019). These factors are amplified when considering the case of both internal and international migrant workers. Migrant workers are disproportionately engaged in economic activities either in informal sectors or with high degrees of informal employment such as fishing, domestic work, agriculture, small-scale manufacturing, and construction (IOM, 2020b). Workers in these sectors are particularly vulnerable to labour abuses and inadequately covered by regulation and inspection. Migrants often have minimal knowledge of the destination country language, little to no access to information about the legal standards that are applicable to them and may have irregular status that inhibits their right to access employment protections and social security (ILO and ISSA, 2020). Even if their work environment is inspected, without the capacity for translation services, investigations of non-compliance may exclude the voices of migrant workers who do not share a common language with inspectors.

Labour inspection is critically important for reducing decent work deficits through its three primary functions outlined in The Labour Inspection Convention, 1947 (No. 81): "(i) securing the enforcement of the legal provisions relating to conditions of work and the protection of workers while engaged in their work; (ii) supplying technical information and advice to employers and workers concerning the most effective means of complying with legal provisions; (iii) bringing to the notice of the competent authority defects or abuses not specifically covered by existing laws".[3] An important point to note is that reducing decent work deficits and promoting formalization are mutually reinforcing activities, as many decent work deficits stem the lack of protections afforded to workers within informal enterprises and informal employment relationships. Efforts focused on addressing decent work deficits in the informal economy contribute to objective of improving working conditions which puts workers on a path towards the formal economy. The promotion of decent work for all was further enshrined under SDG 8, with Target 8.3 specifically encouraging formalization.[4]

Due to the practical limitations described in the previous sections, state-based inspections, and enforcement require constructive engagement with employers to address governance gaps and contribute to the achievement of the objectives of regulation and formalization. Even though public authorities are the primary actor with responsibility for guaranteeing workplace standards are upheld, the private sector also has a key role to play in reducing decent work deficits, aspects of informality, and ensuring greater compliance and accountability in global value chains. Similar to the potential underlying the application of technology in the context of labour inspection, social auditing mechanisms can make use of ICTs to improve data collection, recording, and analysis within their standard operating procedures (Castka, Seary and Mohr, 2020). Technology-enhanced social auditing can improve the veracity and timeliness of measuring companies' adherence to internal codes of conduct, due diligence frameworks, or international conventions such as the ILO's Declaration of Fundamental Principles and Rights at Work (Castka, Seary and Fischer, 2020). ICTs can amplify worker voices, which in turn can support better labour relations through greater dialogue between employers and employees (WEST Principles, 2019). Digital tools can extend grievance mechanisms

[3] Convention C081 - Labour Inspection Convention, 1947 (No. 81).

[4] Indicator 8.3.1, which measures progress towards SDG Target 8.3, is the "proportion of informal employment in non-agricultural employment, by sex".

to more workers and support informed preventive actions to address potential violations before they occur (Nishinaga and Natour, 2019).

▶ 3 ICTs for proactive screening of work environments

Although the examples outlined above capture some of the ways in which technology is facilitating the work of labour inspectors, one underexplored research question is "What gaps exist in using technology for labour inspection, and how can they be addressed to better reach workers in the informal economy?". Innovative technologies may represent a strategic investment for inspectorates towards achieving the dual objective of enhancing service delivery and promoting formalization. Mobile devices such as tablets and smartphones have seen promising uptake in other interrelated areas such as in administering and monitoring social protection schemes (Handayani et al., 2017). However, according to the ILO Global Survey on ICT use by national labour administrations, only 20 per cent of respondents reported using mobile inspection software, with many of these systems offering only basic functionality (Galazka, 2015). Of those with mobile inspection software available, only 15 per cent reported using it to collect field data, highlighting a potential role that ICTs could play. Although some labour administration practitioners (including inspectors) undertaking work in the field are equipped with mobile phones, there is still significant scope for greater deployment of mobile devices and mobile phone applications which are used less frequently in comparison to more traditional hardware and software (Galazka, 2015).

Despite the widely recognized promise offered by mobile technology to collect information, there have been low levels of implementation within the context of workplace inspection. The ILO report made two noteworthy recommendations with regards to ICTs and labour inspection. Firstly, it suggested to make creative use of the most innovative mobile devices, including the transfer of selected inspection tasks to automated technological solutions, which would allow for an increase in the coverage of areas to be inspected. The report also suggested to use different forms of communication technologies for the provision of interpretation and translation services that could reduce instances of labour law violations in linguistically diverse work settings (Galazka, 2015). Other ILO recommendations on inspection, ICTs, and the informal economy suggest that ICTs could be used more widely in the prevention, detection and publicizing of abuses and that governments should link databases to identify infractions in the areas of social security, taxes, and labour law, including occupational safety and health. To support data quality and identification of non-compliance, ILO further recommended the provision of automated intelligence reports to inspectorates based on finding of these interlinked databases (ILO, 2015e).

In the following section we introduce Apprise, a multilingual mobile digital solution that supports frontline responders (FLRs - including labour inspectors and auditors) to screen for and detect labour violations amongst formal and informal workers. This system has been used over the past four years by a broad cross-section of stakeholders including national labour inspectorates, private multinational corporations, and NGOs as a tool for official inspection activities, voluntary non-compliance monitoring, gathering worker feedback, and community outreach to workers throughout the formal and informal economy in various Southeast Asian nations. We begin by describing a needs assessment that was undertaken to uncover challenges FLRs face in identifying labour violations and the potential role technology could play in overcoming them. Then we provide a detailed technical description of the Apprise system itself, developed using a cyclic prototyping methodology. This section also includes modifications to the system that were made in response to COVID-19 circumstances to enable remote collection of worker feedback. Next, we describe a pilot study of Apprise where inspectors from Royal Thai Navy and Thai Department of Labour Protection and Welfare (DLPW, a department within the Ministry of Labour, MOL) used the tool as part of multidisciplinary inspections at Port-in Port-Out (PIPO) centres. While our primary focus is on situating the use of Apprise as a transformative technology for labour inspection (given that labour inspection has been empirically shown to improve formalization rates), we also discuss the broader findings and lessons learned across our collective work where appropriate. For example, labour inspectors often rely on networks of civil society organizations and NGOs to provide them with actionable information and insights into working conditions,

even if there is no formal collaboration between the two. Informality is highly prevalent throughout global value chains and developing the capacity for conducting effective social compliance audits is therefore also relevant. By drawing on case studies, impact assessments, and linkages from the various contexts in which Apprise has been piloted and operationalized, we share key insights and discuss the implications for supporting the transition towards formalization.

3.1 Needs assessment

In April 2017, we began our research by seeking to understand the current issues faced by FLRs when they screen workers for indications of labour law violations and what role technology could play. Initially working with the Thai Ministry of Justice, Department of Special Investigations, we were asked to provide support within four key areas of work which are either in the informal sector or have a high prevalence of informal employment: manufacturing, fishing, forced begging, and sex work. For each of these, we assembled a series of consultative workshops with FLRs, worker foundations, CBOs, workers and survivors of exploitation, to understand the current process of supporting workers in these sectors, as well as the challenges that they faced. While the initial needs assessment and preliminary design of Apprise began in April 2017, it was followed by three subsequent stages of consultation (July 2017, October 2017, November 2017), resulting in input from 140 key stakeholders. We used focus group discussions, key informant interviews and field observations to understand current practices and challenges faced by private, non-governmental and governmental actors in screening workers. Collecting actionable insights directly from employees is crucial in monitoring work environments, the provision of social protections, and ensuring workers' rights whether it be in the context of state-based labour inspections, private company's voluntary self-regulation, or NGO outreach activities. The historically limited successes of gathering information on working conditions demonstrates that the traditional processes of data collection are practically challenging, costly, and potentially corruptible (LeBaron, Lister and Dauvergne, 2017).

Understanding conditions of work (that can be identified through different techniques, including worker voice tools) is fundamental to the transition towards formalization and enables access to a range of other rights at work (ILO, 2002b). Without accessible mechanisms to seek redress or voice their grievances, these rights are difficult to realize in practice. This aspect of informality has particular significance for industries or job types that rely heavily on migrant workforces, as communication barriers between workers and FLRs leave out voices of often the most vulnerable, even when inspection mechanisms are in place. Many inspectorates employ translators or interpreters who can speak common languages of migrant workers to overcome communication barriers that may arise. However, because of resource limitations, the wide range of languages spoken by workers, and scheduling constraints, it is impossible to guarantee FLRs will be able to communicate with all workers they may encounter. This concern was frequently raised throughout our consultations.

Underinvestment in creating effective and impartial inspectorates can facilitate corruption and undermine the trust that workers have in disclosing information about violations (ILO, 2005). During our stakeholder consultations, a lack of trust between all parties involved was raised as a major issue of concern. Workers and NGOs cited cases where translators had been bribed by employers to misrepresent feedback. Conversely, employers and inspectors spoke of workers who were disgruntled and falsely claimed violations had occurred. To resolve these issues, there was a general appetite for the creation of a more objective and consistent way for conducting interviews that could facilitate mutual understanding and dialogue between parties. Technology's ability to support unmediated communication, anonymity, and transparency made it an attractive alternative to traditional methods. Motivated by legitimate fears of retaliation, workers also reported lying about the severity of their situation, appearing to be coached to give responses that would not implicate their employer. Confidentiality was found to be generally difficult to ensure, as many worker interviews take place in uncontrolled environments that do not provide adequate privacy and engender the necessary confidence and trust to openly discuss grievances. Lastly, the nature of violations and practices that undermine labour rights and put workers at risk can varying greatly depending on a multitude of factors so FLRs reported the need for ongoing training.

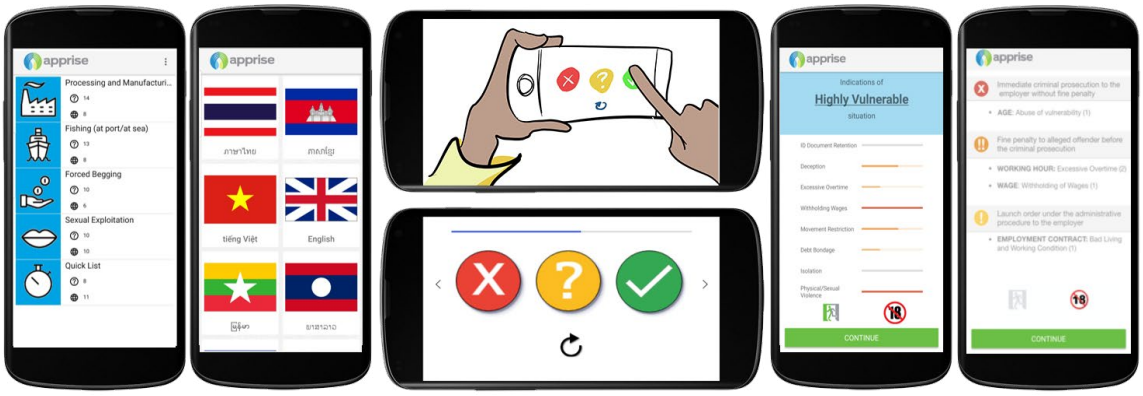
Based on these findings, we identified the potential to develop a mobile phone based, multilingual expert system that could support FLRs to communicate with employees during workplace assessments (Thinyane and Sassetti, 2020). Smartphone apps and technology solutions can empower workers to share direct feedback on their working conditions (Rende Taylor and Shih, 2019). In a baseline survey we sought to understand the perceptions of technology amongst labour inspectors, workers, and social auditors. 94 per cent of the 185 auditor respondents said that they feel very confident about using a mobile phone for an interview and 100 per cent of auditor respondents shared that they regularly use of phones in the daily personal and work life (Sassetti, Mera and Thinyane, 2019). Auditors are aware of the positive impact that technology has on their job and 92 per cent of respondents believe that technology could be useful to help assess working conditions. A majority of labour inspector respondents also believed that technology in general could help support various aspects of the inspection process such as collecting evidence (Thinyane et al., 2020).

3.2 Apprise and Apprise Audit

Apprise was conceptualized, developed, and refined to overcome the challenges of communication, privacy, trust, training and to facilitate communication between FLRs and workers during workplace assessments. Although downloaded on the phone of a FLR, it is ultimately an empowering tool in the hand of a worker.

After installing the app and logging into the system, a FLR will select a question list (Figure 1(a)) and give the phone to a worker, along with a set of headphones. The worker starts by selecting their language (Figure 1(b)) and listening to a brief introductory video providing instructions, a description of the purpose of the interview and requesting consent to begin the interview (Figure 1(c)). If consent is provided, audio recordings of the questions are played in their preferred language (Figure 1(d)). The series of questions are yes/no worded and are responded to by using an intuitive, text-free interface where interviewees select a green, yellow, or red icon, depending on their response (yes, I don't know, no, respectively). By not including text on the screen and using headphones to listen to the questions, employers or managers nearby cannot overhear what is being asked of worker or meaningfully understand the worker's responses. This provides a more private and confidential interview process that supports workers in disclosing sensitive information about their working conditions.

▶ **Figure 1. Apprise screenshots**



Note: From left to right, images show: (a) FLR selects question list; (b) worker selects language; (c) worker listens to an introductory video; (d) worker answers a series of yes/no worded questions; (e) FLR is provided with a summary of findings of interview; (f) alternate view for findings of interview, used by state inspectorate in Thailand.

Bespoke question lists are developed and available for different sectors and implementing partners, based on their differing requirements. Each list enquires about general categories of compliance issues and formality such as working conditions, employment contracts, harassment, wage payments, excessive overtime,

and availability of complaint mechanisms. The length of lists and specific proxy indicators are adapted based on the currently understood, sector specific practices of non-compliance and exploitation. Different question lists are available in the most spoken languages in the sector of work and country that the system has been rolled out in. Question lists can easily be adapted on the fly, with new questions or languages being added and pushed to FLR handsets on next login (with network connectivity). Once an interview has been completed, the app prompts the worker to return the phone to the FLR. Apprise uses an expert system to perform a vulnerability calculation to determine the severity of the exploitation that is faced by workers. The results of the calculation are presented to the FLR and the worker (Figure 1(e)), along with a summary of the findings, categorized according to the ILO Indicators of Forced Labour (ILO, 2012a).

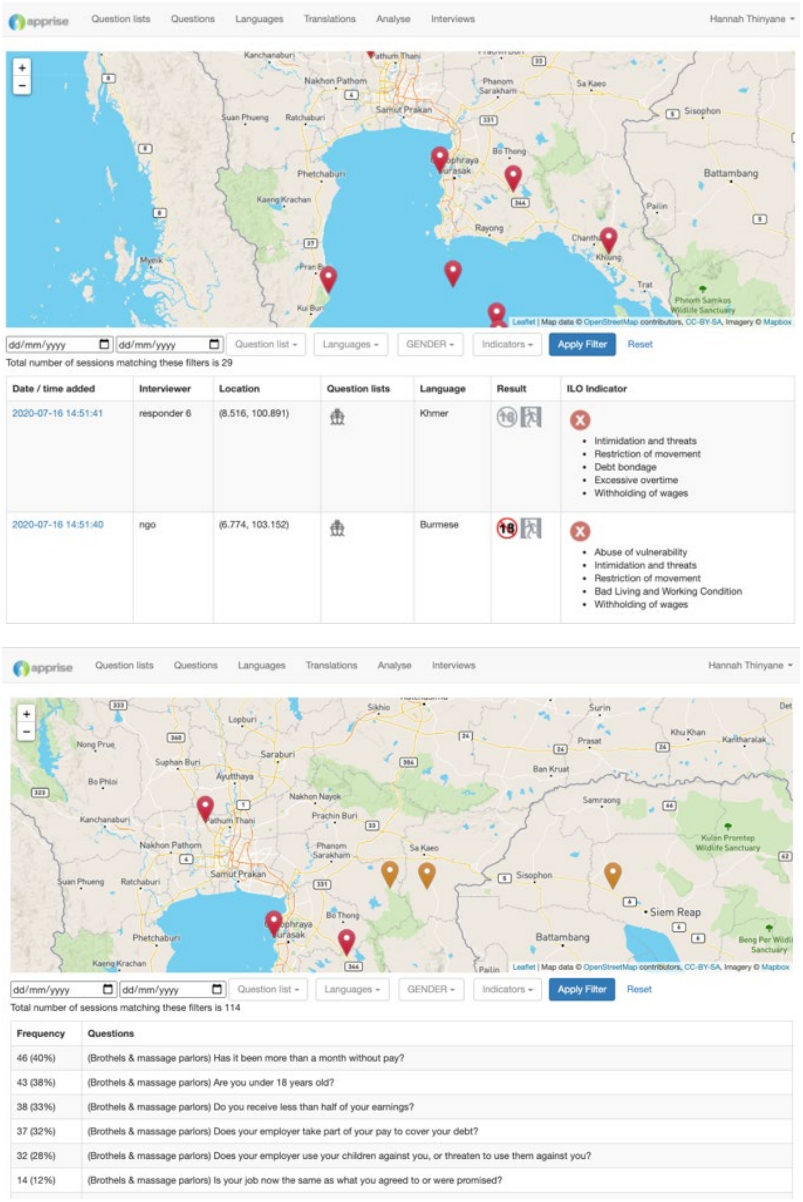
The vulnerability calculation is performed using an expert system, composed of a knowledge base and an inference engine. Each question is aligned with ILO Indicators of Forced Labour (ILO, 2012a) and weighted for the severity of the indication of exploitation. The vulnerability is calculated by combining workers responses, question weightings, and ILO forced labour categories to determine the severity of the work situation, from the following categories: no indications of exploitation; vulnerable; highly vulnerable. Figure 1(f) shows another view of the vulnerability calculation, developed for the Thai Department of Labour Protection and Welfare (DLPW) and used within their worker interviews in Port In / Port Out Centres in Fishing. As well as indicating the severity of exploitation, the screen aligns findings to DLPW regulations, suggesting follow up activities defined in legal frameworks (more details in Section 5.1).

Apprise was designed to work offline, enabling data collection in workplaces with unstable network reception. The data collected offline is then synchronized to the content management system the next time the FLR's mobile device connects to the internet. This enhances inspection capacity (thereby supporting formalization) in geographically isolated work environments such as fishing, mining or agriculture or rural areas with low internet penetration.

In mid-2018, and on reflection with a group of multinational corporations who had been interested in using Apprise in their assessment of their own supply chains, we spun off a sister project, Apprise Audit. The key difference between Apprise and Apprise Audit is the unit of analysis, where Apprise Audit allows FLRs (mostly private auditors) to assign interviews to a factory identifier, and aggregate response and analysis by this factor. In doing so, it allows auditors to assess factory workplace conditions, and how they change over time. Apprise Audit was initially piloted in Dec 2018, and since May 2019 has been used by multinational corporations to undertake social compliance audits across Asia.

The content management system for Apprise (and Apprise Audit) enables administrators and FLRs to easily conduct post-hoc analysis of worker interview responses. This data can be analysed through a combination of map-based visualizations (Figure 2(a)) and according to a variety of disaggregated variables such as location, gender, language, and indicator of exploitation (Figure 2(b)). Such information can contribute to evidence-based planning that maximizes resource allocation for inspection activities towards the highest risk workplaces. It can also be used to assess changing reported practices of exploitation, by sector, location, gender, and language of interview. In doing so, this can enhance labour inspection capabilities by providing instant access to historical information on enterprises' compliance records, thereby enabling strategic prioritization. When used in combination with some form of intervention to reduce non-compliance and improve working conditions, this dual data collection tool and centralized management system supports impact evaluation and longitudinal trend identification.

▶ **Figure 2. Apprise map-based visualizations**



Note: The figures, from top to bottom, demonstrate the map visualization of: (a) list of interviews, showing indicators of exploitation; and (b) analysis for patterns of exploitation.

In the content management system, users are grouped by organization (and then sub-grouped into teams), with sharing permissions allowing administrators to set how widely interview responses can be shared within their organization: within teams, only to administrators, or across a whole organization. Across each of these configurations, key features were implemented to ensure workers' privacy and anonymity are respected. Firstly, no personally identifiable information is requested from workers in Apprise. The purpose of the tool is to obtain a snapshot of reported working conditions at a given point in time, rather than as a case management tool. There is a caveat for Apprise Auditors, where workers are given the opportunity to leave a phone number if they wish for an auditor to follow up on any conditions that they mention in their interview. This optional information is protected by storing it in an encrypted format, and only allowing it to be seen by the auditor who collected the information (regardless of sharing settings set by the organization).

When designing Apprise, we determined that in cases where a worker speaks a minority language, their location as well as the language used for an interview could be combined as proxy indicators to attempt to

re-identify their anonymous responses. To reduce this risk, the exact location of an interview is only available to the interviewer (regardless of sharing settings set by the organization), with other organization members provided with an obfuscated position, by dropping latitude and longitude decimal points in the location.

3.3 Responding to COVID-19: Apprise Audit Remote

The COVID-19 pandemic has dramatically impacted the traditional functions of governments and business alike in conducting workplace assessments and simultaneously created new challenges and threats for formalization. Those experiencing informality have suffered a disproportionate burden of the adverse economic and social impacts of COVID-19 because of their lack of social protections and therefore may face even greater vulnerabilities in the workplace (ILO, 2020g). The disruption to on-site inspection has forced the adoption of interim solutions to understand working conditions and has accelerated the exploration of how technology could reimagine or serve a complimentary purpose to existing procedures. New sector-specific and occupation-specific guidelines for limiting worker's risks and exposure to COVID-19 have also added another layer of complexity. Shortly after the onset of the pandemic, some of the brands we partner with requested support to understand how COVID-19 measures were being implemented in their supply chains. In response, we developed a bespoke question lists to include several related questions that asked about the availability of sanitary facilities, reductions in hourly pay and restrictions on movement.

Further responding to feedback from our private sector partners, we extended the functionality of Apprise Audit to enable remote data collection relying exclusively on self-reported, direct feedback instead of a mediated interaction between FLR and worker. To enable this, a brand sends a QR code (with instructions for use in the form of a text-free comic) to any factory that they are looking to inspect (see Gallo and Thinyane (2020) for more details). Factory management is then directed to print and post the code in a surveillance-free environment, where workers can access their mobile devices to confidentially answer the questionnaire. Through scanning the QR code or inputting the link provided on the sheet, workers can navigate directly to a web-based version of Apprise Audit. They can then complete the questionnaire themselves and the results are subsequently uploaded into the brand's existing account within Apprise Audit's content management system.

3.4 Use of Apprise and Apprise Audit

Apprise and Apprise Audit have been used by a broad cross-section of frontline responders since March 2018, in the following countries, languages, and sectors of work:

- Thailand, in the fishing / seafood processing sector, by government labour inspectors and NGOs. This question list provides translations for workers in: Burmese, Cambodian, English, Lao, Mon, Shan, Thai, Vietnamese.
- Thailand, in the entertainment / sex work sector, by NGOs. This question list provides translations for workers in: Burmese, English, French, Khmer, Lahu, Lao, Lisu, Russian, Swahili, Thai, Uzbek, and Vietnamese.
- Countries in South and Southeast Asian region, within supply chains of multinational corporations, by private auditors. This question list provides translations for workers in: Amharic, Bangla, Burmese, Cambodian, English, Hindi, Indonesian, Kannada, Malay, Mandarin, Nepali, Tagalog, Tamil, Thai, Turkish, Urdu, Vietnamese.

At the time of writing, there have been 9,287 interviews undertaken with Apprise and Apprise Audit. Of these interviews, 7,668 occurred within supply chains of multinational corporations, with the remaining 1,619 in fishing or sex work sectors.

4 Case studies, key findings and the transition towards formalization

In the following section we describe different contexts where Apprise and Apprise Audit have been used for conducting interviews with informal workers in both informal and formal sectors. Each of these case studies highlights key findings that could also support moves towards formalization.

4.1 Thai fishing sector

In 2015, the Thai Government began a series of reforms in the fishing sector, in response to illegal, unreported, and unregulated (IUU) fishing and associated labour abuses in its waters. As part of this overhaul, the Thai government established a newly formed Command Centre for Combating Illegal Fishing (CCCIF – directed by Royal Thai Navy and composed of Ministry of Labour - MOL, Fisheries Department, Customs Department, Marine Police, Maritime and Coastal Environment Department),[5] as well as a network of port in, port out (PIPO) inspection centres, where all Thai flagged vessels with a weight of 30 gross tonnage (GT) or more were required to be inspected prior to leaving port (referred to as port out), and before being allowed to offload their catch (referred to as port in).

In discussions that began in 2018 between one author and CCCIF, they noted that whilst several technological innovations that they had made provided easy access to crew lists, previous violation histories and physical vessel specifications, there was no further technical support for worker interviews. They noted that these interviews were a weak point of the PIPO inspection process, with teams facing time constraints, communication barriers, and privacy concerns when interviewing a largely migrant population. In mid-2019, CCCIF and MOL agreed to field test the use of a screening tool, Apprise, that was developed to support the on-site initial assessment of working conditions in the fishing sector between August 2019 and end of January 2020.

Between 2018 and 2019, the research team held broad stakeholder consultations with NGOs, survivors of severe labour exploitation, IGOs, Ministry of Justice, Royal Thai Navy, Ministry of Labour, Ministry of Social Development and Human Security to solicit feedback on current patterns of labour exploitation. The knowledge base and logic that informed the inference engine were developed as part of a year-long consultation with this broad cross section of stakeholders. Each question in the comprehensive question list was aligned to both the ILO Indicators of Forced Labour, and Thai legal frameworks.[6] Questions were then translated into the most common languages spoken by fishers. The complete question list was then validated by Thai Human Rights Lawyers who have represented most of the trafficking cases that have been prosecuted in Thailand.

The remainder of this section draws on findings from this case study, indicating how they could also support formalization.

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5 Thai Maritime Law Enforcement Coordinating Centre (ThaiMECC) was first established in 2006 and coordinated these same six agencies. In 2015, the CCCIF was established as a special agency to handle IUU fishing and was given control to command agencies within ThaiMECC. In October 2019 and during the course of this study, control was passed back to ThaiMECC. For more information, see website: https://pesforum.org/docs/2018/ThaiMECC_Kittipong.pdf.

6 Specifically: Anti Trafficking in Persons Act, Department of Labour Protection and Welfare Regulations, and Ministerial Regulation on Labour Protection in Sea Fishing Work (B.E. 2561 – 2018).

4.1.1 Informing risk assessments

Since 2018, PIPO centres have used an electronic risk-based approach to prioritize vessel inspection. Known as the Common Risk Assessment (CRA), this system uses a weighted combination of 12 different metrics to calculate whether a vessel should be classified as high-risk, watchlist, or normal. These 12 metrics include variables like specifications about fishing equipment; the presence of a tracking device; previous falsification of logbook data on the catch; problems with the Vessel Monitoring System; a history of fishing in coastal areas; any previous prosecutions; and any inconsistencies with Department of Fisheries records (EJF, 2018). All high-risk vessels are required to be inspected on each port in and out, watchlist vessels 30 per cent of the time, and normal risk 10 per cent of the time (depending on availability of resources).

In discussions with labour inspectors, they noted that the CRA could be improved by integrating feedback from worker interviews in to provide new indicators to inform risk assessments. They also noted that the data from risk assessments could likewise be used to select a subset of questions from the full list of fishing questions, offering targeted insights based on vulnerabilities associated with the vessel.

4.1.2 Lack of understanding of labour laws

In our study, multi-disciplinary inspection teams shared that many fishers do not understand their basic legal entitlements regarding welfare, working hours, and wage payments. A few inspectors suggested that Apprise enabled them to identify key misunderstandings and information gaps in fishers' understanding of their legal rights. One inspector described that after undertaking interviews with Apprise, fishers began asking him follow-up questions because they realized that specific factors must be important if they were being asked about them. Inspectors believed they could use this information to formulate guidelines and targeted awareness-raising activities for workers that addressed knowledge gaps.

Informal workers are very likely to suffer from a lack of knowledge and a lack of access to information about protections that are applicable to them (ILO and UN Women, 2021). Labour inspectors are not only concerned with sanctioning but also tackling information deficits that are associated with non-compliance. R.204 calls for measures to ensure the effective provision of information, assistance in complying with the relevant laws and regulations, and capacity building for relevant actors (ILO, 2015c). Approaches to inspection that combine educational and coercive measures in a transparent and participatory manner have been shown to be successful in the informal economy (ILO, 2013b). All inspections should be understood as opportunities to provide employees with information to help raise awareness about their rights.

4.1.3 Social dialogue and labour inspection

Apprise was co-developed over a period of one year with a broad cross section of stakeholders involved in victim identification, including NGOs, faith-based organizations, intergovernmental organizations, and labour inspectors (Thinyane and Bhat, 2019). As part of this process, a small group of NGOs who served the fishing community integrated Apprise into their own outreach activities, with their large volunteer base installing the app onto their mobile phones. In their weekly outreach activities, they would visit local noodle shops and community gathering points and interview workers using Apprise. The (largely untrained) NGO outreach teams used the tool to triage cases, referring cases that indicated sign of exploitation to their highly trained case management team.

The Labour Inspection Convention, 1947 (No. 81) and the Labour Inspection (Agriculture) Convention, 1969 (No. 129) both call for social dialogue to promote policies that enforce labour laws and improve working conditions (ILO, 2018e). Developing partnerships with other stakeholders is one way to facilitate outreach and more effectively reach sectors with a high incidence of informal employment. Consultation and collaboration with partners such as NGOs, faith-based groups, worker organizations, and trade unions can help to optimize the inspectorate's information, advisory, and enforcement activities. These groups have a deep

and practical understanding of the problems faced by informal workers and can be useful counterparts to labour inspectorates by providing insights as the "eyes and ears" on the ground, by building trust, and by providing an entry point to hard-to-reach communities of workers or workplaces. Collaborative engagement with informal economy stakeholders can serve multiple objectives such as: providing information about the labour inspectorate and clarifying its objectives to facilitate subsequent intervention; learning more about the characteristics of the sectors; gathering information on expectations; involving the stakeholders in designing and carrying out actions undertaken by the inspectorate; and garnering support (ILO, 2018d). Although the legal right to enter a workplace and the ultimate decision-making authority to sanction an enterprise lies exclusively with the labour inspector, cooperation with social partners can take different forms and offer advantages in areas that are generally not a strength or practice of the inspectorate (ILO, 2017e).

4.2 Thai sex workers

From 2017-2019, we worked with stakeholders including sex worker led foundations, CBOs and NGOs, to understand how ICTs could support them in their outreach to vulnerable sex worker communities. While sex work is technically illegal in Thailand, it has been allowed to flourish, particularly in tourist hot-spots around the country (Brown, 2021). Regardless of personal opinions on whether sex work should be criminalized or decriminalized, there is consensus that sex workers should be able to seek recognition of their basic human rights, as well as the ability to seek redress in cases of exploitation or substandard working conditions (Empower Foundation, 2016, p. 2). It is from this perspective that we provided access and support to foundations, CBOs, and NGOs to understand the vulnerabilities that their own communities face.

The remainder of this section draws key findings from the case study that can be applicable to assessing working conditions with other informal workers.

4.2.1 Working with existing support networks

There were several findings from this study that are immediately transferrable to other studies in informal work. Firstly, we found that it was important to build the capacity of existing points of contact and networks within a community, as they are already trusted sources of information and points of help. We ran a series of training sessions with different NGOs, supporting them to understand how Apprise could be integrated into their current practices for screening workers. Like the NGOs in the fishing sector, we worked with, NGO staff described having large volunteer bases, that while well intentioned, had no experience in assessing working conditions. Instead, NGOs supported their volunteers to install Apprise on their personal phones, and used it as a triage tool, referring cases where workers reported exploitation to their highly trained case management team.

4.2.2 Lack of applicable legal frameworks

Since sex work remains criminalized in many countries around the world, it is often impossible to establish formalization through contracts, or workplace regulations (Global Network of Sex Work Projects, 2017). Instead of aligning question lists to a particular legal framework, we worked with civil society actors to understand what they believed exploitation looked like within their own communities. We based our initial question list on the community research undertaken by Empower Foundation (2016), defining what decent work is within sex work in Thailand. Based on this research, we organised a series of consultations with our partnering foundations, NGOs, and CBOs to define a set of questions to assess the vulnerability of working conditions. Each question was weighted, aligned to ILOs Indicators of Forced Labour (ILO, 2012a), and a vulnerability calculation was developed based on ILOs Hard to See, Harder to Count survey guidelines to estimate forced labour (ILO, 2012b).

As with other informal workers, sex workers in Thailand are excluded from social protections and labour rights afforded to workers in the formal economy. This means that assessments of vulnerability are not as simple as in formal work. Some sex worker organizations have petitioned for labour inspections to assess workplaces in line with standard occupational health and safety measures and to support employers in the implementation of decent work standards, particularly by focusing on feedback provided by the sex workers themselves (Empower Foundation, 2016). However, in the absence of national workplace regulations, organizations have established self-regulatory mechanisms outside of state-based, judicial approaches, to support sex workers and mediate disputes (Global Network of Sex Work Projects, 2017).

By liaising with worker groups (where possible) or worker representatives, a similar approach could be undertaken with other informal workers. In some cases, an understanding of work practices could be based on work standards in formalised work. As will be discussed in the next section, in cases of informal work, the intention of this information can be to support workplace improvements.

4.2.3 Workplace improvements

One sex-worker led organization described the key benefit of Apprise as enabling them to map the changing patterns of exploitation that their community faced. They noted that by asking a consistent set of questions, they would be able to monitor for changes in health and safety equipment at different establishments and use that information to suggest easy-to-implement workplace improvements. This suggestion is aligned to similar goals described in ILO Work Improvements for Safe Home (WISH) project, where a simple tool was used to assess informal working conditions, with the goal of workplace improvement rather than compliance. The next section describes similar strategies in more details.

4.3 Private auditors in supply chains

As described in Sections 4.2 and 4.3, MNCs have been using Apprise Audit and Apprise Audit Remote since 2018. This tool has been used by private auditors to assess compliance in supply chains across South Asia and Southeast Asia. A key difference between the systems is that Apprise Audit is used to inform on-site inspections, where the auditor plays a role in selecting workers to participate in interviews. This enables them to select a representative sample of workers, prioritising responses from workers who are "young, sick, or scared" (Sassetti, Mera and Thinyane, 2019). The key difference with Apprise Audit Remote is that the auditor has no role in selecting respondents, leading to concerns regarding who is responding to questions. These concerns were raised in our initial brainstorming session with brand representatives, but it was decided that the benefit of providing a tool for workers to voice concerns about working conditions outweighed the negative of having no mechanisms for workers to seek help. Responses from Apprise Audit Remote then are used to inform workplace improvements, forming the basis for a discussion between workers and employers.

4.3.1 Workplace improvement versus statutory non-compliance enforcement

From our experiences, we have seen that brands are most interested in using Apprise Audit not to collect evidence (like an inspector might want to do), but rather as a self-assessment to facilitate communication and trust between employers and employees and to resolve compliance issues and grievances without escalation into legal channels. Although unofficial given that it occurs outside of state governance structures, such intermediation feedback can become formalized in the sense of procedural and substantive requirements on the part of companies seeking to improve compliance (Paiement, 2019). For example, rather than terminating contracts on first appearance of non-compliance, IKEA works with buyers to improve their practices (Broembsen and Harvey, 2020), which can ultimately translate to workplace improvement. Creating and supporting feedback loops, particularly those that harness digital technologies and solutions

like Apprise Audit, helps to create an environment and culture of compliance over time where workers feel empowered to provide regular feedback.

Strategies that utilize a combination of punitive and collaborative approaches help to encourage more sustainable behavioural changes towards compliance in enterprises (ILO, 2016). Compliance need not be solely a public responsibility and under specific circumstances, private-self regulation may help to encourage cooperation and complementarity between the labour inspectorates and private enterprises (ILO, 2013c). An advantage of private compliance initiatives relative to public labour inspection is the potential for deploying and investing comparably much larger human and financial resources (ILO, 2016). Although auditors lack the same enforcement powers that a state inspector would have and corporations may be motivated out of fear of reputational risk rather than promoting decent work, they can more rapidly and more substantially deploy resources than many inspectorates. They can also use their leverage over factories to insist on workplace improvements. This suggests that ICTs can play a role in promoting a culture of compliance (Chacaltana, Leung and Lee, 2018) and designing more effective and accessible non-state based, non-judicial grievance mechanisms (Zagelmeyer, Bianchi and Shemberg, 2018).

4.3.2 Scalability and replicability

Apprise was purposefully designed to be scalable and replicable, by allowing for new question lists and languages or dialects to be easily added. Since it is not a real-time translation tool, but instead relies on a finite number of pre-recorded audio questions, the addition of more languages is a straightforward process. This involves the translation of any questionnaire into a new language, enabling new languages to be rolled out quickly upon request to enhance replicability in any part of the world. Due to practical considerations, if there is not translator present, FLRs will only communicate with workers with whom they can communicate. In one of our surveys with 185 auditors who were conducting factory inspections across the Asia-Pacific region, 71 per cent indicated language ability as the key factor when determining which workers to select for interviews (Sassetto, Mera and Thinyane, 2019). The addition of new languages can enable workers whose voice would otherwise have been ignored to be systematically included into workplace screening. This can have a particular impact on voiceless workers who are in the formal sector, but still experience informal employment. During a field research visit that included a social audit of a factory in Thailand, it was discovered that the vast majority of the 200 workers employed there had never been interviewed and given a chance to report on their experience of working conditions (Sassetto, Mera and Thinyane, 2019). Apprise enhanced the representativeness of inspection, which in turn promotes the universal application of standards and compliance efforts.

Conclusion

A majority of the world's employed population work in the informal economy and lack social protection, rights at work and decent working conditions. Tackling informality and supporting workers and enterprises to transition into the formal economy is both a complex challenge and a requisite for equitable and sustainable economic development. Governments around the world implement various policy interventions to promote formalization through a combination of positive and negative incentive structures. Evidence suggests that enforcing compliance through labour inspection is an effective mechanism to decrease informal employment, most particularly for workers who experience informal employment within formal work environments. As trends towards the adoption of e-governance continue, so too will e-formalization initiatives play an increasingly important role in supporting informal employees and businesses to improve their conditions, productivity and compliance with relevant labour legislations and standards. Inspectorates can achieve operational improvements through investments in digital technology, allowing them to cover a greater breadth of establishments with enhanced efficacy and strategic prioritization.

Digital technology is not a silver bullet, but can help to at least partially address governance gaps in labour administration where human and financial resources are limited. Innovative technologies such as Apprise can further build the capacity for frontline responders to better reach informal workers and to understand their working conditions, by overcoming barriers of communication, trust, and privacy. There still remains a paucity of rigorous impact evaluations pertaining to technology and formalization initiatives in general, and the impacts of inspection on informality may be through more indirect linkages and harder to objectively assess. Further investigation into this area is necessary, but technology-enhanced labour inspection demonstrates promise as a core element for integration into holistic formalization strategies.

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