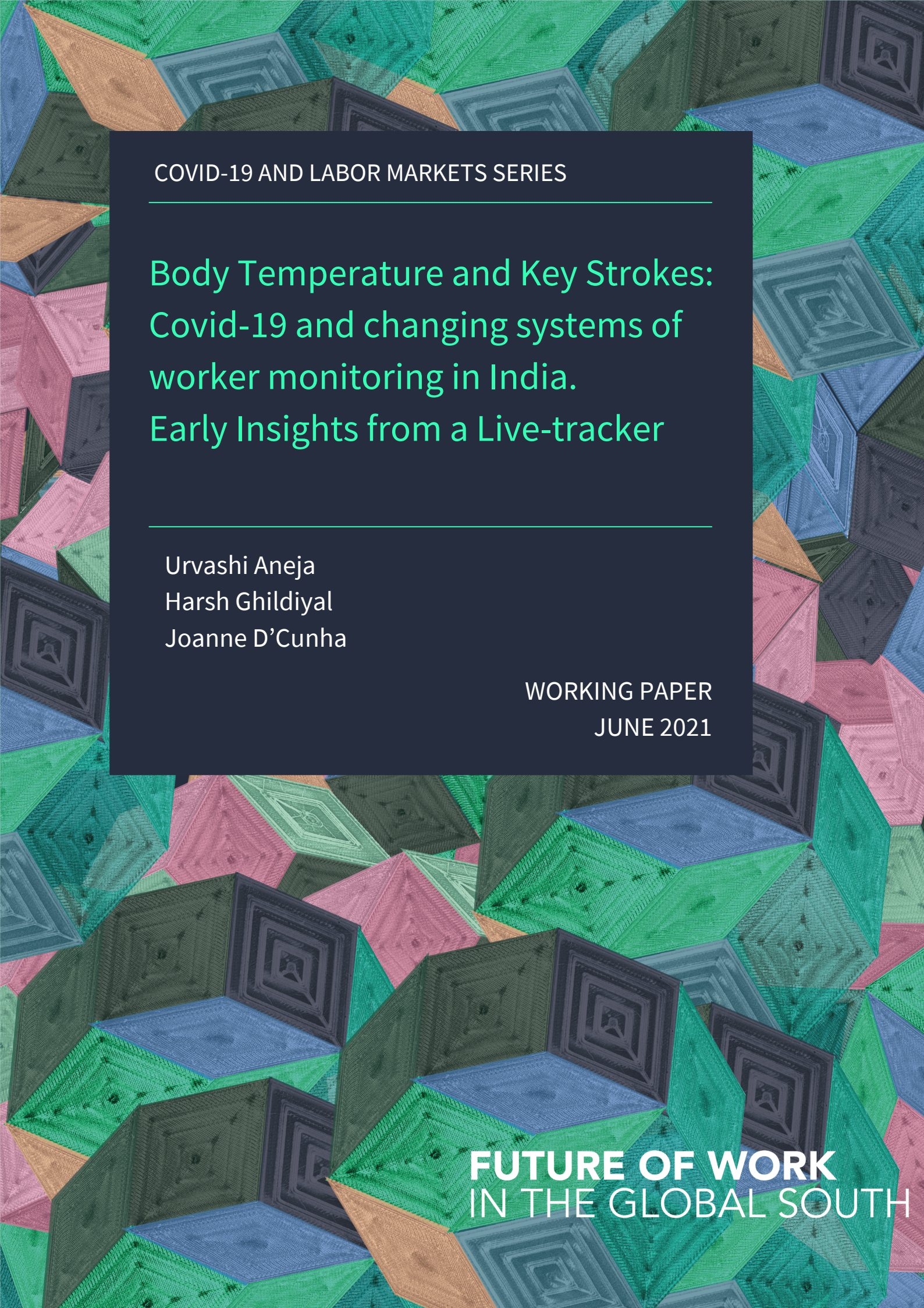

COVID-19 AND LABOR MARKETS SERIES

Body Temperature and Key Strokes: Covid-19 and changing systems of worker monitoring in India. Early Insights from a Live-tracker

Urvashi Aneja
Harsh Ghildiyal
Joanne D'Cunha

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IN THE GLOBAL SOUTH

Body Temperature and Key Strokes: Covid-19 and changing systems of worker monitoring in India. Early Insights from a Live-tracker

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Authors: Urvashi Aneja, Harsh Ghildiyal, Joanne D'Cunha

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ABSTRACT

The outbreak of Covid-19 has inextricably linked work and health. Looking for ways to normalise economic activity without jeopardizing public health, governments and businesses are using digital technologies to test and monitor worker health. Simultaneously, for those workers compelled to work from home, employers are relying on digital technologies to monitor productivity. While some of these measures may be necessary to manage the pandemic and its effects, they also raise concerns around worker privacy, rights and agency.

Since the outbreak of the pandemic, we have maintained a global tracker to document the use of new technological tools to monitor workers. The tracker monitored development and adoption of digital technologies to monitor workers globally between April 2020 and January 2021. This was done by reviewing existing media articles, grey literature, policy documents, tenders, and public announcements by employers.

Based on this global tracker, we did three mini-case studies to of worker monitoring in India - dived deeper into three sectors in India - gig workers on food delivery platforms, factory workers and IT company workers.

We conclude with a set of policy recommendations on how existing regulatory frameworks could adapt to meet the demands of the new workplace.

Chapter 1: INTRODUCTION

With the outbreak of Covid-19, the worlds of work and health have become inextricably linked. Governments and businesses are looking for ways to resume economic activity, while safeguarding public health. The use of digital technologies to test and monitor workers' health has emerged as a key strategy. Even though millions have shifted to working from home during the past months, remote work is not possible for every industry.

In April 2020 Tandem Research set up a tracker to examine the ways in which digital technologies were being used to monitor workers during the pandemic. Multiple motivations guided the initiation of this tracker. Many of the interventions being introduced today to address the pandemic could far outlive it, with long-term consequences for how societies and workplaces are organised. With the context evolving rapidly, there is also a need for real-time data collection, to monitor and keep track of changes and anticipate their likely consequences.

While some of these measures may be necessary to control the effects of the virus, they also raise concerns around excessive monitoring and the impacts for workers' rights and agency. The impacts of such measures may differ across social groups, disproportionately impacting the most marginalised. These concerns assume particular significance in the context of weakening labour protections in India and the absence of adequate regulatory frameworks for data protection. The scarcity of jobs and a large labour surplus can be expected to further reduce the bargaining power of the Indian workforce.

Monitoring of workers is not new. Pre-pandemic, a number of companies were using technology tools to monitor the productivity of their workforce. The manner in which intrusive forms of monitoring are being legitimised to assuage health concerns is, however, a relatively new phenomenon brought about by the pandemic. Further, insufficient attention is being paid to the growing power of surveillance afforded to employers during, and as a result of, these circumstances and technologies. In The Age of Surveillance Capitalism, Zuboff (2019) writes that the workplace is "where invasive technologies are normalized among captive populations of employees." Moreover, with the advent of Covid-19, worker monitoring has become increasingly 'under the skin', including temperature checks and virus testing. These new forms of monitoring are also collecting a large assortment of data on the worker. The line between use of such data for the purposes of health and for the workplace may be blurring. As a result, there are concerns that the use of such health monitoring systems could extend to the workplace for non-health related purposes.

This paper presents the findings from our global tracker, and from a snapshot of the interviews we conducted in the Indian context.

How are governments and companies using digital technologies to monitor the health and productivity of workers since the onset of the pandemic? What are the likely impacts on worker rights and agency? How should existing labour protection frameworks adapt to meet the demands of the new workplace?

The tracker monitored the development and adoption of digital technologies to monitor workers globally between April 2020 and January 2021. This was done by reviewing existing media articles, grey literature, policy documents, tenders, and public announcements by employers.

Based on observations made through the tracker, we also did a deeper dive into three sectors in India - gig workers on food delivery platforms, factory workers and IT company workers - through interviews with workers and the tech companies building these systems. The case studies based on these interviews helped to understand the likely impact on the everyday experience and worker rights in the Indian context. They are meant to explore emerging issues for future research and are not meant to be definitive. We also conducted expert interviews with union representatives, journalists and researchers.

The tracker has already been cited in numerous media articles (Pundir, 2020) and podcasts (Suno India, 2020). Through this effort we hope to keep attention on the issue of worker surveillance, and caution against the normalisation of such systems beyond the pandemic.

Chapter 2: METHOD

2.1 Tracker

We began tracking global instances of workers' health monitoring, to understand the various technological measures being introduced due to the pandemic. Subsequently, it seemed appropriate to align the tracker to the Indian context. To understand local manifestations better, our case studies focused on workers experiencing greater forms of monitoring, based on insights from the tracker.

The tracker was developed through secondary research. We reviewed existing media articles, grey literature, policy documents, tenders, and public announcements by employers. Our keywords were: employee monitoring/tracking; worker monitoring/tracking; health monitoring; temperature check; symptoms check; thermal imaging/screening; facial recognition; data analytics; productivity monitoring; keylogging; screen recording; idle time. These keywords were used in conjunction with each other and with the keyword Covid-19/pandemic in most searches, and they were further filtered by the period March 2020 to January 2021.

We realised that reporting on monitoring in India focused largely on development and deployment of worker monitoring systems and not on their adoption. Further, only a handful of reports provided specific details of their use.

We also observed that a significant part of the reporting concentrated on the period of March 2020 to July 2020, the earlier months of the pandemic. Owing to the limited reporting in India, we continued to maintain a global tracker, while focusing the case studies and our paper on local implications.

2.2 Case studies

To understand what technologies are being employed, how they are being used, and what effects they are having, we conducted semi-structured interviews with three individuals working at companies developing these technologies; eight workers who were being monitored by these technologies, along with two representatives from different worker groups; and one employer adopting these technologies. We also spoke to three experts for their views on worker monitoring systems.

The research methodology has its limitations. For our case study on factory workers, there was no direct communication with the workers. The study is based on interviews with companies that developed and helped with the deployment of systems to monitor the workers. Moreover, newspaper reports on worker monitoring systems drastically reduced after the early months of the pandemic - we have less evidence about how these systems have adapted or persisted with changing phases of the pandemic.

Chapter 3: EVOLVING SYSTEMS OF WORKER MONITORING

Historically, employers have monitored workers to assess how productive they are, to make them more efficient, and to keep them safe. With time, the technologies available to an employer for monitoring workers, have evolved rapidly. While the objectives of monitoring have remained the same, the new, more invasive technologies have allowed employers to monitor workers more closely and collect more data about them and their activities.

The discomfort with worker monitoring arises when it crosses the boundary of what is necessary or required in the course of employment. Monitoring takes this form when employees are required to intricately justify the use of their time as subordinates, or where their rights and levels of agency and trust as an employee are threatened (Ball, 2010).

Monitoring has been shown to negatively impact employees in many ways. Some of these are an erosion of trust, increased stress, a lack of creativity, a lack of self-esteem, and alienation (Weckert, 2004). Given the intrusive nature of new monitoring technologies, they are likely to go beyond these effects and also adversely impact worker privacy and autonomy.

Intrusive monitoring systems risk 'function creep' - these technologies often generate information that may not be directly pertinent to the original purposes of employee monitoring but could be utilised for other reasons without the knowledge or consent of the employee (Ball, 2010).

Ball (2010) also draws attention to the social processes shaping surveillance. A key finding about the social processes surrounding monitoring is “how it becomes appropriated by worker groups and embedded within workplace cultures that afford it different meanings and how it becomes an issue in negotiations over working conditions” (Ball, 2010, p. 97). Surveillance measures can become normalised and become a part of the work culture. This is particularly relevant in the case of health monitoring technologies being introduced during the pandemic. While many cease to be fit for purpose, they can nonetheless become part of the work culture.

With the development of advanced technological solutions, Ball notes that monitoring has evolved to focus on real-time monitoring of individual measurement, as opposed to monitoring of groups, teams, and departments. Ajunwa et al., explain that the rationale of productivity has extended to “capturing subjective attributes” of the worker (Ajunwa et al., 2017).

In 2019, an article published by the Verge demonstrates how Amazon was using an automated tracking and termination process that tracks the rate of productivity of their employees, automatically issuing warnings or terminations without the involvement of supervisors (Lecher, 2019). This process helped Amazon terminate about 10% of their staff annually. More recent forms of monitoring are using algorithms and gamification to manage work by sending nudges or setting performance benchmarks tailored to a worker's progress (Mateescu & Nguyen, 2019a).

Mateescu & Nguyen (2019a) classify current approaches to worker monitoring under four categories:

i. prediction and flagging tools designed to identify or deter perceived rule-breaking or fraud. These include people analytics tools that predict future behaviour such as the likelihood of an employee leaving, and systems that flag specific behavioural patterns such as an employee downloading a large number of company files
ii. biometric and health tracking tools that track non-work-related activities and information, specifically health and biometric information. These include wearables that collect health data and biometric timekeeping systems that use fingerprints or iris scans to verify employee identity
iii. remote monitoring and time-tracking tools designed to manage workers and measure productivity remotely. These include GPS-based systems that remotely track the location of workers in real-time and productivity monitoring systems that track keystrokes, mouse clicks and even take screenshots of computer screens
iv. gamification and algorithmic management tools that nudge and control worker behaviour. These include automated and semi-automated systems that evaluate performance and take other decisions about workers and tools that display employee performance and progress to incentivise competition.

Health and wellbeing have also emerged as metrics to be monitored (Rosenblat et al., 2014). Some companies are providing workers with wearables in order to monitor health and well-being, moving beyond the use for just monitoring performance. For instance, BP America purchased a number of its employees, FitBits, as part of its corporate wellness program (Bort, 2014). Employees that opted for the free wearable allowed the company to track their steps over the span of the year - if they achieved the benchmark set by the company, these points contributed to lowering their insurance premiums (Olson, 2014).

The BP America example demonstrates how data from such health and fitness wearables are also useful for the employer and insurance companies. Mateescu & Nguyen note that employers incentivise employees to achieve better health habits, through rewards within the company's wellness programs (2019a). This allows companies to collect data from such programs or associated wearables in order to cut healthcare costs on potentially high-risk employees, and even enables them to negotiate premiums with insurance companies (Mateescu & Nguyen, 2019a). This could also allow insurance companies access to details of an employee, enabling them to provide tailored products which might not always be beneficial to the employee. Those who are disadvantaged in any way, are likely to be discriminated against - excluded from benefits/discounts/reduced costs offered to employees who have the ability to build better health profiles.

Companies are also devising strategies to gamify the workplace with wellness benchmarks.

For example, an app developed by VantageFit includes gamification techniques through wellness challenges and rewards for progress, to develop friendly competitiveness among employees in a workplace.[2]

In 2018, a survey by Gartner indicated that about 22% of organisations in various industries across the globe were using employee-movement data, and 17% were monitoring usage data on work computers (Sheng, 2019). In 2019, Market Research Future, a market analysis company, estimated that the global employee monitoring solutions market would grow at compound annual growth rate (CAGR) of 22.6% by 2023 ("Employee Monitoring Solution Market Size," 2019). It anticipated the Asia-Pacific region to be the fastest growing market within the forecast period.

Companies in India do not appear to be using worker-monitoring software to the same extent as in the US. Recent newspaper reports do, however, present anecdotal evidence pointing to growing forms of more sophisticated monitoring. For example, India Bound, a niche consulting firm offers companies a travel tracking tool that monitors the movement of its client's executives - it updates the company with their locations, the airlines, hotels and even cabs they make use of (Goyal, 2018). Majulah Infotech, a technology company, introduced a mobile attendance application that allows employees to clock in/out using their mobiles. It also uses global positioning system (GPS) information and facial recognition technology to verify the identity of their employees and their location. The data it collects are synced in real time to a cloud-based time attendance software.

Such technology - based monitoring practices can be observed in government work as well. In 2014, the Union Rural Development Ministry, Government of India, piloted the use of a smartphone-based system to monitor the implementation of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme (PTI, 2014). It was meant to monitor workers' attendance, projects and work site measurement in real time. As part of a new initiative within India's smart cities, city workers in Chandigarh have been provided with GPS watches that allow local administration to keep a track of their efficiency levels (Singh & Bumbroo, 2019). Monitoring technology is being used by employers to track attendance, hours worked, etc., so that these data can be used to determine wages or even cut wages. In India, workers subjected to this have primarily been daily wage workers. In the event that the tech malfunctions or processes inaccurate data, these workers lose a day's wage. They have no means of redressal and face immediate consequences.

[2] See, https://www.vantagefit.io/

Chapter 4: FINDINGS

The pandemic is not the primary driver of the use of worker monitoring systems. The pandemic has allowed a public health rationale to drive the accelerated adoption of technological systems for worker monitoring. In this study, we showcase findings from our live global tracker. We explain the categorisation of worker monitoring systems through instances of monitoring recorded by the tracker. We also present case studies with insights based on our interviews with workers from different industries. They provide a picture of the ground realities of the use of these monitoring systems.

4.1 Global Tracker

Through our tracker, we observed an increase in two types of monitoring systems - health monitoring, both direct and indirect, and productivity monitoring. The tracker indicates that public sector adoption of these monitoring tools was only about 6%; the remaining 94% was by the private sector.

Heath Monitoring

New tools were introduced across various types of workplaces to monitor the health of workers, either directly or indirectly.

Direct health monitoring tools include low-fi tools such as thermometers as well as more sophisticated technologies like thermal imaging cameras to read body temperature. These tools are largely used in sectors such as ridesharing, food delivery, e-commerce, manufacturing and retail. Some of these tools build on existing technologies such as CCTVs with facial recognition or data analytics systems already installed. In the United Kingdom, for example, Jaguar Land Rover has installed thermal imaging equipment in their car manufacturing plants. Workers returning to the plant have their temperature checked and, in case of persistent high readings, are sent home and a notice is sent to the National Health Service. In India, the Government has increased investment in the commercialisation of thermal scanning technologies developed by two companies.

We also observed tools which indirectly monitor the health of the workplace, by monitoring the movement and interaction of workers.

PWC has launched ‘Check-In’, a suite of two products, that includes its own digital contact-tracing app. It uses bluetooth and wifi functions on employees' smartphones to anonymously map how they interact, so if a person tests positive, his or her movements can be tracked.

Amazon's 'Distance Assistance' programme uses a TV screen together with depth sensors and an AI-enabled camera to track employees’ movements and alert them if they come within 6 feet of one

another. Amazon stated that this technology has been made open-source to allow other companies to use it.

In China, cafeteria seats in Foxconn factories have QR codes for workers to scan, so that the company can track their movements.

In India, Swiggy, a food delivery platform, uses a deep-learning-based algorithm to check whether their delivery partners are wearing masks. It does not allow them to log-in or receive order requests if they are not wearing a mask.

Similarly, Uber's 'Go Online Checklist' requires drivers to upload a selfie of them wearing their masks to the app, before they can go online. Developers of AI solutions in India are exploring the use of AI-enabled CCTV in retail stores, which can sound an alarm when people get too close to each other in a retail area, and also monitor workers' productivity.

We also observed an increase in the number of Indian companies offering health surveillance products and services. Some companies are offering a full suite of integrated services - mask detection, temperature scanning, digital identification, and bluetooth-based contact tracing, all aggregated on a health dashboard for employers.

In many cases, newer tools for health monitoring were being built upon older forms of employer monitoring. For example, existing technologies like CCTV, light sensors and ID cards use video analytic softwares to detect if masks are being worn or social distance is being maintained (Banerjee & Ahaskar, 2020). Health monitoring systems were introduced primarily to engender customer trust and comply with guidelines and directives issued by the government. The adoption of productivity monitoring systems was driven by a need to maintain productivity.

Productivity Monitoring

Public health concerns have also led to remote work in a number of industries. Tracking worker performance, as noted in the earlier section is not new, and many productivity monitoring systems we came across predated the pandemic. However, with the pandemic, we observed an increase in the development and uptake of these systems.

In India, security companies have reported a greater demand for mobile device management for both laptops and mobile phones. It records screens, keystrokes, and all activity on the device. Employers are also mandating that webcams are switched on during work hours.

The app 'Time Doctor' allows employers to monitor workers' devices - logged hours, opened browser tabs, and any other programmes and services. It also takes screenshots of screens and can activate cameras. A leading educational app in India uses some of these features to monitor workers

during a lockdown. A number of systems such as ActivTrak, Hubstaff, Interguard, Teramind that allow for screen and productivity monitoring, received greater attention during the pandemic. More familiar and global examples include Zoom's attention-tracking feature that allowed the hosts of conference calls to monitor participants' computers. This was later removed by the platform.

Additional Observations

In the course of maintaining the tracker, we made a few important observations. First, with regard to direct/indirect health monitoring, we found that both types could often be combined.

Second, in most instances of remote monitoring, it was difficult to ascertain whether the system was already in existence - whether the pandemic caused its adoption or whether the pandemic simply caused reporting of its use.

Third, as we observed greater reporting of the increased use of worker monitoring systems and its harm in the industrialised economies, it led us to question whether such reporting is higher because the issue of labour rights is more in the spotlight in these countries. We might not be witnessing the same degree of reporting and concern in India as there is scant reporting on labor wellbeing and protection in mainstream media publications. It is worth noting that many states suspended labor laws and protection during the pandemic as way to attract investment and boost industry.

Mini Case Studies

The tracker indicated a greater use of health monitoring systems among gig-workers and workers at factories. Productivity monitoring systems, on the other hand, were largely used for white-collar workers.

Based on an analysis of developments documented through our tracker, we identified sectors that rapidly adopted monitoring systems and chose to focus on three categories of workers within those sectors.

These categories are gig-workers working on food delivery platforms, workers employed in factories, and workers in the IT (Information Technology) industry. The case studies aimed to contextualise forms of worker monitoring to India, and better understand the risks posed by monitoring systems.

4.2 Gig Workers in India

Gig workers, such as drivers and delivery agents, were categorised as essential workers by the government, and platforms were required to institute certain measures before they could resume businesses during the pandemic. Platforms instituted a number of measures, including mask detection,

maintenance of temperature logs, and the mandatory use of Aarogya Setu, India's official digital contact tracing application.[3] The app has been mired in concerns about privacy.[4] When it was released, guidelines issued by the government dictated that the employers had to ensure all employees had the application installed. Following a backlash and a petition from civil society organisations decrying the mandatory use of Aarogya Setu, the government eased up on its compulsory use (Mehrotra, 2020). For gig workers, however, use of the app remained mandatory.

The mandatory use of Aarogya Setu made workers' income contingent upon the use of the application (Agrawal, 2020). Gig workers said that despite their reservations about the app, they have no option but to use it, as their livelihoods are dependent on it. We were informed by workers that they were unable to access the platform applications without Aarogya Setu installed and running in the background.

> *"The Aarogya Setu application is bad. It causes my phone to hang but I have to use it. The application also does nothing to protect me if someone who has contracted the virus comes in contact with me."*
>
> - A gig worker

Before the pandemic, platforms collected workers' data primarily when the platforms' application was being used or was running in the background. The mandatory use of Aarogya Setu, however, means that workers' location data is collected even when they are not working (Eckstein & Mawii, 2020). The Indian Federation of App-Based Transport Workers (IFAT) also raised concerns about the mandatory use of Aarogya Setu. It stated that linking Aarogya Setu to platform applications runs the risk of data-sharing without consent and could potentially help platforms to identify and take action against workers who might be collectivising. IFAT also noted that in addition to workers' pay, the ability to avail benefits and schemes could be tied to the use of Aarogya Setu and be predicated upon the result shown by the application (Indian Federation of App-based Transport Workers & International Transport Workers' Federation, 2019). Our interviews revealed that the platforms did not inform workers or how most of the data collected through various means would be used.

As noted earlier, our tracker also recorded the use of a deep learning algorithm by a popular food delivery platform, to ensure that only workers who wear masks are able to log in or receive orders requests. Platforms scaled up tracking and monitoring in other ways as well, installing bluetooth beacons at restaurants (G. Vaidyanathan, 2020). These beacons allow platforms to enhance the accuracy of their tracking systems.

Gig workers shared that most of the measures introduced by platforms were to safeguard customers, and disregarded the health needs and economic hardships they experienced. The workers also

[3] Interview with a gig worker.

[4] At the time of its introduction, Aarogya Setu had a weak privacy policy which did not clearly state how the collected data is stored and with whom it is shared. It also did not allow users to delete their data. Additionally, the source code of the application was not made public.

shared that the platforms did very little to ensure their safety. For instance, they were not provided with adequate information on how to protect themselves, nor were they provided with adequate safety equipment, nor did they have access to any income relief measures. In some cases, they also reported being forced to deliver food or other items in containment zones,[5] despite the presence of police barricades.

> "*One of my orders had to be delivered inside a containment zone. The police had barricaded entrances to the area and I was not allowed to enter. I kept telling the platform that the address I had to deliver the order to was in a containment zone. I sent photos of the barricades as well, but the platform still expected me to deliver that order.*"
>
> - A gig worker

Monitoring measures, thus, did little to protect gig workers themselves, or adequately address public health concerns, while rendering gig workers even more vulnerable in terms of their privacy, health and livelihoods.

4.3 Factory Floors

We spoke to a number of technology companies about the health monitoring products they were building and the markets they served. They noted that the highest demand was from manufacturing units. Our tracker also records few products by developers, which were intended to monitor workers on factory floors.

Directives from the government were limited to temperature checks, providing sanitisers, preventing overlapping of shifts, and encouraging the use of Aarogya Setu. However, technology companies were able to offer a wider suite of services, which included thermal screening, GPS tracking, automated facial recognition, video analytics, and contact tracing. Some systems also included smartphone and wearable device-based contact tracing, which could enable employers to track workers' movements. Aggregated dashboards allowed the monitoring of violations at different levels - individual, floor, and entire premises.

The efficacy of many of these measures was questioned by some of the technology companies themselves; a representative we spoke to pointed out that, in practice, adequate social distance was not maintained and information from the health monitoring systems was not being acted upon by management.

[5] Areas with high numbers of active Covid-19 cases were designated as containment zones by the government. Movement and interaction in these zones were severely restricted.

> *"Systems used for monitoring adherence to social distancing guidelines flagged every violation - there were no exceptions. Factory shop floors requires people to work next to each other, so even though the system recorded violations, work continued uninterrupted."*
>
> - Representative of a company that developed monitoring systems

Labour conditions within many manufacturing establishments are already deplorable, and workers are routinely subjected to exploitation (R. Vaidyanathan, 2020). With no clear public health objective achieved, the use of these technologies can only result in unwarranted data collection and surveillance.

Research conducted by Nayantara Ranganathan on surveillance in garment factories found that CCTV cameras were used to monitor the workers' actions, including how much time they spend in the washroom. In one case, workers were fined for laughing (Ranganathan, 2017). The research also revealed that cameras kept workers from communicating with each other, even about important issues such as unions. Facial recognition and video analytics bolster this surveillance. Other newly introduced technologies that help with contact tracing, grant employers' access to data about workers' movements. This can be used to monitor worker's movement, with a view towards improving productivity and preventing attempts at collectivisation.

4.4 IT Company Workers in India

When a nationwide lockdown was announced in March 2020, most IT (Information Technology) workers transitioned to working from home (Tanwar & Sharma, Punit, 2020). A study conducted in 2015 with around a thousand IT workers found that they face a significant amount of stress, both physical and mental, owing to factors such as unrealistic targets, and an ever-increasing workload (Padma et al., 2015).

The pandemic seems to have exacerbated the already poor working conditions. A survey conducted in 2020 by the Union of IT & ITES Employees (UNITE) found that over 75% employees reported an increase in work hours after the onset of the pandemic (Union of IT & ITES Employees (UNITE), 2020). In our tracker, we note that Indian security companies also observed an increased demand for mobile device management to monitor employee's activity. At the same time, IT companies started adopting systems to remotely monitor workers' productivity, which helped them track indicators such as the time workers spent working, their keystrokes, and the content they accessed.[6]

The newly introduced remote productivity monitoring systems, were more comprehensive than their predecessors and ended up being a source of anger for the employees.[7] Most employees disliked the constant monitoring of the time they spent away from their computers, their keystrokes,

[6] Interviews with individuals working in the IT industry.

[7] Interviews with individuals working in the IT industry.

and other activity. These systems determined their productivity arbitrarily and often assigned them productivity scores without actually factoring in tasks their job required them to perform.[8]

> "*If I spend six hours writing a hundred lines of code, the software will think I'm being productive. However, if I spend three to four hours thinking about the most efficient way and then write twenty lines of code that does the same job, the software will log the time I took to think as unproductive time. This dissuades me from doing my job in a more efficient manner.*"
>
> - A technology company worker

Workers also found novel ways to bypass or trick these systems. They placed objects on certain keys and set up software to automatically move the cursor, both of which effectively bypassed the monitoring systems' idle detection features. Since not all workers were able to figure out such workarounds, their use could result in unfair advantages for some.[9]

The IT industry is the largest employer within India's private sector (Invest India, 2020). Over the past two years, Indian IT companies have been laying off thousands of employees (Baruah, 2020b). The pandemic has accelerated these layoffs, with more and more companies automating entry-level jobs (Baruah, 2020a). These entry-level positions are aspirational jobs for many, and the shrinking of these jobs is likely to have an adverse impact on social mobility. An IT company spokesperson told Mint, a national daily, that most layoffs are likely to be performance-based exits (Baruah, 2020a). Productivity monitoring systems are likely to augment the ability of IT companies to assess performance and lay off employees at a large scale. Workers we spoke to, however, were not told for what specific purposes the data collected by these systems would be used.

[8] Interview with an individual working in the IT industry.

[9] Interview with an individual associated with an IT workers union.

Chapter 5: DISCUSSION

5.1 Health Monitoring as Productivity Surveillance

A number of new digital tools, many invasive and under the skin, are being introduced by companies across the globe to monitor the health of workers and the workplace. Many of these collect vast and granular amounts of personal and sensitive data, without clear communication of how they will be aggregated, used, shared, or sold. The efficacy of these tools is questionable. There is already a sizable literature questioning the efficacy of digital contact tracing applications (Joshi & Kak, 2020). There is also evidence of the high failure rates of biometric systems, especially facial recognition systems (Crumpler, 2020). Interviews with gig workers and technology company representatives also pointed toward the failure to act on the precautionary advice generated by these systems.

Kitchin examines the efficacy of surveillance technologies to mitigate the spread of the pandemic. He questions whether these systems are merely a result of "a hype to promote tech led solutions" and whether they are "fit-for-purpose to produce intended outcomes" (Kitchin, 2020, p.365). In a race to respond to the pandemic with advanced technological solutions, the limited efficacy of these monitoring systems is being overlooked and justified by health concerns caused by the pandemic. These measures, therefore, lean more toward the hype that Kitchin points out. There is a risk that health monitoring products could become normalised, even though they do not achieve the intended health objectives. Instead, they enable new forms of productivity and performance surveillance, increase the information and power asymmetries between employers and workers and result in excessive and unwarranted collection of worker data.

For example, video analytics systems similar to those currently in use at factories for mask detection, enforcing social distancing and verifying identities can use existing CCTV architecture to also monitor workers' productivity and push for efficiency.

5.2 Excessive Datafication and Worker Rights

The datafication of employment was already observed before the pandemic. Sam Adler-Bell and Michelle Miller (2018) have said that data-mining techniques presently used for consumer products are now entering the workplace. With the pandemic, the amount of data collected by employers has increased - whether in terms of facial recognition software to check on mask compliance or location data or health data. Remote working and the growth of the gig-economy and contract work is also creating an 'always-on' or 'on-demand' workforce; as work and home blur, the type and quantity of data available to employers may also increase. These data could be reutilised by employers and integrated into existing monitoring systems, adding yet another parameter by which decisions on performance and employability are made. A worker's health could be a potential cause for discrimination.

Rosenblat et al. (2010) and Sanchez-Monedero and Dencik (2019) have studied the impacts of such datafication in the workplace. These scholars argue that the inclusion of these data-intensive systems to shape decision making in work processes is manifesting in ways that are harmful to the rights of workers and impacting any agency they possess in an already imbalanced environment (Adler-Bell & Miller, 2018). Datafication of employment can also disproportionately discriminate against already marginalised groups. Adler-Bell & Miller (2018) explain that when systems which 'exploit or exclude already marginalised individuals' are brought into the workplace, they are likely to do similar or far more serious harm. Excessive datafication also violates workers' rights to privacy and ability to organise and bargain collectively. Ajunwa et al. (2017) state that privacy cannot be considered an economic good, exchanged for employment.

The excessive datafication of the workplace could exacerbate discriminatory practices, which already exist in India. There is ample evidence to show how employment opportunities are restricted for people of certain castes or religion or gender. A 2018 assessment by a collaboration of CSO's, compared the policies and disclosures of about 100 top BSE listed companies against an index, to rank them on responsible business practices (Sarfaraz, 2018). Only half of the companies that claimed to incorporate principles of non-discrimination, had systems in place to ensure equal opportunities.

To avoid the risk of unemployment, workers often furnish as much data necessitated by the growing requirements of monitoring technologies (Eckstein & Mawii, 2020). Further, the explicit and informed consent of workers is seldom obtained. Workers of varying social strata often accept these trade-offs owing to the existing labour market conditions in India. With a surplus of affordable labour but limited jobs (Pandey, 2020), workers are largely replaceable. Market conditions render workers dispensable, and are likely to prevent workers from expressing dissent of any kind against excessive monitoring practices.

This is already evidenced in the monitoring of sanitation workers - most of the workers tracked by the Panchkula Municipal Corporation's smartwatches are Dalit contract workers (Khaira, 2020). The workers have compared the smartwatches to the ancient practice of upper castes exerting control over lower caste workers. Workers have also stated that they have no opportunity to voice complaints.

The study by Ajunwa et al. (2017) on wellness monitoring in the United States also provides a cautionary tale for India. With the growth of the wellness industry in the United States, companies are partnering with wellness firms to learn from the health preferences of their employees. These insights influence health programs and incentives provided by the company (Ajunwa et al., 2017). Higher health risks could be viewed as a greater cost for employers (Ajunwa et al., 2017). In India, both health and access to healthcare are shaped by a broad set of social factors, such as gender, caste and class. Since certain groups are unable to easily access healthcare, they could face discrimination and bias when it comes to employment.

Inaccurate data is another concern. Sanitation workers in Nagpur, for example, were provided GPS wrist watches, which tracked their movements to "increase efficiency and better utilisation of resources" (Shantha, 2020). However, workers' accounts of inaccurate readings is one of the reasons this move has received a lot of criticism (Shantha, 2020). Workers face the risk of poor performance evaluation resulting from inaccurate data, that could even result in loss of pay. In India, workers rarely have access to the data they generate or even the data that determine decisions made about them. Therefore, as workers are seldom able to weigh in on the processes of monitoring or the variables considered by these systems, they are often forced to yield to decisions taken by their superiors. This impacts their ability to bargain for better working conditions.

Similarly, many productivity monitoring systems, which also adjudge performance have arbitrary metrics.[10] While some workers are able to trick these systems and possibly increase their productivity scores, others are not.[11] Therefore, the data from these systems is often not a representative of performance. IT companies are increasingly using performance as a basis for layoffs (Baruah, 2020a), and companies will probably factor in inaccurate data from the productivity monitoring systems to take decisions about workers' futures.

5.3 Automating the Workplace

Activity tracking systems can also gather valuable information about workers, that can then be used to automate those very jobs. In early 2020, a prominent food delivery platform in India began replacing 'fleet managers' with automated digital systems, resulting in loss of jobs (G. Vaidyanathan, 2020). These fleet managers aided food delivery executives/partners with issues related to delays, GPS queries or any other problems that might have arisen in the food delivery process. The food delivery platform was able to eliminate these human necessitated tasks, owing to the corpus of data it had collected by monitoring its delivery partners. Similarly, IT companies in India have also started automating some jobs and laying off workers based on their performance (Baruah, 2020a).

While the full threat of automation might not materialise in India as quickly as other industrialised economies, there are related concerns (Aneja et al., 2018). A majority of India's labour force continues to be employed in unskilled/low-skilled, low-income jobs in the unorganised sector. The entry level jobs in urban/semi-urban areas that are facing automation, such as customer care agents or cashiers, are jobs that these low-skilled workers aim to secure. The impact of this automation will affect upward labour mobility owing to the decreasing opportunities of employment within the tier of middle-skilled jobs (Aneja et al., 2018).

[10] Interview with an individual working with in the IT industry

[11] Interview with an individual who is associated with an IT workers' union.

Chapter 6: POLICY PRIORITIES

Health surveillance technologies must not be deployed or repurposed as productivity and performance surveillance technologies. Regulatory burden should be on employers to establish the appropriateness and proportionality of the particular measure for maintaining public or workplace health. It is essential that technologies that are introduced for maintaining workplace safety, such as thermal scanning, facial recognition, and location tracking are not used for other purposes. These technologies should be terminated if the advice is not useful or not being acted on by management, and clear provisions should be made for the termination of the use of such technologies, when the situation permits.

Guidance on when and how human rights can be restricted to prevent the spread of infectious disease is found in The Siracusa Principles, a non-binding document developed by the Siracusa International Institute for Criminal Justice and Human Rights and adopted by the United Nations Economic and Social Council in 1984. The Siracusa Principles state that restrictions on human rights under the International Covenant on Civil and Political Rights must meet standards of legality, evidence-based necessity, proportionality, and gradualism, noting that public health can be used as grounds for limiting certain rights if the state needs to take measures "aimed at preventing disease or injury or providing care for the sick and injured. In other words, the Siracusa Principles guide a States' restriction on rights during an emergency. Curtailments are justified only if they adhere to a legitimate aim, are necessary, are proportionate, are of limited duration, and are subject to review against abusive applications. The principles very specifically require that a state must consider the disproportionate impact of such restrictions on marginalised groups.

Control measures during a pandemic should, therefore, be similarly aligned to these principles and public health ethics (Calain & Poncin, 2015, p. 128). The European Union Fundamental Rights Agency conducted studies to understand the implications of the pandemic on fundamental rights (Kędzior, 2021). The body, as part of this study, analysed guidelines put out by various data protection authorities in the EU. It observed that most guidelines emphasised that the rights to health and protection of personal information are complementary and should be grounded in principles of necessity and proportionality.

Productivity and performance monitoring is not unique to the pandemic. The scope of these technologies may increase as more people are working from home and the lines between work and home are blurred. Regulation should mandate employers to include a legally binding policy, whenever they adopt worker monitoring systems. The policy must include purpose of the system; an explanation around data collection and processing; purpose limitation and sunset clauses; as well as the establishment of clear and accessible grievance redressal mechanisms.

Employers must provide easily understandable information to employees about what data are being collected, for what purposes, how that data will be used, shared or sold. There must also be clear

policies around the deletion of health data or other types of data collected for workplace safety, when this data is no longer needed. Employees should also be allowed access to their data.

Current data protection frameworks in India are inadequate in this regard, granting broad exceptions to employers. Employers are currently exempt from obtaining workers' consent, if personal data are collected, stored or processed for the purposes of employment. These purposes include recruitment and termination, provision of services or benefits, verifying attendance, and assessing performance. The bill should include safeguards the Supreme Court has laid down to protect the right to privacy - the principles of necessity and proportionality.

Current data protection frameworks do not recognise workers in non-standard forms of employment. In India, contract workers already constitute a large part of the workforce (Ministry of Finance, 2020). The gig-economy is also growing and being actively promoted by government bodies. According to industry experts, gig work has even increased by 12% as compared to pre-Covid-19 (PTI, 2020). The increased and intrusive forms of monitoring (Bacchi & Asher-Schapiro, 2020), coupled with poor avenues to exercise rights and redressal are likely to leave these categories of workers far more vulnerable. The above suggestions for the standard forms of protection that must be afforded to employees must also be extended to gig and contract workers.

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About the authors

Urvashi Aneja is Founding Director of Tandem Research, Associate Fellow at Chatham House, a Tech and Social justice champion at the World Economic Forum, and a former member of the T20 Task Force for the Future of Work in the G20.

Joanne D'Cunha and Harsh Ghildiyal are Research Associate at Tandem Research.

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It aims at understanding the implications of technological change on jobs from a Global South perspective bringing data, knowledge, and policy frameworks to build evidence-based narratives on the future of work in developing countries.

More information: fowigs.net
@fowigsnet