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Preparing for the Future of Working Life

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Preparing for the Future of Working Life

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Executive Summary

- Working from home needs to be normalised in the future and made available to as many workers as possible, with more flexible work arrangements.

- Digitalisation of workplaces needs to happen in order for remote work to become a norm as both workplaces and the nature of jobs are already changing in a globally connected world.

- Restructuring plans must support micro-, small- and medium-sized enterprises on their digitalisation journey as well as help workers to gain new skills, identify growth industries and prepare the population for the changes ahead to ensure that no one is left behind in this transformation to more digital workplaces.

- Governments ought to set up a central committee of multi-stakeholder specialists to take on an integrated and comprehensive approach for economic recovery road maps for the short, mid and long term.

Introduction

Covid-19 has been and still is a major disrupter. Our lives and lifestyles have changed drastically. Despite being masked, sanitising often and maintaining safe distances from each other at home, in the workplace and in public spaces every day, the number of Covid-19 infections continue to rise and anyone can get infected as the virus is indiscriminate. Globally, Covid-19 continues to be managed in phases with national lockdowns, stoppages on cross-border and international travel, and increased pressure to stay quarantined living and working at home, which is "lurching the world economy towards a global recession" (United Nations 2020: 2).

During the initial phase of lockdown in Malaysia, the Movement Control Order (MCO), which began in March 2020, people stayed home, worked remotely from home, stopped travelling, purchased groceries and other necessary items online, and relied on the internet for information and to interact socially. With another steep rise in cases occurring at the end of 2020, many Malaysians have again had to remain at home. Employers and employees have been forced to adapt to this abrupt shift. These lockdowns gave everyone an accelerated route into the digital revolution that had already been taking place, without many knowing it.

This phenomenon of working away from traditional office spaces is often called working remotely or working from home and can include other off-site areas such as coffee shops, cafes, libraries, public spaces and even cars or private vehicles. The International Labour Organisation (ILO) defines homework as "work carried out by a person … in his or her home or in other premises of his or her choice, other than the workplace of the employer", and can broadly include industrial homework and telework, which is work done with information technology (IT) or information and communications technology (ICT) (ILO 2021: vi).[1] Homeworking was already happening across a wide range of occupations such as industrial outworkers or those who perform "labour-intensive, repetitive work" (e.g. embroidery stitchers), artisans and freelancers (ILO 2020c). Some employers offered a mix of work modes – to work at the office and also to work at home – using flexible work arrangements for full-time employees on 40-hour working weeks. Some also offered part-time hours with corresponding salary downsizing and more job-sharing of particular jobs. Employees have benefited as governments, trade unions, employers' associations and civil societies have encouraged flexible work arrangements to be a part of human resource policies as flexibility complements remote working.

The Covid-19 pandemic has brought remote working to the forefront so that working from home became a constant and has been mainstreamed except for those in essential services such as those at the healthcare frontline. What then is the future of WFH in the post-Covid-19 era? Will work go back to the predictable norm that we used to know or will some form of WFH be normalised?

This monograph aims to discuss the future of work modes, the viability of WFH in different industries and countries as a normal approach to work, the changing nature of jobs available with digital technology, the obstacles and pathways to economic recovery and the restoration of livelihoods. The first part focuses on the types of jobs amenable to WFH. The second part discusses barriers to digitalisation and changes to work modes in the future.[2] The third part examines the "futurescape" and addresses ways of meeting these challenges as part of a longer-term approach of restructuring and economic recovery for the future. This monograph is limited in scope since most of the international reports published thus far on the effects of the pandemic on changing modes of

[1] WFH is used in this monograph as an acronym to refer to remote working, working off site or working away from their offices and will read grammatically as "work from home", "working from home" or "worked from home" where appropriate.

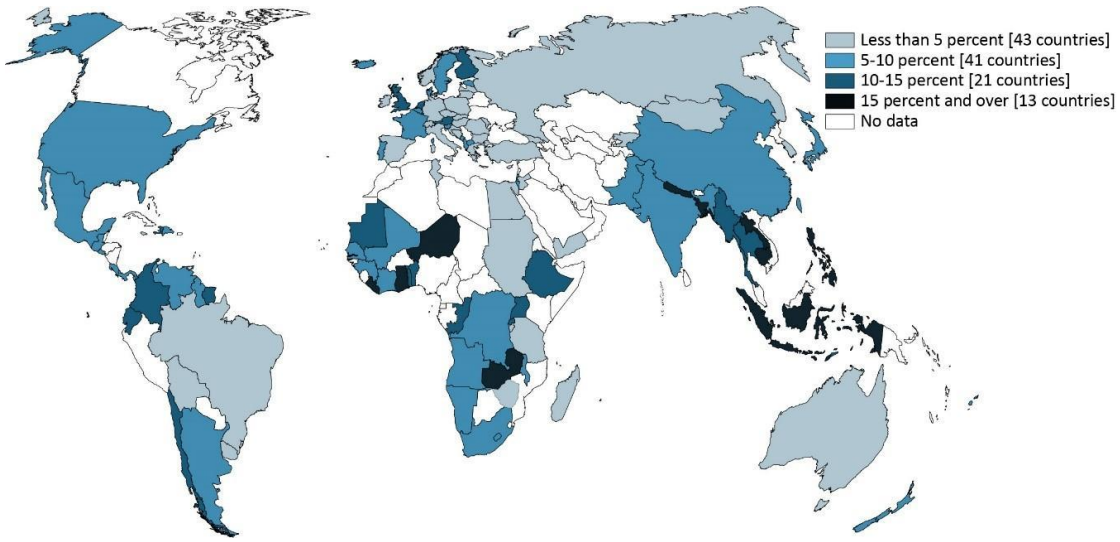
[2] Digitisation is the process of converting information from a physical format into a digital one. When this process is leveraged to improve business processes, it is called digitalisation. The results of this process are called digital transformation. The term 'digitalisation' is used throughout this monograph to reflect its significance for the *process* for workplace improvement.

work largely focus on advanced countries or on emerging economies (least-developed countries). Discussions on the digital future and reforms to workplace institutions that had begun more than two decades ago have only become more intense during this past year. Reports have increased from international bodies, large corporations and private sector research consultancies on this changing landscape – dubbed the "Fourth Industrial Revolution" – and the restructuring of industries and future economic growth, based on the digital revolution.

Work from Home (WFH): Current Prevalence Patterns

The ILO estimates that before the Covid-19 pandemic, 7.9 per cent (comprising 260 million people) of the world's employed population worked remotely based on a calculation of 118 countries, as illustrated in Fig. 1, which covers all types of home-based workers, including teleworkers (ILO 2020c).

Figure 1: Global prevalence of workforce involved in WFH in 2019 prior to the Covid-19 pandemic



Source: ILO (2020c)

Despite being an advanced country, in the United States, only 7 per cent or approximately 9.8 million workers reported having "access to a 'flexible workplace'" or being able to telework as of 2019 (Desilver 2020a). It is worth noting that even in technologically and digitally advanced countries, not many workers were WFH. Prior to the Covid-19 pandemic, only "2.9 per cent of employees were working exclusively or mainly from their home" (Berg et al. 2020). In a study of over 30,000 respondents in 30 European countries, the highest estimates for countries where home was the main location for work "at least several times a month" were for Denmark (23 per cent), the Netherlands (21 per cent) and Sweden (18 per cent) while the lowest WFH figures were for Bulgaria (6 per cent) and Cyprus (6 per cent) (Ojala and Pyöriä 2018). Natural disasters gave rise to more WFH practices as happened in New Zealand with the 2011 and 2016 earthquakes in Christchurch that saw many

working from home, and in parts of hurricane-prone areas of east coast and southern United States. In the case of Covid-19, the whole world went into periods of WFH with many countries still mandating WFH policies.

WFH is more popular with white-collar workers at the managerial level and above, most often "so-called 'knowledge workers' and people who do most of their work on computers" (Desilver 2020b). These employees are also often those with higher levels of qualifications and education and are better paid with the rates for WFH increasing with increasing hourly wages. It is also likely that these classes of workers have better access to adequate IT/ICT infrastructure and have higher security clearance to be able to WFH. In a study done by the United Kingdom's Office for National Statistics using data from the 2019 Annual Population Survey, just over 5 per cent or 1.7 million of the 32.6 million in the total labour market were mainly WFH while 30 per cent or 8.7 million workers had done so at some point (Office for National Statistics 2020). The study showed that WFH was more common with older workers aged 55 years and above, with "[w]orkers aged 30 years and under … much less likely to work from home than older workers" (ibid.: 12). The job types conducive to WFH and already in practice are shown in Table 1 while the industries that are more amenable to WFH practices are as shown in Table 2.

Table 1: Job breakdown of United Kingdom workforce involved in WFH in 2019

Occupation	Per cent of workforce that (%)	
	Mainly works from home	Have ever worked from home
Chief executives and senior officials	8.9	69.2
Media professionals	20.5	58.1
Artistic, literary and media occupations	23.7	57.8
Teaching and educational professionals	3.8	57.8
Health/social services managers and directors	2.5	57.0
Functional managers and directors	13.2	56.1
Legal professionals	5.4	55.7
IT and telecommunications professionals	11.4	55.0
Business, research and administrative professionals	8.0	54.8
Research and development managers	2.7	54.8

Source: Fawcett (2020)

Table 2: Industry breakdown of United Kingdom workforce involved in WFH in 2019

Industry	Per cent of industry that (%)	
	Mainly works from home	Have ever worked from home
Information and communication	14.8	53.1
Professional, scientific and technical activities	12.8	46.3
Real estate activities	12.3	40.3
Agriculture, forestry and fishing	8.6	39.0
Financial and insurance activities	5.2	38.9
Education	2.7	38.3
Arts, entertainment and recreation	9.9	33.3
Other service activities	7.8	30.3
Electricity, gas, air conditioning supply	4.9	29.6
Public administration and defence	2.6	29.4
Extraterritorial organisations	4.6	27.8
Construction	3.8	25.9
Mining and quarrying	5.7	24.8
Administration and support services	5.6	23.2
Manufacturing	3.9	21.1
Water supply, sewerage, waste	1.9	20.4
Health and social work	3.9	20.3
Households as employers	10.8	19.5
Wholesale, retail, repair of vehicles	3.2	13.4
Transport and storage	1.8	11.0
Accommodation and food services	2.1	10.0

Source: Fawcett (2020)

A Pew Research Center report cited popular industries to be insurance, professional and technical services, information services, credit intermediation and education institutions (Desilver 2020a). A World Bank policy brief on WFH showed that "on average, one in five jobs across the globe can be performed from home" despite varying economic, infrastructure and educational levels from country to country as well as income brackets (Sanchez et al. 2020: 17). In high income countries, this number is higher at one out of every three jobs, "while in low income countries only one of every 26 jobs can be done at home" (ibid.). Prior to the pandemic, WFH numbers were lower in countries with lower ICT or internet access. In many ways Covid-19 has exacerbated inequalities, including in the workplace as workers who are better paid, more qualified and more educated are also potentially better insulated from the shock of job losses and less susceptible to labour market vulnerability as they often have access to better ICT infrastructure. Moreover, WFH is not amenable to certain industries such as those that involve human contact. A LinkedIn Workforce survey reports that more than 50 per cent of respondents say that remote working is not conducive for retail, recreation and travel industries and industries that

require human contact (Athira 2020). Other jobs unsuited for WFH include those that involve "working outdoors", "operating vehicles", "working with mechanised devices" or being essential workers (Sanchez et al. 2020: 6). Additionally, women workers may be more disinclined to WFH as they risk shouldering an even more disproportionate share of domestic work and caregiving of children or ill persons in the home (as elaborated below). What has emerged, then, is that there are various WFH modes and different levels of desirability with employers remaining focused on productivity (ILO 2019a).

In Asia, WFH trends vary. As of mid-April 2020, almost 88 per cent of Japan's large corporations had embraced WFH while this practice was at 46 per cent for small- and medium-sized enterprises (SMEs) (HR Asia 2020). The lower take-up rate for SMEs was due to the non-digitalisation of paperwork, internal rules and procedures, and a "reliance on paper filing systems" (*Straits Times* 2020). In South Korea only 40 per cent of firms preferred a WFH model and China went back to office-based work patterns as it eased lockdowns (HR Asia 2020). Indonesia and Philippines could not and cannot currently support "a wholesale shift" to WFH as the countries struggle with patchy internet connections and low ICT capabilities (Dancel 2020). Almost 85 per cent of IT staff in India were WFH and the government has been encouraging companies to make WFH permanent in the future. The country's largest IT employer, Tata Consultancy Services, is working towards having "three-quarters of its nearly 500,000 employees" to be on a WFH model in the next four years (ibid). In Malaysia, the bulk of employees – more than 60 per cent are in the services sector of wholesale, retail and the sub-sectors of food and beverage and accommodation – who despite the shifts to mechanising in this sector (Ng et al. 2017), will find WFH to be not conducive as human connections and an 'in-person' presence are key components of business strategies in these industries. As companies suffered losses and steep drops in profits, many workers lost their jobs. If low- and medium-skilled workers as well as migrant workers are heavily depended upon, this will stifle upscaling of industries with better trained and skilled workers and technology upgrades. Approximately two-thirds of jobs in Malaysia cannot currently be performed as WFH practices because workstreams in non-essential work are not digitally attuned and half of the workers' have little permanent proximity to their workplaces, as they probably live in other states (Amanina et al. 2020). It is possible that WFH will remain a challenge in Asia as local work cultures are heavily reliant on in-person connections, necessitating a massive change in operating style in order to make the shift.

The pandemic has forced us to face this reality of different options of work modes and that more jobs are going to be replaced, redesigned and refocused as ICT, artificial intelligence (AI) and other technologies are rapidly restructuring the industries and the way we work as part of the digital revolution. All workers are entitled to have social protection and clarity in work agreements whatever the work mode. In working out WFH options, these needs must be met according to the ILO's C177 Home Work Convention, 1996 (No. 177) that spells out workers' rights for any work not done at an office or employers' premises along with other relevant conventions (ILO 1996; 2020a; 2020e).

Responses to WFH

The benefits of WFH include the comfort of being at home, a more relaxed dress code for virtual meetings and presentations, greater flexibility in work schedules, improving multi-tasking skills as home-based and work-based tasks are in the same environment, the availability of mobile technology that allows work to be done even in bed, less time wasted by distractions from colleagues in non-work-related discussions and office gossip, and greater flexibility through digitalised sessions with clients, partners and contacts. The lack of commute and less travel are major benefits of WFH that have resulted in saving time, not getting caught in traffic jams, fewer traffic accidents, congestion alleviation, a

reduction in costs as spending habits are minimised and being more environmentally friendly with a reduction in carbon emissions.[3]

Employees can spend more time with loved ones, being on top of home-related tasks, spending more time on hobbies, balancing home and work more easily, and enjoying life while still being productive for work. For employers, it means still being able to work with all staff despite the lack of proximity and having a wider pool of international applicants for vacancies, making selection easier. WFH has also inspired entrepreneurs to offer empty hotel rooms as office spaces for WFH due to the fall in occupancy rates from tourism (Sekaran 2020). With many employers also feeling the economic bite during lockdowns, WFH practices could also mean that companies have fewer overhead costs, the most significant of which are reduced rent as large offices to accommodate all staff are not required, utility bills, office supplies, food, cleaning services, telecommunications, transport costs and childcare or day-care benefits. A study by PricewaterhouseCoopers (PwC) in the Netherlands showed that the monetised impact from WFH amounts to potential annual savings of EUR1,087.5 million (USD1,323.98 million) for office spaces, EUR73.5 million (USD89.48 million) for gas for heating, EUR173.6 million (USD211.35 million) for electricity and EUR346.8 million (USD422.21 million) for catering, amounting to a total of EUR1,681.4 million (USD2047.02 million) (PwC Netherlands: 4).[4]

Among some of the negatives of WFH is that building up trust is harder compared to in-person meetings. Some employees could not unplug from work, were stressed, fatigued, and felt isolated as social interactions with colleagues had lessened. Workers have experienced cramped spaces in the home, worse memories and attentiveness, needing repeated instructions, inadequacy at problem-solving in meetings, struggles in handling ICT, poor database access, cybersecurity issues, inadequate home-based technology and internet access, increased costs though higher utility bills, an inability to account for tasks completed or time spent, losses in productivity, losing focus as family members could be distracting and increased anxiety over work, Covid-19 and family. For some workers WFH also does not suit their personality. For many it also means that work was non-stop as companies with global partnerships and networks saw staff attending online meetings at all hours of the morning and night and across different time zones. With work eating into individual personal and non-work time, a healthy work-life balance may be hard to achieve for certain workers, leading to exhaustion.

Employers experienced difficulties in adjusting workstreams to monitor performance, coach and train staff, focus on the career growth of staff, enhance morale, instil corporate culture and maintaining a collegial atmosphere at the workplace. Existing bad office management habits also seeped into WFH, as the lack of prescribed office hours meant that employees were expected to be available for longer hours, contacting staff with work-related messages outside of office hours, unclear expectations, or disrespectful communication. Employers can also be more demanding and demeaning towards mothers who may be forced to juggle childcare during office hours and make business calls (*New Indian Express* 2020). In India some male superiors also dressed inappropriately during virtual meetings to discuss work (ibid.) Sometimes women's views were not sought or got buried in virtual meetings as collegial protocols were not observed by male colleagues and women were frequently interrupted in remote meetings (Gupta 2020). Performance anxieties or crisis management counselling were harder to attend to through online applications such as WhatsApp, FaceTime or Zoom, compared to being physically face to face.

Two compilations[5] of WFH statistics (see Appendix 1 in Annex) are worth noting as they offer glimpses into the psychosocial aspects of WFH on both employees, management and bosses (see Gray 2020;

[3] Some of the economic and non-economic benefits of having flexible work arrangements, of which not all schemes might all fall into working from home modes, have been highlighted in previous research by Penang Institute in 2019 (see Joshi and Khor 2019a, 2019b).

[4] Conversion figures are approximates and were calculated in January 2021 using currency converter XE.com.

[5] These compilations are on the websites of Wandera (an enterprise focusing on remote work and security) and Xobin (a private company focusing on recruitment).

Xobin 2020). Among the interesting psycho-technical details to note are that alertness in virtual meetings lasted between 30 and 40 minutes before exhaustion sets in (Spataro 2020), indicating that full days of virtual meetings are taxing; 63 per cent of employees said they spent time rewatching recorded virtual meetings to pick up pointers and improve their presentation skills (Robinson 2020).

In terms of technology, more than half had said they had to use their own personal ICT equipment (International Business Machines 2020) while 40 per cent had to fund their own upgrades, some with employer's subsidies (Yahoo! Finance 2020). The three biggest issues that employees struggled with were virtual private network (VPN) access (38 per cent), Wi-Fi connectivity and reliability (37 per cent) and video conferencing apps (35 per cent) (Cairns 2020). A CNBC survey found that 72 per cent of technical experts and technology executives said they were working harder (Dreyfuss 2020), possibly to support staff who were WFH and did not have the right tools and technologies, lost access to applications, could not handle multifactor authentication processes to gain access to office resources or struggled with unsynchronised digitalisation from insecure or undersized VPNs. Microsoft reported that Microsoft Team chats on weekends have risen by over 200 per cent during lockdowns (Spataro 2020). Security breaches were a problem; some employees' virtual workspaces were hacked into, 46 per cent experienced phishing attacks during WFH (SME Web 2020) and 33 per cent in another report said they had downloaded a personal application without official approval (Greig 2020). The United States Federal Investigations Bureau Internet Complaint Center said it was receiving 3,000 to 4,000 calls per day since the onset of Covid-19 compared to 1,000 in pre-Covid-19 days (Miller 2020). ICT experts state that both private companies and the public sector need to make greater investments in WFH ICT cybersecurity for the future. ICT support staff also need more training in order to better support colleagues who are WFH and to create a conducive workplace environment for remote work. Additionally, comprehensive and up-to-date information on the potential costs incurred by employers in supporting employees for mandated WFH is not widely available as most studies so far have been on the cost-saving benefits.

Despite the challenges both employers and employees saw merit in WFH. A survey of executives who are mostly based in the United States showed that 37 per cent saw increased productivity from staff during WFH (Business Facilities 2020) though they worried about data theft and cybersecurity (Deloitte 2020) and growing "ePresenteeism", that is employees making themselves "online and available as much as possible even if out of hours" (Sundberg 2020). Still, employers expected 40 per cent of their employees to WFH to some extent in the future (Kaufaman et al. 2020) with many seeing the need to accelerate automation and begin restructuring workstreams as they anticipate jobs will change, quite drastically. (see Appendix 4 in Annex). Ninety-three per cent of employees in one study wanted WFH to be regularised (Wingard 2020). Flexible work arrangements were also desirable, with some days at the office and shared workspaces; some employees were willing to accept pay cuts to be able to WFH. Many still wanted the company to maintain an office space as a focal point while others set up a separate office room within their homes for long-term WFH.

Covid-19 has forced many employees and employers to consider WFH as a more viable option. Despite initial teething problems, many employees prefer to WFH with more flexible work arrangements, and employers are now keener to digitalise workplaces.

Hurdles to Overcome to Make WFH a Norm

WFH offers people the opportunity to contribute to the economy, to have sustainable livelihoods, social and labour market protection, and to be part of a country's post-pandemic economic rebuilding and recovery. However, there are several challenges that need to addressed before WFH can be fully normalised.

Mindsets

Work is creation, even when tasks can be ritualistic. This happens often in work environments that are transparent, open-minded and favourable to empowering workers, where employees are encouraged to contribute ideas and concepts to improve systems, products and communications. This indicates that the work culture is already at one with a strategic vision, efficient organisational systems, operational processes, networks and tools for workers and employers to work together to serve clients and society better. Digitalisation and technological advances have changed the modus operandi of work, the nature of skills needed and workstreams, and continue to impact on how work is done, how people interact, how workplaces function and how management processes affect both workers and work. Policymakers, employers, entrepreneurs and employees are at various points on this digital revolution curve that is changing the nature of work. The digitalisation journey had begun and is happening at a different pace in countries across the globe.

As noted by Frey and Osborne (2017: 6), the "computerisation of cognitive tasks is also aided by another core comparative advantage of algorithms: the absence of some human biases. An algorithm can be designed to ruthlessly satisfy the small range of tasks it is given", indicating the potential for enhanced digitalisation in various sectors. Despite the research supporting digitalisation, not all policymakers and employers have embraced it. Perhaps it is a lack of funds, a lack of expertise or fear that stop employers and policymakers from reconfiguring workstreams, upskilling the workforce and shifting work modes to more online forms. Appendix 3 in the Annex demarcates how technology and digitalisation are replacing many work tasks. Covid-19 is forcing us quite starkly to review the culture of work, the forms of working and to reconfigure how work can be done for better outputs.

However, digitalisation can also force a less developed country or lower-income countries to remain locked in to lower-skilled and labour-intensive industries as there is inadequate access to high-speed internet and ICT. Though machines and new automation technologies can replace human labour when it comes to repetitive tasks, it is a weighted decision – employers must choose between keeping cheap labour or investing in expensive technology. What will be the new long-term approach and mindsets adopted by investors in these countries? Will digitalisation and WFH remain options only for highly developed countries, high-paying jobs and those who are better educated? There is no easy answer. But bold and less conservative thinking can make changes towards more inclusive modes of work that are open to all people.

Gender Equality

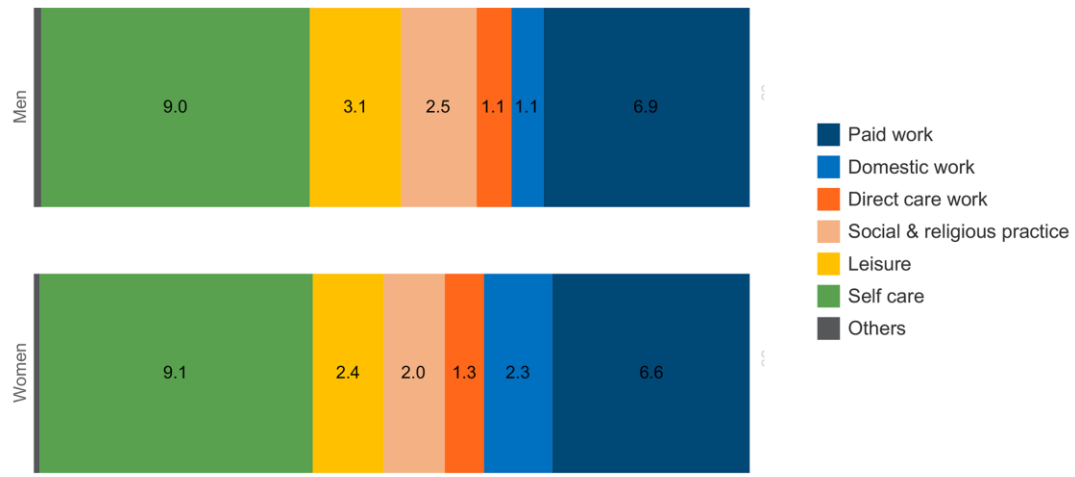
WFH has placed significantly more stress on women workers than their male counterparts, as women were often working round the clock, potentially quarrelling with partners to share home-based workloads or trying to protect themselves from domestic violence inflicted on them or their children. As schools and childcare centres were closed intermittently, WFH for working parents meant being cooped up with their children, minding their schedules more closely, and supervising them with online schooling and not being able to secure them childcare or infant care or send them to playschools. Experts and researchers have termed the unpaid care done by parents the "second shift", comprising all the unpaid care work and homemaking done outside office hours. More often than not, it is women who tend to do the overwhelming share of unpaid home-based work. In WFH situations, the home and workplace are the same physical environment and women must juggle office-based tasks, housework, and caregiving for children, ill or elderly family members and pets in the home at the same time.

The United Nations (UN) has said that decades of advancement on gender equality risk being lost due to the pandemic, among them are "compounded economic impacts" (UN 2020: 2). Human resource experts have also acknowledged that the pandemic and subsequent lockdowns have increased the levels of discrimination and inequalities between the sexes as most who became unemployed were

women, with "0.9% increase in unemployment compared to a 0.7% increase for men" in the United states (Henriques 2020). WFH sharpened the existing discriminatory employment policies and the existing gender pay gap where women earn less than men for the same type of work.[6] Men are more often in senior positions even if their abilities are not up to the mark, women are more likely to end up in low-paid and low-skilled jobs despite having the same qualifications as men, and there is still a prevalent culture of disempowerment in the workplace where women are less likely to be promoted. It has been said that "the 'motherhood trap' exposes one of capitalism's most uncomfortable secrets – the way it relies on so much unpaid labour, often from women, to sustain itself" (Lewis 2015), highlighting the issue of women often being seen as the best caregivers. Hence, in an unhealthy and unbalanced workplace or home or both, WFH can mean harder times for women than men, affecting their mental well-being and morale to a greater extent.

As a case example, a 2019 World Bank report showed that 60 per cent of Malaysian women who did not participate in labour force cited housework (both caregiving and household chores) as their main reason for not seeking work in comparison to only 3.6 per cent of men (Schmillen et al. 2019: 45). A Khazanah Research Institute study of 125 people in Kuala Lumpur examined the time spent by women and men on different activities and tasks (Adam Manaf 2019). On average women spent more than double the time spent by men on domestic work which ate into the time available for leisure (ibid.); men spent more time on leisure activities (3.1 hours per day) than women (2.4 hours per day) as seen in Fig. 2 and Fig. 3 (ibid.). Women also spent slightly more time on direct care work than men with women spending almost double the amount of time (49.2 minutes) on childcare than men (26.4 minutes) as shown in Fig. 4 (ibid.).

Fig. 2 Average time spent in hours per day on different types of main activities by gender in Malaysia



[6] Even in advanced economies of Europe, on average women earned 14.1 per cent less per hour than men (European Commission 2020). The World Economic Forum found that there is an average wage gap of over 40 per cent globally with only 55 per cent of adult women participating in the labour market due to multiple reasons such as women choosing to work part-time rather than full-time to care for their families (World Economic Forum 2019: 5).

Fig. 3 Average time spent in minutes per day on different types of domestic work by gender in Malaysia

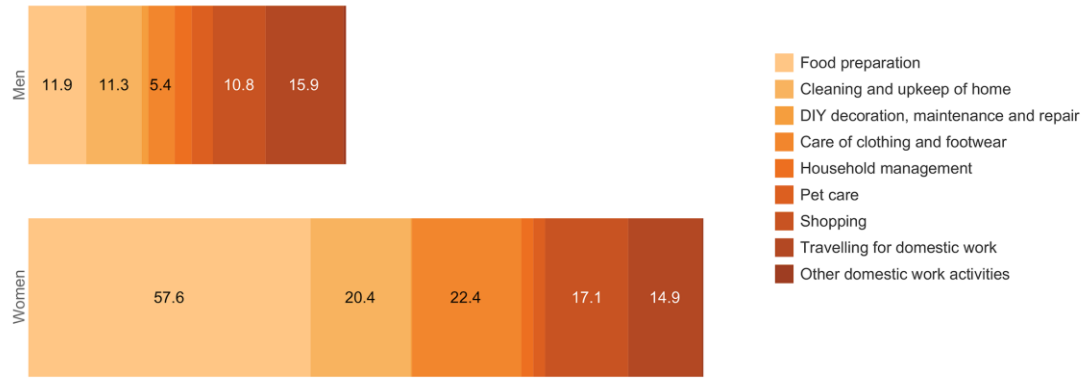
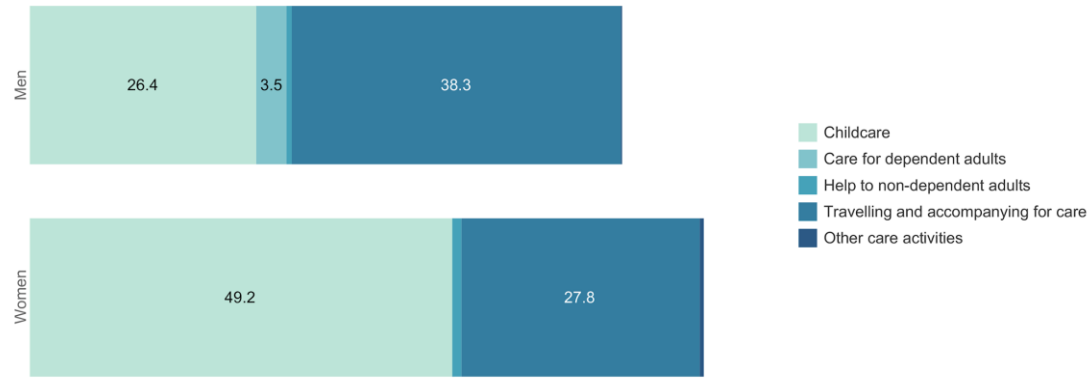


Fig. 4 Average time spent in minutes per day on different types of direct care work by gender in Malaysia



Source: Adam Manaf (2019)

The pandemic has worsened this distribution as more people stayed home and caregiving demands increased, leading in some instances to aggravated levels of psychological distress. A survey showed that 16 per cent of informal caregivers "said that their health (physical and/or mental) were affected" by their role as an informal caregiver with over 24 hours of care provided per week on average (Institute for Public Health 2020). Additionally, disruptions in secondary healthcare services and professional caregiving as an increasing number of healthcare workers were diverted to the frontlines to manage Covid-19 meant that women shouldered the additional care of the ill and elderly at home, often alone.

WFH also led to increased levels of domestic violence, intimate partner violence, physical and sexual assaults, child abuse and elder abuse within the home. Pre-Covid-19, the UN reported that at least 243 million women and girls worldwide in 2019 faced physical and sexual violence from persons known to them (Mlambo-Ngcuka 2020). With a vast number of countries forced to go into lockdown, it is projected that this number has increased with countries all over the world noting more calls to domestic violence helplines and shelters and this has been termed

"a pandemic within a pandemic" (Evans Lindauer Farrell 2020). In France, reports of domestic violence jumped by 30 per cent (Euronews 2020); this number increased by 33 per cent in Singapore (Hingorani 2020); and in Malaysia the number of calls more than doubled during the MCO compared to pre-MCO levels (D'Cruz 2020). WFH measures also meant that victims of family violence were unable to seek social support and were "cut off from the respite typically available to them, such as going out to work" (Hingorani 2020). A recent study in Spain showed that these surges in domestic violence were due to two factors: lockdown-related stress and economic stress (Wayt 2021). Gender parity is an equality issue, a human right and must be addressed when it comes to WFH.

Technology

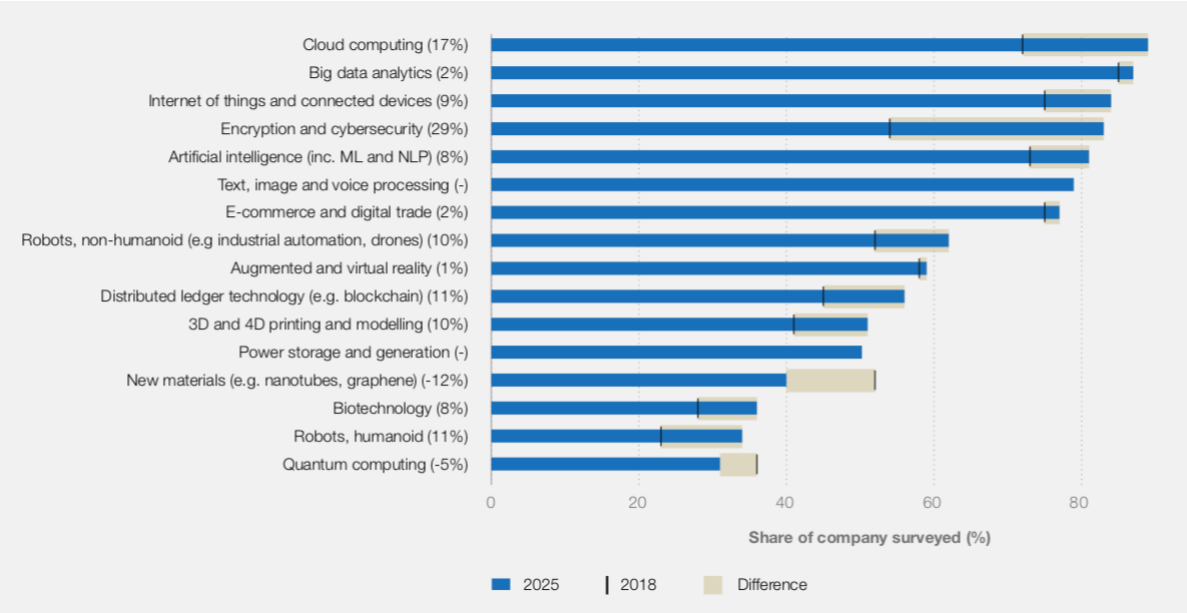
Internet use rose significantly during global lockdowns. As of October 2020 almost 60 per cent (4.66 billion people) of the global population were using the internet with a global penetration rate of 59 per cent (Clement 2020). The highest numbers of total internet users are in China, India and the United States, although a significant portion of the populations in China and India do not have internet access (ibid.). Asia, with 55.1 per cent of the global population, has over 2.5 billion internet users (as of 30 September 2020) but only a 59.5 per cent penetration rate (Internet World Stats 2020). North America and Europe with 4.7 per cent and 10.7 per cent of the global population respectively show penetration rates of 90.3 and 87.2 per cent respectively (ibid.). What stands out is that though there is a high level of acquisition in Asia with the largest internet user base (Clement 2020), there is a large variation with regional online penetration rates. Europe and North America show a high usage to gather information and for work-related tasks during WFH. In Asia, internet use is high but is more often for personal services. For example, in Malaysia which has a projected 30.44 million internet users in 2020 (Statista 2020a) and where there is a household internet penetration rate of 90.1 per cent (FMT Reporters 2020) – lower than Brunei, which leads in the ASEAN region at 95.3 per cent (International Trade Administration 2021) – but online connectivity is used primarily for social networking (97.1 per cent) and "downloading images, movies, videos or music [and] playing or downloading games" (84.7 per cent) (Department of Statistics Malaysia 2020a). The prevailing use of mobile data plans will increase as the number of smartphone users in Malaysia is projected to reach 30.41 million in 2020 to over 33 million by 2024 (Statista 2020b).

A 2011 report by the World Economic Forum highlighted how the economies of different countries performed with varying internet connectivity and ICT readiness, diffusion and usage. In Asia, countries with a high proportion of urban populations and high gross domestic product (GDP) per capita on average were identified as early adopters of the internet, such as Singapore, Hong Kong, Taiwan and South Korea (Rueda-Sabater and Garrity 2011: 45). The economies of Malaysia, China, Vietnam, Thailand and Brunei were seen as converging adopters of internet connectivity, adopting internet use slightly slower than more advanced economies while other Asian countries such as Bhutan, Laos, Indonesia and India were viewed as late adopters of the internet (ibid.). Ten years on, major shifts towards increased digitalisation have taken place in China and India, though WFH is still not in wide use because of cybersecurity issues. It is also difficult to offer WFH options if certain work tasks can only be done face to face. In 2020 a World Bank and ISEAS-Yusof Ishak Institute study of the vulnerability of jobs in Malaysia to the pandemic, in Putrajaya (Malaysia's administrative centre), it was found that only 29.3 per cent of jobs could not be done at home, with 32.1 per cent of jobs requiring "high levels of physical proximity" (Amanina et al. 2020: 8). In Kedah and Perlis, the figures were much higher with 56.6 per cent and 62.6 per cent of jobs necessitating physical proximity

respectively, making WFH largely unamenable in these states (ibid.). Overall, the study also supported conclusions made in other countries that the proportion of jobs that cannot be done from home is negatively correlated with GDP per capita, again "suggesting that workers in less developed states are more vulnerable to job losses during" the Covid-19 pandemic (ibid.).

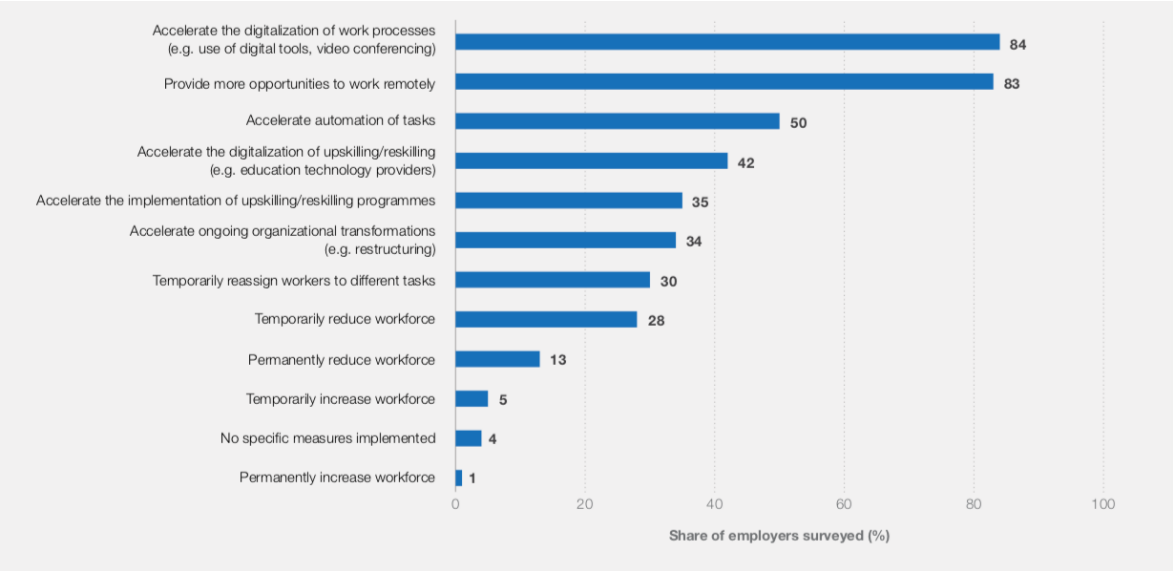
In light of these varying levels of digitalisation across the world, a 2020 World Economic Forum study called *The Future of Jobs Report* highlighted how workplace operations are set to change (World Economic Forum 2020). Improved internet access, digitalisation and new technologies offer more global connections for businesses and for employees. Current innovations include robotics, three-dimensional printing, autonomous vehicles, nanotechnology, biotechnology, quantum computing and machine learning as part of the digital revolution, with many workplaces already implementing these technologies and thus impacting jobs. Fig. 5 and Fig. 6 show the spread and range of new technologies and digitalisation that are likely to be adopted in the coming years as well as the adaptations companies are making to the Covid-19 crisis. The future can be grim as increased digitalisation and the advanced use of technologies will make work the way we know it redundant for many, unless a major resetting of the dial takes place on what constitutes work and the workplace.

Fig. 5 New technologies likely to be adopted by 2025 (by share of companies surveyed)



Source: World Economic Forum (2020: 27)

Fig. 6 Planned business adaptation in response to Covid-19



adoption of technologies by 2025.

Skills and Education

Digital literacy first came into use in the 1990s and 2000s with the increasingly widespread use of computers and the internet. It is often related to and involves skills that overlap with information literacy, new media literacy, technological literacy, knowledge management literacy and computer literacy. A pioneer in this field, Paul Gilster, saw digital literacy as having "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (quoted in Martin and Grudziecki 2006: 254). As Glister also notes, a key tenet in digital literacy is "mastering ideas, not keystrokes" (quoted in Belshaw 2012: 83). What perhaps has not been addressed thoroughly is the meta-level at which digital literacy is operational such as at the design level of technological mediums. Toolkits have appeared that identify stages in digital literacy: digital competence (in which a range of skills are gained), digital usage (in which these skills are used in applied settings) and digital transformation (in which the application of skills leads to innovation and creativity) where there is a logical progression towards being creative across all steps.

Even in advanced countries digital skill gaps exist, with "almost 50 percent of UK employers [having] a digital skills gap in their business … costing the UK economy an estimated GBP 63 billion a year in lost additional GDP" (Digital Work Research 2018: 8). In Southeast Asia, digital literacy is at varying levels. A recent study showed that many communities in the region have the ability to search for digital content, synthesise them appropriately, utilise information, assess the truth of this information, manage the flow of information from online media and are able to adopt technology for certain situations (Kusumastuti and Nuryani 2020). In the study, the authors ranked the average levels of digital literacy with the highest to lowest being Singapore, Thailand, Indonesia, Vietnam, Myanmar, Philippines, Malaysia and Cambodia, noting that "there is no significant difference in the level of digital literacy between countries" (ibid.). Covid-19 has exposed how intensely online learning and teaching could be done as students around the world and of all ages from kindergarten to higher education shifted to online lessons. If these skills are not strengthened, it will be impossible to fully shift to new modes of work or WFH. Any shift in job scope or occupation type requires reskilling, but it is important for employers, organisations and governments to have on offer a wide range of accredited digital literacy courses in order for workers to be more

effective in digital workplaces. Most countries are lagging behind this curve of digital literacy by a decade or two.

Vulnerabilities

Unemployment

Planning for the future in terms of WFH options is currently a challenge as workers have been furloughed, forced to take career breaks or have become unemployed, leading to frozen wages, reduced wages or no wages at all. These short- to medium-term needs are vital and should be met even as longer-term planning is done regarding job security and new ways in which people can work.

In a study on the effect of lockdown policies, the International Monetary Fund (IMF) estimated in June 2020 that at least 97.3 million people (equivalent to 15 per cent of the workforce in 35 advanced and emerging market economies in the study) were made redundant or were furloughed (Brussevich et al. 2020: 4). As youths and young adults are overrepresented in the retail, entertainment, food and beverage, and travel industries along with other hospitality sectors, they have been disproportionately affected by unemployment from the pandemic (Reuters 2020; ILO and Asian Development Bank 2020). Youths are overall better educated, more ready to embrace technology and digital work and yet they struggle to find full-time jobs. WFH and remote working is all within their domain if they have adequate access to technology. Across previous global recessions, youths were hit the hardest, but over time their unemployment rates decreased (Reuters 2020). Many in the informal sector (amounting to almost 1.6 billion workers) are projected to lose their livelihoods too due to lockdown measures (ILO 2020b). Prejudices also prevail in how workers were sidelined, with women, minorities and low-wage workers much more vulnerable than other groups. More women than men were displaced with companies choosing to retain more male workers (55 per cent) than female workers (45 per cent) (World Economic Forum 2020: 20).

Unemployment figures among ASEAN countries as a whole are also high; for example, 19.5 per cent of persons aged between 15 and 24 were not in education, employment or training and 12.7 per cent were unemployed as of 2018 (ASEAN Secretariat 2020b: 80). Unemployment figures in Malaysia were at 4.8 per cent in November 2020 comprising 764,400 unemployed persons compared to the 15.20 million in employment (Bernama 2021). Previous unemployment rates in Malaysia in 2020 were 4.7 per cent in October and August, 4.6 per cent in September with a peak of 5.3 per cent in May (Department of Statistics Malaysia 2020b). In January 2020, 7.1 million people were considered to be outside of the labour force (either in school, in training, homemakers or had chosen not to find work). This figure had increased to 7.40 million by June 2020 though it came down slightly to 7.37 million in November 2020 (Department of Statistics Malaysia 2020b). The labour force participation rate of 68.4 per cent saw an increase in workers mainly in the manufacturing and construction sectors and services, with employment in tourism-related sectors suffering from the effects of the pandemic (ibid.).

War, political conflicts, natural disasters, man-made disasters and other communicable diseases did not come to a halt during this pandemic either. Masses of people need humanitarian aid and are on the move to other countries, seeking refuge as the global refugee crisis continues. Unfortunately, the global economic downturn means that regular humanitarian aid and various funding from well-developed regional groupings such as the European Union may be lower than previous years. Population figures show increases too; in 2019 there were an estimated 140.11 million births versus an estimated 58.39 million deaths (Our World in Data 2019). Many developing countries show larger population sizes with many remaining unskilled. In 2018 the ILO estimated that 344 million jobs needed to be created by 2030 (ILO 2019a: 20). In 2020 these numbers have increased with the pandemic having a negative effect on hiring rates. However, some good news comes from China,

Brazil, Singapore and France which have shown a slight uptick in hiring rates as of the end of September 2020 (World Economic Forum 2020: 13). Despite the pandemic, both full-time and part-time workers should still receive social protection via programmes that cover children and family, maternity leave, unemployment, employment injury, sickness, health, old age, disability and survivors, as these will enable communities to work productively for better economic recovery (ILO 2020d).

Poverty

Globally, poverty is rising because of Covid-19 as unemployment increased, businesses failed, many lost their livelihoods, lockdowns slowed the movement of products and raw materials, supply chain delays occurred as transport routes were disrupted with travel between and within countries being limited, other diseases and illnesses persisted, natural disasters happened, the effects of severe climate change were felt and the number of employment opportunities decreased. The World Bank projected that extreme global poverty would increase over the next 20 years due to the pandemic, rises in conflicts and worsening climate change (World Bank 2020a). Interestingly, this is a contrast to earlier predictions as many countries showed improved rates in reducing the numbers of citizens facing extreme poverty in their attempt to meet sustainable development goal (SDG) number 1, which is eradicating poverty.[7] In its poverty overview, the World Bank (2020b) noted that "the global extreme poverty rate fell to 9.2 percent in 2017, from 10.1 percent in 2015. That is equivalent to 689 million people living on less than $1.90 a day".[8] However, now an additional 88 to 150 million people will be added to this bracket by 2021 (World Bank 2020c). Many across the globe were just above the extreme poverty line but have slipped into this bracket as a result of the pandemic (World Bank 2020c). More people are becoming poorer, income divides are deepening with higher Gini coefficients in many countries.

In ASEAN there was a decrease in extreme poverty numbers in Cambodia, Lao PDR, Myanmar and Vietnam (ASEAN Secretariat 2020d).[9] But now the poverty rate in Cambodia could double to 17.6 per cent with 1.3 million people pushed back below the poverty line, as unemployment is set to rise seven-fold in 2020 (Hutt 2020). A total of 115 million people in the Southeast Asian region are projected to be forced into poverty as a result of the pandemic (ibid.). In a report by the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA) on the impact of the pandemic on low-income families in Kuala Lumpur, it was found that "1 in 4 heads of households were unemployed" due to the pandemic with more than half the heads of households not having any labour market protections in the form of pension funds (Employees' Provident Fund) or Social Security Organisation (SOSCO) accounts (UNICEF and UNFPA 2020: 22), hence there was a lack of a cash flow to help them in this period. Fifty-seven per cent reported worse earnings in 2020 compared to 2019 with the median monthly earnings dropping from RM1,500 to RM1,000 (ibid.: 13, 14). Pertinently, over 40 per cent of households did not own any technological devices or equipment for their children to keep up with online education, with this number being higher in families with a female head of household (56 per cent) (ibid.: 24). The plight of Malaysia's vulnerable poor was highlighted in a recent webinar discussion hosted by ANU Malaysia Institute (Muhammed 2020) in which Dr Muhammed Abdul Khalid, who led the UNICEF and UNFPA study, cited absolute poverty rates in Malaysia to be between 5.6 and 6 per cent, adding that 800,000

[7] The international poverty line is considered to be living on less than USD1.90 a day. The World Bank "sets the international poverty line at periodic intervals as the cost of living for basic food, clothing, and shelter around the world changes" (Kenton 2020). Previously, the poverty line was set at USD1.25 per day in 2008 and updated to USD1.90 per pay in 2015.

[8] Taking into account higher poverty lines, "24.1 per cent of the world lived on less than USD3.20 a day and 43.6 per cent on less than USD5.50 a day in 2017" (World Bank 2020b).

[9] From 2005 to 2018, poverty rates declined as follows: 48.2 per cent to 24.8 per cent in Myanmar, 33.0 per cent to 13.5 per cent in Cambodia, 26.8 per cent to 9.9 per cent in Thailand, 26.0 per cent to 16.7 per cent in the Philippines, 33.5 per cent to 18.3 per cent in Lao PDR and 18.1 per cent to 6.8 per cent in Vietnam (ASEAN Secretariat 2020d: 28).

persons did not even have RM1,000 as emergency cash funds (ibid.). He further stated that basic health needs had not been met as one in five children had stunted growth since they did not have adequate nutrition, and he noted that the government's stimulus packages were too low (4.6 per cent of GDP) as so many people and industries were affected (ibid.).

Despite major economic losses for most, the pandemic has enriched some even more (Inequality.org 2020). A report on the world's billionaires by UBS and PwC showed that the global richest 1 per cent reaped record earnings – more than 2,000 of the global elite amassed wealth totalling USD10.2 trillion by July 2020, surpassing the "previous peak of USD8.9 trillion, reached at the end of 2017" (UBS and PwC Switzerland 2020: 6). The biggest gains were by those in the healthcare, technology and industrial industries. Incidentally, only 200 of the 2,189 billionaires had publicly donated to Covid-19 emergency funds amounting to a total sum of USD7.2 billion (Deutsche Welle 2020). By the end of 2020, 10 of the richest people in the world saw their wealth increase by more than USD400 billion (Neate 2020).

Business Communities: Micro-, Small- and Medium-sized Enterprises

Micro-, small- and medium-sized enterprises (MSMEs) are the backbone in the economy in many countries, especially in developing and less developed nations. They are usually small-staffed, labour-intense units, nifty, competent and competitive and they are suffering in the pandemic. Globally, there are 10 million MSMEs contributing to 23 per cent of GDP. They form 90 per cent of businesses, offer more than 50 per cent of available employment opportunities and contribute up to 40 per cent to the national income (GDP) in emerging economies (World Bank, 2017)

Formal and informal MSME developmental growth is crucial for job creation as the population expands and many youths and women are looking for employment opportunities (ibid.). Among the challenges faced by MSMEs are access to credit lines, sustainable and well-governed operations, finances for infrastructural growth, technology and skills enhancement programmes. A significant number of MSMEs are considering WFH as a model for the future, with various studies done by analytical data groups estimating this figure to be between 40 and 80 per cent (Annie 2020; S&P Global 2020; Agarwal 2020). In a study of MSMEs in the United Kingdom, 89 per cent of employees said they wanted to continue working from home, higher than the number for companies with over 1,000 employees (69 per cent) (Franklin 2020). However, many noted that communication facilitation, team management and broadband and hardware issues are some of the biggest challenges (Rathore 2020; Onecom 2020).

The International Chamber of Commerce (ICC) and the UN Global Compact have partnered to host webinars to discuss ways to support MSMEs, raise awareness and enhance cooperation to survive the pandemic. The ICC, which represents more than 45 million companies in over 100 countries, is concerned about MSMEs and their survival, jobs losses, loans and recovery. As an example, the garment sector in Bangladesh saw losses of USD6 billion in export revenues due to the mass cancellation of orders worth USD2.81 billion, resulting in the closure of thousands of factories and job losses for thousands of low-wage workers (Paul 2020; Suhrawardi 2020). The ICC "launched a call for urgent and decisive action to Save Our SMEs and combat the economic repercussions of the Covid-19 pandemic", including recommending that "governments to ensure that stimulus efforts … provide direct and immediate support to MSMEs" (ICC 2020). The ICC is also asking for open trade for the flow of goods and products across borders, to have dialogues on surviving this pandemic and for technological advances (ibid.).

Small- and medium-sized enterprises (SMEs) are the economic backbone of Southeast Asia too, contributing positively to the GDP, comprising a significant portion of the workforce and employing over 140 million people (Schaper 2020). Like other businesses, more than 80 per cent expect to face reduced revenues, with many reporting that "that their biggest concerns were potential closures and

the increasing inability to engage customers" (Descamps 2020). Regionally, there is an ASEAN Coordinating Committee on MSMEs (ACCMSME). However, information on the state of affairs and its pandemic recovery initiatives is limited, apart from the Go Digital ASEAN initiative (discussed below). In September 2020 at the 53rd ASEAN Foreign Minister's Meeting, Thailand's deputy prime minister and foreign minister proposed the setting up of an ASEAN Small and Medium Enterprises (SMEs) Recovery Facility for post-Covid-19 recovery in the region (Bernama 2020). In Malaysia, between March and September 2020, a total of 32,469 SMEs were forced to shut down because of the MCO and other efforts to curb the spread of Covid-19 which left them with very limited options to generate revenues (Adam 2020). This is a major vulnerability – MSMEs need financial bolstering for recovery to remain employers or hire more employees, to boost their technological use in order to be part of the future of employment and new work mode options, and to add to national revenues.

Futurescaping – Restructuring, Redesigning, Rebuilding

The pandemic has exposed many systemic flaws. Currently there is an overwhelming pressure to meet the needs of the people and the business community as people have lost jobs, more are edging towards poverty and many countries face recessions. But the rush to fix the economy could do with a pause as "we are operating with little visibility of the future" (Shanmugarantam 2020). In fact, as suggested by Singapore's senior minister Tharman Shanmugarantam, it could be time to allow for "creative destruction" to take place over the long term, thus enabling the continuing adjustments needed to rebuild for the future.[10] Shanmugaratnam also outlined the many immediate and long-term challenges ahead: a loss in existing jobs and prolonged high unemployment, dying industries, government and banking support for viable firms, stagnation of median incomes, the emerging gig economy, failure to create jobs in the middle class, the growth of lower-productivity and labour-intensive industries reliant on low-wage workers, the automation of industries leading to the shedding of labour, rising inequalities and the severe economic impact on vulnerable communities (ibid). Creative destruction is possibly an organic way to right the balance, reassess which industries to develop for growth, determine how to allocate funds, upgrade digital technology, upskill courses, follow ethical business codes, be environmentally friendly and foster an economic environment that has been often talked about. Perhaps the time has come to make it a reality.

At the crux is WFH – it cannot be the last item on the agenda or an afterthought. If the vision places work cultures and new work modes at the core, much will fall into place as it will lead to visualising the nature of growth industries, restructuring workstreams, upskilling the workforce to work adequately in digitalised workplaces and charting national pathways to becoming advanced economies. There are agreements and conventions that will help in this restructuring. A good example is the ILO's Centenary Declaration on the Future of Work that asks governments to take on a human-centred approach to labour, be inclusive in employment practices, "respond to challenges and opportunities … relating to the digital transformation of work", and to invest in skills upgrading of the workforce as transitions are made to prepare for the future of jobs in new industries or transformed ones (ILO 2019b: 5–6).

This rebuilding can happen in a few phases – in the short term (one to two years), medium term (two to three years) and long term (three to five years) – with many overlaps between strategies implanted for each phase. For the short term, measures must address current health issues and economic vulnerabilities. Stimulus packages are essential as people are suffering, their health is at risk and the economy has been obliterated. Medium-term measures need to include a review of assistance measures, reskilling of the workforce, redesigning jobs for the future, encouraging businesses to adopt a greater use of technology, bridging the digital divide and restructuring the types of industries

[10] Tharman Shanmugaratnam is Singapore's senior minister and coordinating minister for social policies. He is an internationally renowned economist, former minister of finance and former deputy prime minister.

needed for investment and growth. Long-term measures include ensuring that policies and measures do not leave people behind, having a skilled workforce, normalising of different work options including WFH, growth of industries, having an innovation hub and founding a conducive environment for economic growth to meet the SDG targets by 2030. Most vital is for governments to form a multi-stakeholder committee that can take on a whole-of-government approach to map out these three phases.

Short Term

A strong focus on employees' health remains central to containing Covid-19 as many infections occur in the workplace. The workforce in many workplaces has been divided into two teams – one that reports physically to the office for 14 days and the other that works from home; when the 14 days are up they swap their work sites. Office spaces have also been rearranged to ensure social distancing between workers. These measures protect workers and ensure productivity remains afloat and businesses can continue while reducing the risk of contagion.

Financial assistance is desperately needed for both vulnerable communities (the unemployed, the rural and urban poor, displaced workers, women, those with disabilities, youths and older workers) and businesses. Vast funds have been approved and drawn from reserves, including bank loans, foreign loans and bonds, but spending must be strategic. For instance, one of the countries hardest hit by Covid-19, Britain, has borrowed deeply to fund communities and companies to retain workers and support businesses as lockdowns killed off the retail and tourism markets. Britain set aside GBP330 billion (USD439 billion) in loans in March as one- to two-year financial support for businesses, as well as additional funds and a business rates holiday for the recreation and hospitality industries, supporting people over job losses, housing mortgages and cash grants to support small businesses (Heffer 2020). But this was still insufficient and more financial support was given "in emergency support for businesses, the self-employed and the welfare system", with a total figure of GBP46 billion (USD62.9 billion) as of March 2020 (Rigby 2020). Singapore is seen as one of the most liberal countries in terms of financial support, pledging a total of almost SGD100 billion (USD75.2 billion) comprising almost 20 per cent of its annual GDP over four stimulus packages to support workers, businesses, job creation, waive rentals for MSMEs, reward frontline staff and also offer rebates on foreign workers' levies (Lee 2020; Links International 2020). The Philippines launched a fiscal package worth PHP595.6 billion (USD12.3 billion), about 3.1 percent of its 2019 GDP, for vulnerable individuals and groups, MSMEs and other hard-hit industries (IMF 2021). The total of Malaysia's stimulus packages is worth over RM290 billion (USD71.7 billion) as of June 2020, with the latest stimulus Pelan Jana Semula Ekonomi Negara of RM35 billion (USD8.5 billion) focusing more on industry support especially MSMEs, with a tax exemption on handphones, notebooks and tablets to encourage WFH (Sim 2020; Medina 2020). On offer are also moratoriums on loan repayment schemes and a freeze on tenant evictions. Government-linked companies (GLCs) with strong balance sheets are stepping up support for other companies and are not solely focused on profits in this economic resetting (Yap 2020). In March 2020, the Malaysian government pledged almost RM128 billion (USD31.6 billion) "to preserve the [people's] welfare", RM100 billion (USD24.7 billion) to "support businesses, including SMEs" and RM2 billion (USD0.49 billion) "to strengthen the economy" (Prime Minister's Office of Malaysia 2020). Many of the stimulus packages show budgets set aside for job creation and upskilling. A scheme known as Skim Jaminan Penjanaan Pekerjaan (Employment Generation Guarantee Scheme, JanaKerja) will be introduced in 2021 with the aim of creating 500,000 new job opportunities, skills and retraining programmes with an allocation of RM3.7 billion (USD 0.9 billion) (*New Straits Times* 2020; *The Star* 2020). Freeing up withdrawals from the Employees' Provident Fund will help people meet their basic needs. While national revenue is set to fall by nearly RM37.1 billion from RM264.4 billion in 2019 to RM227.3

billion in 2020, a decrease of 14 per cent (Ministry of Finance Malaysia: 109), there are still other revenue sources as some businesses are still making profits.[11]

At the regional level there is a focus on recovery of sectors like the informal economy which contributes to 78.6 per cent of the workforce (ILO, 2019c) in parts of the region, support for SMES which include digitalisation costs to secure access to fast and secure broadband connections, governance over cybersecurity and supporting businesses infrastructure (ASEAN and OECD, 2020). At the recent 37th ASEAN Summit in November 2020, governments also adopted the Ha Noi Declaration on the ASEAN Community's Post-2025 Vision to strengthen social services, build up social cohesiveness and "encourage institutional and technical innovations" as the pandemic has highlighted how crucially important it is to have clear referral systems, professional networks and upskilled social workers in each of the 10 member countries (ASEAN Secretariat 2020c; ASEAN Today 2020).

The plus point is that industries in healthcare, pharmaceuticals and technology have done well. Multinational companies (MNCs) and GLCs need to step in to support MSMEs which is currently happening in some countries. ASEAN committees are also stepping up to identify concrete pathways out of the current economic crisis. In November 2019, for instance, the ACCMSME announced the Go Digital ASEAN initiative – a USD3.3 million grant from Google in partnership with the Asia Foundation to equip 200,000 MSMEs with improved digital skills and help them expand and unlock new economic ventures (ASEAN and OECD 2020; Asia Foundation 2020). Though the funds are small, it is a start for the many MSMEs in the region as the initiative is aimed at rural areas, disadvantaged communities, women and youth, all comprising sectors disproportionately affected by the negative economic impacts of Covid-19.

Positive examples need to be highlighted especially if these instances can encourage an acceptance of digitalisation in the workplace and best practices. For example, the lockdown in Penang saw a sharp rise in online purchases from April to July through a Penang Island City Council's online food delivery scheme called Jom Beli Online@MBPP, which is used by 320 hawkers the number of transactions reaching an average of 4,482 and RM93,673 transaction values per month for April and May 2020. Almost 4,500 transactions took place amounting to about RM94,000 per month between April and May 2020 (Tan 2020), which means about RM300 per hawker. E-commerce has also begun in all Malaysian states showing the profit margins in the period of 2015-2017 (see Appendix 5 in Annex).

Mid Term

The lockdowns have led to a greater introspection on the future of work and the future of jobs. This renewal means work patterns have to change with a greater focus on training and skills development, teleworking and digitalisation, cluster development and internal support for mutual enhancement and growth (Juergensen et al. 2020). Despite the current challenges some businesses and employees are coping with new opportunities and technological disruptions, with "a global revaluation" of the quality of livelihoods and nature of employment (Zahidi 2020). The pandemic is providing "an opportunity to 'build back better'" with a focus in several areas including "reskilling and upskilling … improving the quality of jobs … and resetting education, skills and jobs systems" (ibid.).

What is currently needed is an innovation hub of bold experts who can envision the types of growth industries for the future, trade agreements to ensure growth and markets, consolidation of supply chains, development of skills of workers and new approaches to securing funds. Backed by research institutes and teams of multi-stakeholder experts, this hub could map the future for the public sector, the private sector, governments and everyday citizens to aid the recovery and restructuring of the

[11] Cited financial stimulus figures are up to 28th November 2020.

economy. A laxity in forming this group can lead to lack of progression in becoming an advanced economy and succeeding well in this recession.

The changing landscape of jobs and workplaces have been coming for a long time now. As noted earlier, the 2020 World Economic Forum study *The Future of Jobs Report* outlines out how jobs need to be recalibrated as innovations and digitalisation take root in work environments (World Economic Forum 2020). It holds many details that could be useful for the planning for growth industries, digitalisation and the new nature of jobs. By 2025, many jobs are predicted to be replaced by digital technology and automation (ibid.: 8). Even the demand for construction labourers will be in declining as AI-enabled machines and robots take over many tasks as is already happening in advanced countries like Sweden. The report details the types of jobs in crisis, growth industries and the new levels of emerging skills needed for employees to embrace the digital workplace (ibid.: 120–149). As such new digital literacy skills programmes need to start, intensely and soon.

The Future of Jobs Report goes on to suggest that most employers also anticipated job displacements of between 11 to 20 per cent in their industries of advanced manufacturing, manufacturing, agriculture, food and beverage, automotive, digital communications and information technology, education, energy utilities and technologies, financial services, the public sector, health and healthcare, mining and metals, oil and gas, professional services, transportation and storage placements. Most wanted to accelerate the digitalisation of work processes, highlighting the fact that companies wanted to adopt technologies such as cloud computing, big data analytics, e-commerce and robotics. SMEs said they were also keen but faced cash flow issues in being able to afford to re-equip workplaces for greater technology integration or to reskill their workers. Employers and employees wanted more digital literacy skills and most said jobs could be done remotely with digitalisation. In the country report on Malaysia in *The Future of Jobs Report* 75 per cent of companies supported working remotely and 100 per cent supported the digitalisation of workflows (World Economic Forum 2020: 89–90). Employers, like those in other countries, wanted staff to have greater emotional intelligence, creativity, analytical thinking and be complex problem-solvers. Current skills that are the focus of reskilling were analytical thinking and innovation and active learning (ibid.). Some 86 per cent of employers were keen to automate work and hire new staff with the necessary skills with 62 per cent saying they would make staff redundant if they did not have the right skills for technology use (ibid.: 88). In Singapore, 92 per cent of employers surveyed said they would hire staff with digitalisation skills and 95.5 per cent said they would "provide more opportunities to [let staff] work remotely" with all companies saying they would accelerate the digitalisation of work processes (ibid.: 103–104). Comparatively, Thailand showed a slightly weaker response to digitalisation of work processes at 84.4 per cent with 75 per cent of companies open to letting staff work remotely. More than a third of employers in the Asian countries preferred in-house training for workers (ibid.: 111–112).

Nimble and innovative companies have been proactive in making their mark, growing their industries and adjusting to the various AI and technological advances. Governments cannot delay on this process any longer so that appropriate job creation (see Appendix 4 in Annex) and planning can move forward. National budgets for 2021–2022 need to reflect a continued commitment to aid and finance businesses, employers and workers to adapt to the digitalisation of work and ICT-enabled workstreams. Malaysia's Budget 2021, which was approved on 15 December 2020, has an allocation of RM150 million (USD37 million) set aside for the SME Digitalisation Grant Scheme to encourage locals SMEs and micro-enterprises to "embrace automation and digitalization in their operations" (*Business Today* 2020), with another RM1 billion (USD247 million) as a special incentive package under the Industrial Digitalisation Transformation Scheme "to boost digitalisation activities" (Poo 2020) and for high value-added technology. Funding for digitalisation needs to continue for many years for transformation and economic recovery to be effective.

The Regional Comprehensive Economic Partnership, a free trade agreement, was secured on 15 November 2020 and marks a significant achievement as it is currently the biggest in the world with 15 countries, ASEAN's 10 member states along with China, Japan, South Korea, New Zealand and

Australia. It represents opportunities for recovery in the region as it opens up a wider market for traders and businesses to seek investments and trade, improve imports and exports on products and keep costs low with reduced or no tariffs, as well as a chance for MSMEs to pitch into bigger markets and secure supply chains (Chan 2020). This is a huge motivation for economic growth. Countries could look into product specialisation and complementariness as well as building up bilateral trade partners. Moreover, ASEAN also launched its Plan of Action to implement the Joint Declaration on Comprehensive Partnership between ASEAN and the United Nations (2021–2025), which includes a strong focus on economic transformation through digitalisation and "maximising the use of digital technology for MSME operation" and to "promote, develop, and adapt to digital economy" (ASEAN 2020a: 10) and improve digital literacy. ASEAN member states also need to review their approach to foreign investments to boost the regional interdependence of supply chains (Lau and Tan 2020). Some MNCs are keen to move out of labour-intensive China to more technology-oriented bases within Asia and the ASEAN region stands to gain from this. It is time for ASEAN member states to share their growth industries and products. There are many possibilities and the restructuring must begin now to capture new markets quickly.

Long Term

The immediate need for WFH practices brought on by the pandemic has further accelerated the Fourth Industrial Revolution, a digital and technological revolution "that has been occurring since the middle of the last century" (Schwab 2016).[12] Companies that lacked digitalisation or refused to adapt saw their outreach and marketability during lockdowns crippled, leading to closures for some. As discussed earlier, this digital revolution is being supported by governments to help companies, especially MSMEs, to step up into digitalised workstreams.

Digitalisation will also increase inequalities as not everyone can afford the technology or have adequate access to the internet to work from home. If unaddressed, it will deepen current vulnerabilities and further entrench gender disparities. Gender-sensitisation courses are still needed in the workforce and infrastructural changes need to be made so that rural and poorer communities can gain greater access to the digital world. A political commitment to improving society must include steps to ensure that no one remains excluded from digitalised workplaces, be unemployed for long periods, remain unskilled or remain in labour-intensive jobs. Policymakers need to mitigate for the long term and against a winner-takes-all economy that will divide society, leaving many fearful for their livelihoods and futures if they cannot see progress being made.

For the long term, policymakers and employers will need to review their overreliance on cheap sources of labour, primarily documented, undocumented migrant workers and refugees. If the upskilling of workers does take place effectively and workplaces are ICT-enabled, what is the nature of work for the future?

More funding is a key need for the longer term. Revenue streams need better planning and employers must be prepared to rebuild the economy with the government for the greater good. Loans taken need to be repaid – Ben King, a British journalist, cautioned that a government's borrowing to fund short- to long-term plans could run afoul, if not done carefully with future generations paying the price of interest rates (King 2020). It is sobering that no country has inexhaustible funding, including major economies like Singapore. Even if foreign direct investments continue in manufacturing industries such as electronics, machinery and equipment, government leaders need to establish good

12 The Fourth Industrial Revolution "is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres" and "is evolving at an exponential rather than a linear pace" (Schwab 2016), unlike the First Industrial Revolution (mechanised production using water and steam power), the Second (mass production using electric power) or the Third (automated production using electronics and information technology).

governance to ensure that investments also cover digitalisation and the upskilling of workers for best possible returns and economic recovery.

Conclusion

Covid-19 has made us rely more on our digitalised world to stay connected, to work, to remain productive and to earn an income. Going forward, both employers and employees need to become more digitally literate, revise workstreams and put in place work practices that allow for more WFH options. If with digitalisation and stronger commitment to adapting to the Fourth Industrial Revolution do not result in WFH as a norm, then the lessons of digitalisation are lost.

The shift to WFH is not merely a cursory measure. The future of jobs is changing. The workplace as we know it is changing. However, rebuilding and restructuring can lead to better outcomes for the long term. WFH lies at the crux of rebuilding as more work can be done anywhere as long as we are digitally connected. As the pandemic is laying bare our flawed systems, the recrafted post-pandemic world ought to be a more equitable one where wealth is shared and employees have better access to development, growth and happiness with digitalised options for WFH.

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APPENDICES

Appendix 1: Comprehensive and In-depth Perspectives on Working from Home

Over the past few months, there have been reports, surveys and research done on the effects of COVID-19 on the work environment. The author has scoured online information banks to provide this compendium of statistics on many pointers related to remote working. Reproduced here:

Productivity

1. Top concerns of managers of remote teams [link]
- 82% reduced employee focus
- 75% reduced team cohesiveness
- 82% reduced employee productivity
- 70% maintaining company culture
- 67% employees overworking
- 65% employees' career implications
2. 64% concerned over employee productivity, and 57% of senior leadership at preferring traditional ways of working. [link]
3. 55% identified not being able to communicate in person as one of their top three challenges [link]
4. 63% of the global workforce surveyed feel they are more productive working from home than when they were in the office [link]
5. Over half of the parents we surveyed (54%) said it's been difficult balancing household demands while working from home [link]
6. Weekend work is spiking – Microsoft Teams chats on and Saturday and Sunday have increased over 200%. [link]
7. Four in five HR managers think working from home has encouraged ePresenteeism [link]
8. 86% say they feel the need to prove to bosses they are working hard and deserve to keep their jobs [link]
9. Those working from home are racking up an extra 28 hours of monthly overtime since lockdown began. It equates to nearly four days' work [link]
10. 37 percent of companies that had more remote workers before COVID-19 report that they are actually seeing increased employee productivity now [link]
11. A full week of virtual meetings leaves 38% of employees feeling exhausted while 30% felt stressed [link]
12. 72% of technology executives saying that team workloads had increased more and everyone was working harder [link]
13. Working from home as a result of the COVID-19 pandemic has had only had a 1% reduction on work productivity [link]

Technology

1. Over half of employees (52%) said their employer needs to invest in better technology. [link]
2. IT professionals surveyed revealed that employees at their companies are allowed to use personal devices to perform work functions [link]
3. Nearly 40 percent of those surveyed have had to partially or fully fund their own tech upgrades [link]
4. US respondents say they have personally spent an average of $348 (USD) to upgrade or improve technology while working at home due to COVID-19 – roughly $70 higher than the global average ($273), and the second-highest among 10 markets surveyed [link]
5. Due to high levels of sustained concentration, fatigue begins to set in 30-40 minutes into a video meeting. Looking at days filled with video meetings, stress begins to set in at about two hours into the day [link]
6. 63 % of employees were likely to record and re-watch their virtual meetings to help them become better presenters and strengthen their client relationships [link]
7. 45% of employees reported attending more meetings during the pandemic than when working in the office, compared to 21% who attended fewer meetings [link]

8. 22% of employees working from home purchased a VPN during the pandemic [link]
9. During the transition to remote work this year, employees struggled with three principal challenges: VPN access (38%); Wi-Fi connectivity and reliability (37%); and video conferencing apps (35%) [link]
10. 37% of IT leaders said that employees didn't have the right tools to be able to work when the transition to remote work was first made [link]
11. 43% of IT teams saw an increase in the number of support tickets from employees during the period of forced remote work [link]
12. Some 43% of respondents experienced issues with multi-factor authentication while issues with an insecure, undersized virtual private network (VPN) was noted by 29% [link]
13. 53% of respondents said they're using a personal computer to work from home, and an identical percentage said none of the devices they use for work were administered by their employer [link]
14. 61% of remote employees were using personal devices as their primary method to access company networks [link]
15. 84% of remote users lose access to applications at least once a week, and 11% said it happens daily [link]

Employee Perspectives

1. 98% of people surveyed said they would like the option to work remotely for the rest of their careers [link]
2. 64% of respondents very open to being remotely onboarded if the right resources and support is provided [link]
3. 73% of respondents strongly agree with accepting a job without meeting a team member in person [link]
4. A total of 86% of parents now want to work flexibly, compared to 46% pre-coronavirus [link]
5. 93% of employees would like to keep working remotely at least some of the time [link]
6. Top struggles of remote workers [link]

- 22% unplugging after work
- 19% loneliness
- 17% collaborating and/or communicating
- 8% time zone differences
- 10% distractions at home
- 8% staying motivated
- 7% taking vacation time
- 3% reliable wi-fi

7. 62% of Americans said they would take a pay cut to work from home [link]
8. 78% of workers would take a pay cut of 5% or more to work remotely "at least some of the time" — with 20% willing to reduce their salaries by more than 10% [link]
9. 80% of remote workers felt healthier, less tired, more human or more connected to their family since transitioning to remote work, and 85%, found advantages in remote work that make for a better work/life balance [link]
10. 61% were worried that as remote work continues, they will be expected to be even more reachable outside normal business hours [link]
11. only 15 per cent would want to work remotely every day and nearly three quarters felt that their company should still have an office [link]
12. 40 per cent still view the office as a key place for regular desk work [link]
13. Nearly 60% of people we surveyed feel less connected to their colleagues since working remotely more often [link]
14. 85% of the respondents said they wanted more help from their employers as they adapt to WFH [link]
15. Nearly half (49%) of respondents selected a "suitable working environment", such as a separate room when asked what they needed to be more productive [link]
16. Over 40% of people said their mental health has declined since the COVID-19 outbreak [link]
17. 91% of employees felt supported by their managers during the shift [link]

18. Half of respondents who are telecommuting said they are experiencing burnout and overwork. Another 52% polled said they do not have plans for a break to decompress or take a vacation. [link]

Security

1. The study discovered that over half (51%) of organizations lack any visibility into file sharing apps, 30% have no visibility or control over mobile enterprise messaging tools and only 9% have cloud-based anti-malware solutions in place. [link]
2. 59% of employees felt more cyber secure working in-office compared to at home [link]
3. Over 1 in 10 employees had their video calls hacked while working remotely [link]
4. 45% expect a company data breach to occur during the COVID-19 crisis, due to staff using personal devices which are not properly protected [link]
5. 71% believe that the shift to 100% remote working during the COVID-19 crisis has increased the likelihood of a cyber breach [link]
6. 46 per cent have already noted an increase in phishing attacks since implementing a policy of widespread remote working [link]
7. 79% of business decision makers have increased their cyber security procedures to manage high volumes of remote access over the next three months [link]
8. 73% of businesses have given staff extra training on how to remain cyber-safe when working remotely, with specific training around verifying passwords and log-in credentials [link]
9. 46% of global businesses have encountered at least one cybersecurity scare since shifting to a remote working model during the COVID-19 lockdown [link]
10. only 17% of UK business decision-makers had identified security as the most important factor when deciding which messaging and collaboration platform to use for remote working [link]
11. The FBI's Internet Crime Complaint Center now receives 3,000 to 4,000 calls each day, compared to the 1,000 per day before the COVID-19 pandemic [link]
12. 80% are confident in their organization's ability to handle cyberthreats that arise due to remote work, 45% also said that they haven't received any additional security training since going remote [link]
13. 63% of IT leaders surveyed saying users were doing a better job adhering to security policies when working remotely [link]
14. 33% have downloaded a personal application without approval from management or IT [link]

Strategy

1. The coronavirus pandemic reshaped tech priorities for 95% of companies [link]
2. Companies expect approximately 40% of employees to utilize a remote working model in the future [link]
3. 75% of executives agreed that they regard digital transformation as becoming more urgent in light of the COVID-19 crisis, and 65% said that they anticipate increasing their investments in digital transformation [link]
4. 74% of CFOs say they expect to move previously on-site employees remote post-COVID-19, according to a Gartner survey [link]
5. 67% of IT decision makers expected "expanded or universal WFH policies" to remain in place long term or permanently [link]
6. employers could save an average of $11,000 per half-time telecommuter per year [link]
7. 82% of managers surveyed expect to have more flexible work from home policies post-pandemic. More broadly, 71% of the employees and managers reported a desire to continue working from home at least part-time [link]
8. 89% are afraid of COVID-19 in the workplace and their fears have compromised their job performance [link]
9. 78% of IT leaders believe digital employee experience is essential or a high priority today, compared to only half (49%) 12 months ago [link]
10. 35% of IT leaders surveyed felt restricted in the support they could offer remote employees [link]
11. New research also reveals that nearly half (47%) have frozen their IT budgets and four in ten (41%) admit their remote working systems may be in breach of data privacy regulations [link]

12. 46% of IT leaders said they were increasing spending on managing remote network operations. Also, 43% said they would increase investments in the use of cloud-based management platforms [link]
13. 65% of surveyed employees highlighted more effective deployment of employees to critical tasks, and just as many see a greater focus on innovation and new solutions for customers [link]
14. More than 80% of companies are accelerating automation in response to Covid-19 [link]

Source: Gray Robin, 21 July 2020; Wandera
74 Statistics on Remote Working during Covid-19 Lockdown
(https://www.wandera.com/statistics-on-remote-working-during-covid-19-lockdown/)

Appendix 2: Types of Technologies for Work Streams in Digitalised Workplaces

FIGURE 19 | Technologies likely to be adopted by 2025, by share of companies surveyed, selected sectors

Technology/Sector	AGRI (%)	AUTO (%)	CON (%)	DIGICIT (%)	EDU (%)	ENG (%)	FS (%)	GOV (%)	HE (%)	MANF (%)	MIM (%)	OILG (%)	PS (%)	TRANS (%)
3D and 4D printing and modelling	54	67	39	39	69	59	27	45	65	69	48	79	40	60
Artificial intelligence (e.g. machine learning, neural networks, NLP)	82	78	73	95	76	81	90	65	80	71	76	71	76	83
Augmented and virtual reality	17	53	58	73	70	75	62	56	67	54	57	71	57	62
Big data analytics	56	83	91	95	95	76	91	85	89	81	90	86	86	94
Biotechnology	50	18	48	40	46	47	46	38	65	31	16	36	28	23
Cloud computing	75	80	82	95	95	88	98	95	84	92	87	86	88	94
Distributed ledger technology (e.g. blockchain)	31	40	41	72	61	50	73	40	72	41	50	46	53	38
E-commerce and digital trade	80	75	85	82	72	71	90	67	78	82	62	62	70	87
Encryption and cyber security	47	83	85	95	86	86	95	95	84	72	83	71	78	75
Internet of things and connected devices	88	82	94	92	62	94	88	79	95	84	90	93	74	78
New materials (e.g. nanotubes, graphene)	15	43	22	36	67	85	36	33	47	51	37	36	27	27
Power storage and generation	75	64	59	38	27	88	55	33	31	62	57	69	45	46
Quantum computing	18	21	17	51	25	41	44	36	38	21	29	25	19	33
Robots, humanoid	42	50	38	44	47	24	47	31	47	41	15	17	25	21
Robots, non-humanoid (industrial automation, drones etc.)	54	60	52	61	59	85	53	50	56	79	90	79	85	69
Text, image and voice processing	50	59	82	90	89	88	88	89	88	64	76	87	79	65

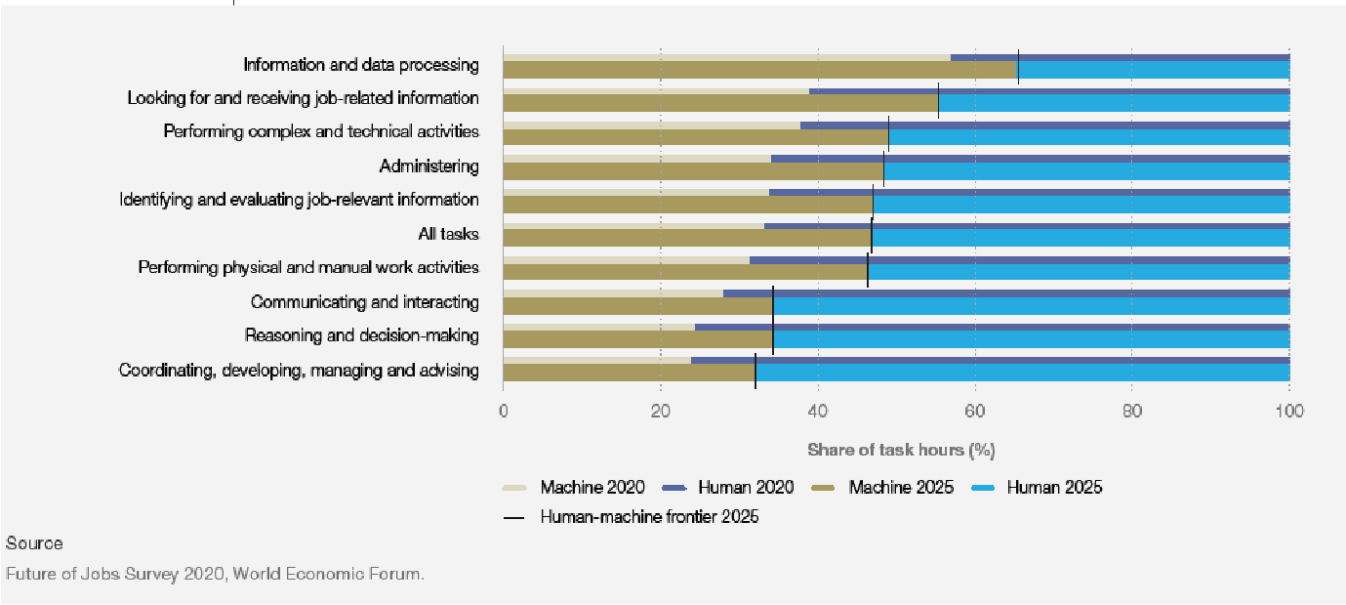
Source
Future of Jobs Survey 2020, World Economic Forum.

Note
AGRI = Agriculture, Food and Beverage; AUTO = Automotive; CON = Consumer; DIGICIT = Digital Communications and Information Technology; EDU = Education; ENG = Energy Utilities & Technologies; FS = Financial Services; GOV = Government and Public Sector; HE = Health and Healthcare; MANF = Manufacturing; MIM = Mining and Metals; OILG = Oil and Gas; PS = Professional Services; TRANS = Transportation and Storage.

Source: Reproduced from World Economic Forum. The Future of Jobs Survey. 2020. (Figure 19; pg 28). Available at: http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pd

Appendix 3: Levels of Work Tasks to be done through Technology

FIGURE 21 | Share of tasks performed by humans vs machines, 2020 and 2025 (expected), by share of companies surveyed



Source
Future of Jobs Survey 2020, World Economic Forum.

Source: Reproduced from World Economic Forum. The Future of Jobs Survey. 2020.(Figure 21; pg 29). Available at: http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf

Appendix 4: Tomorrow's Clusters of Jobs

FIGURE 23 | Emerging roles clustered into the jobs of tomorrow

Source

LinkedIn Economic Graph.

Appendix 5: Malaysian States' E-Commerce Income and Expenditure (2015-2017)

State	Income (RM mil)			Expenditure (RM mil)		
	2015	2017	CAGR (%)	2015	2017	CAGR (%)
Selangor	124,736	139,004	5.6	56,163	70,292	11.9
KL	44,749	59,115	14.9	13,463	14,910	5.2
Johor	46,187	49,823	3.9	25,127	29,589	8.5
Penang	**43,763**	**46,556**	**3.1**	**20,206**	**22,804**	**6.2**
Melaka	25,881	26,882	1.9	19,450	19,981	1.4
Sarawak	22,653	23,157	1.1	15,737	16,656	2.9
Negeri Sembilan	18,081	22,333	11.1	12,521	15,670	11.9
Kedah	19,281	20,288	2.6	10,203	11,378	5.6
Terengganu	15,076	15,637	1.8	4,685	6,231	15.3
Sabah	11,830	14,897	12.2	6,763	7,461	5.0
Pahang	11,376	13,143	7.5	4,729	6,238	14.9
Perak	11,668	12,626	4.0	4,864	5,251	3.9
Kelantan	1,341	2,475	35.8	598	1,519	59.4
Labuan	765	877	7.1	268	291	4.4
Perlis	640	813	12.7	264	405	24.0
Putrajaya	179	208	7.7	57	74	13.7

Source: Malaysia Digital Economy 2018, Department of Statistics Malaysia.

Appendix 6: Percentage of Computer Usage, Internet Usage and Web Presence by State, 2017

State	Computer usage (%)		Internet usage (%)		Web presence (%)	
	% of total establishments	CAGR (2015-17)	% of total establishments	CAGR (2015-17)	% of total establishments	CAGR (2015-17)
Johor	75.3	0.4	70.6	2.6	33.4	5.8
Kedah	63.7	3.7	49.3	9.0	20.1	3.6
Kelantan	58.4	12.1	49.1	4.6	21.4	11.1
Melaka	74.2	0.4	65.9	0.6	38.5	36.6
Negeri Sembilan	60.9	10.0	51.8	1.9	24.7	7.9
Pahang	65.7	0.7	55.9	0.9	21.0	1.4
Perak	69.5	3.4	68.4	8.9	21.2	2.6
Perlis	53.4	0.7	45.0	8.3	20.2	17.3
Penang	**89.0**	**1.1**	**83.4**	**3.9**	**40.6**	**21.7**
Sabah	64.8	5.3	50.0	18.3	20.3	17.6
Sarawak	67.2	3.3	51.8	27.1	21.7	28.9
Selangor	94.9	3.9	92.1	3.6	55.2	6.2
Terengganu	57.1	5.8	59.4	5.2	20.2	13.2
KL	91.9	0.7	91.3	23.7	56.0	9.3
Labuan	64.7	0.6	53.8	7.9	25.1	15.1
Putrajaya	84.7	0.5	84.1	7.3	44.8	9.0
Malaysia	78.9	3.7	73.3	15.5	37.8	5.4

Source: Malaysia Digital Economy 2018, Department of Statistics Malaysia.

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